ORAL ARGUMENT NOT YET SCHEDULED

DOCKET No. 11-1449

UNITED STATES COURT OF APPEALS

FOR THE DISTRICT OF COLUMBIA CIRCUIT

SHIELDALLOY METALLURGICAL CORPORATION

Petitioner,

v.

UNITED STATES NUCLEAR REGULATORY COMMISSION AND THE UNITED STATES OF AMERICA,

Respondents.

ON PETITION FOR REVIEW OF A FINAL ORDER BY
THE UNITED STATES NUCLEAR REGULATORY COMMISSION

JOINT APPENDIX

Jay E. Silberg
Matias F. Travieso-Diaz
Alison M. Crane
Stephen L. Markus

PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N Street, NW
Washington, DC 20037
(202) 663-8000
COUNSEL FOR SHIELDALLOY METALLURGICAL CORPORATION

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Gregory B. Jaczko, Chairman
Kristine L. Svinicki
George Apostolakis
William D. Magwood, IV
William C. Ostendorff

In the Matter of	)	
SHIELDALLOY METALLURGICAL CORP.	)	Docket No. 40-7102-MLA
(License Amendment Request for Decommissioning of the Newfield, New Jersey Site)	)	

CLI-11-12

MEMORANDUM AND ORDER

The controversy before us today arises under the Commission's agreement-state program. Under section 274 of the Atomic Energy Act (AEA),[1] the Commission is authorized to enter into agreements with the governor of any state providing for transfer of regulatory authority to the state over specified categories of nuclear material. Prior to entering into a section 274 agreement, we must find that a state's regulatory program is "adequate" to protect the public health and safety with respect to the materials the state seeks to regulate, and "compatible" with our program for regulation of such materials.

In 2009, we entered into a section 274 agreement with the State of New Jersey providing for the transfer of regulatory authority to the state over source, byproduct, and special nuclear materials (in quantities below a critical mass). Shieldalloy Metallurgical Corporation, which had been pursuing license termination under the NRC's regulations

[1] Atomic Energy Act of 1954, as amended, § 274, 42 U.S.C. § 2021 (2011).

for its source material site in New Jersey, filed suit in the United States Court of Appeals for the District of Columbia Circuit contesting the lawfulness of the agreement as to its site. In *Shieldalloy Metallurgical Corp. v. NRC*, the court found NRC's explanation of its transfer of regulatory authority to New Jersey with respect to Shieldalloy's site insufficient, vacated the transfer, and remanded the case to us to conduct proceedings consistent with the court's opinion.[2]

Today, we revisit New Jersey's application for regulatory authority as it pertains to the Shieldalloy site in light of the court's remand decision and in light of responses filed by New Jersey and Shieldalloy to our request for their views. For the reasons set forth below, we reinstate the transfer of our regulatory authority over Shieldalloy's site to New Jersey.

I. BACKGROUND

The background of this proceeding is set forth in detail in the court's decision in *Shieldalloy* and our prior decision denying Shieldalloy's request for a stay of the New Jersey agreement.[3] Here, we briefly summarize the background as relevant to our decision in response to the court's remand in *Shieldalloy*.

A. Shieldalloy's license termination application.

Shieldalloy owns an industrial site containing radioactive waste in Newfield, New Jersey. At the time the NRC and New Jersey entered their section 274 agreement, Shieldalloy had for nearly ten years sought NRC approval of a decommissioning plan for leaving radioactive material on site under the NRC's license termination provisions for restricted release in 10 C.F.R. § 20.1403. The NRC staff had considered and rejected Shieldalloy's original two onsite decommissioning proposals, filed in 2002 and 2005,

[2] 624 F.3d 489 (D.C. Cir. 2010).

[3] *See Shieldalloy Metallurgical Corp*. (Newfield, New Jersey Site), CLI-10-8, 71 NRC 142 (2010).

respectively. In 2006, the staff accepted and docketed a third proposed onsite disposal plan for the purpose of initiating a technical review. The Licensing Board granted a request for hearing by New Jersey opposing Shieldalloy's decommissioning plan for restricted release. The NRC staff's review of Shieldalloy's third proposal uncovered numerous deficiencies, prompting multiple staff requests for additional information in July 2007. Shieldalloy filed a revised plan in August 2009 in response to the staff's information requests. By then, the Commission was on the verge of entering into the section 274 agreement with New Jersey. When the Commission formally entered the agreement and discontinued regulatory authority, the staff terminated its review of Shieldalloy's decommissioning plan and forwarded the files associated with its safety and environmental review to New Jersey.

B. New Jersey's Agreement-State Application.

In 2008, New Jersey applied to become an agreement state under section 274 of the AEA to regulate source material, byproduct material, and special nuclear material in quantities not sufficient to form a critical mass. After reviewing New Jersey's application, including the state's regulatory program, the NRC staff found that the application met section 274's "compatibility" and "adequacy" requirements, and proposed that the Commission approve it. Prior to Commission approval, the NRC solicited public comments. Shieldalloy filed comments opposing the agreement-state application.

In its comments on the New Jersey application for an agreement, Shieldalloy largely complained that various aspects of New Jersey's decommissioning scheme were too strict compared to NRC's. The staff rejected these objections, concluding that under section 274 and our longstanding agreement-state policy more stringent state regulation of license termination is permissible. Shieldalloy also commented that New Jersey's program fails to satisfy a number of criteria set forth in a longstanding Commission policy

statement for assessing a state's program for agreement-state purposes.[4] The staff's responses to Shieldalloy's comments regarding one of these criteria, "Criterion 25," later proved central to the court's remand decision.

Criterion 25 states that "appropriate arrangements will be made by NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications, by reason of the transfer." Shieldalloy invoked that criterion as support for its comment that NRC has the "power" to exclude the Newfield site from the transfer of authority to New Jersey, and retain it at NRC, even if the NRC decides to enter into the agreement with New Jersey. In response, the staff stated that "Congress did not intend to allow concurrent regulatory authority over licensees for public health and safety" and "[i]f the NJ Agreement is approved by the Commission, upon the effective date of the Agreement, all NRC licensees within the categories of materials for which the State requested authority will transfer to the State."[5]

Shieldalloy also commented that New Jersey's program fails to satisfy Criterion 25 because New Jersey had not made "appropriate arrangements" with the NRC to ensure that there will be no interference with the processing of its proposed decommissioning plan when regulatory authority transferred to the state. The staff responded, in pertinent part, that New Jersey law provides for recognizing existing NRC licenses, and that New Jersey "will continue any licensing actions that are in progress at the time of the Agreement and make the final decision on all pending licensing actions."[6]

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[4] *See* Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement, 46 Fed. Reg. 7540 (Jan. 23, 1981) (1981 Policy Statement).

[5] "Section 274b Agreement with the State of New Jersey," Commission Paper SECY-09-0114, Memorandum from R.W. Borchardt, Executive Director for Operations to the Commissioners (Aug. 18, 2009), Enclosure 2, "Staff Analysis of Public Comments," at 10 (ADAMS accession no. ML091940200 (package)).

[6] *Id*. at 8.

The staff concluded that this "will ensure a smooth transition of authority from NRC to NJ so that licensees can continue to operate without interference with or interruption of licensed activities."[7]

We approved the agreement with New Jersey, and Shieldalloy subsequently filed its lawsuit challenging the NRC's entry into the agreement. The *Shieldalloy* court decision vacating the New Jersey agreement as to Shieldalloy's site, and remanding the case to the NRC for further proceedings, is the outcome of that lawsuit.

II. THE COURT'S REMAND

In its remand decision, the court held that the Commission's agreement-state decision and supporting staff analysis did not adequately explain why the NRC could not have retained jurisdiction over Shieldalloy's site under Criterion 25. The court characterized the staff's response to Shieldalloy's comment that the NRC had the authority to retain jurisdiction over the Shieldalloy site as "inapposite and woefully incomplete."[8] Referencing the NRC's prior approval of the State of Oklahoma's request, in its agreement-state application, for the NRC to retain jurisdiction over a "subcategory of materials,"[9] the court observed that the "NRC practice leaves it far more leeway than its dismissive answer to Shieldalloy suggests."[10]

The court also found "dismissive" and inadequate the NRC staff's response to Shieldalloy's other comment invoking Criterion 25 – that transfer of the Shieldalloy site to New Jersey would be inconsistent with Criterion 25 because New Jersey "had not attempted to make appropriate arrangements to guarantee a smooth transition for the

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[7] *Id*.

[8] *Shieldalloy*, 624 F.3d at 493.

[9] *Id*. at 493-94.

[10] *Id*. at 493.

pending Shieldalloy decommissioning plan."[11] The court concluded that "[a]t the very least, the NRC should have explained how Shieldalloy's decommissioning process could proceed under the New Jersey regime free of the interference and interruption sought to be avoided by criterion 25 and why . . . partial transfer was not an appropriate alternative arrangement."[12]

The court did not decide various other Shieldalloy arguments against the NRC-New Jersey Agreement, including claims that New Jersey's regulatory scheme lacks an "ALARA" provision and is not "compatible" with the NRC's program in a number of other ways. The court concluded that NRC's "insufficient explanations" in response to Shieldalloy's comments regarding the applicability of Criterion 25 and retention of NRC jurisdiction over Shieldalloy's site rendered the transfer of jurisdiction to New Jersey as to Shieldalloy "arbitrary and capricious."[13] Hence, the court granted Shieldalloy's petition for review, vacated the transfer of authority as to the Shieldalloy site, and remanded for proceedings consistent with the court's opinion.[14]

III. DISCUSSION

Our evaluation of the New Jersey agreement included a review of the NRC staff's analysis and comment responses. The court's remand decision as to the Newfield site centered only on the inadequacy of the staff's responses to Shieldalloy's comments regarding Criterion 25. The court did not address Shieldalloy's other concerns. To assure a full airing of the matter, however, we decided to examine anew all of the issues surrounding transfer of the Newfield site to New Jersey and afford Shieldalloy a fresh

[11] *Id*. at 493-94.

[12] *Id*. at 495.

[13] *Id.* at 497.

[14] *Id*.

opportunity to comment on New Jersey's agreement-state application. Accordingly, we invited Shieldalloy, as well as New Jersey, to submit any views on whether we should reinstate the transfer of regulatory authority to New Jersey or retain regulatory authority over the Shieldalloy site.[15] Shieldalloy and New Jersey each filed initial and reply responses on February 4, 2011, and February 11, 2011, respectively.[16] New Jersey, unsurprisingly, argues in favor of reinstating its agreement-state authority over the Shieldalloy site. Shieldalloy, on the other hand, again asserts that considerations of health and safety, as well as fairness and efficiency, dictate that we retain authority over its site. Shieldalloy objects to New Jersey being given agreement-state authority over its site on a number of grounds, some of which were reflected in its initial comments on New Jersey's application and others that it now raises before us for the first time.

After a full review, we again find it lawful and appropriate to transfer authority to New Jersey. We consider Shieldalloy's contrary arguments below.

A. Compliance with the Court's Remand Decision

Shieldalloy claims that the Commission must retain regulatory authority over the Newfield site in order to comply with the court's remand decision and mandate.[17] We disagree. The court's remand did not direct the outcome of our ultimate decision whether the Newfield site may be transferred to New Jersey. To the contrary, the court made clear that the basis for its decision to vacate the transfer of authority as to the

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[15] *See* Order (Requesting Views), at 1 (Jan. 3, 2011) (unpublished) (ML110030957).

[16] *See* Letter from Paula T. Dow, Attorney General of New Jersey, to USNRC (Feb. 4, 2011); *Shieldalloy's Response to the Commission's January 3, 2011 Order* (Feb. 4, 2011) (Shieldalloy Initial Response); Letter from Paula T. Dow, Attorney General of New Jersey, to USNRC (Feb. 11, 2011) (New Jersey Reply); *Shieldalloy's Response to New Jersey's Letter Regarding the Commission's January 3, 2011 Order* (Feb. 11, 2011) (Shieldalloy Reply).

[17] *See*, *e.g.*, Shieldalloy Initial Response at 8 ("The Court's decision and mandate signify that the Commission is to retain jurisdiction over the Newfield facility.").

Newfield site was "the NRC's insufficient explanations on the applicability of criterion 25 and the retention of jurisdiction."[18] The court explicitly did not address Shieldalloy's other claims as to the adequacy or compatibility of New Jersey's regulatory program.[19] Where, as here, there is a judicial remand to an agency on the ground of deficient reasoning, what the agency must do is improve its reasoning, not necessarily reach a different bottom-line result.[20] Therefore, we could have satisfied the court's remand by simply providing a more thorough response to Shieldalloy's comments regarding Criterion 25 and then relying on the remainder of the agency record already in existence. But by re-examining all pertinent issues surrounding transfer of the Newfield site and giving Shieldalloy a fresh opportunity to present its views, not limited to Criterion 25 or matters raised during the initial comment period, we are not only acting in compliance with the court's remand but also are going beyond what, strictly speaking, the court's remand required. We reject Shieldalloy's position that the court remand decision required us to retain regulatory authority over the Newfield site.

B. The Commission's Authority to Retain Jurisdiction Over a Site at the Request of a Licensee

In the late 1990s, in response to the State of Oklahoma's request to exclude

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[18] *Shieldalloy*, 624 F.2d at 497. *See also id*. at 493 (finding NRC's response to Shieldalloy's request for exclusion of Newfield site under Criterion 25 to be "inapposite and woefully incomplete"); 494 (finding "equally dismissive" the NRC's response to Shieldalloy's claim that Criterion 25 would not be satisfied because New Jersey would disrupt its license termination process).

[19] *Id.* at 496.

[20] *See, e.g.*, *Heartland Reg'l Med. Ctr. v. Leavitt*, 415 F.3d 24, 29-30 (D.C. Cir. 2005) ("[T]he usual rule is that . . . an agency that cures a problem identified by a court is free to reinstate the original result on remand."); *Nat'l Treasury Emps. Union v. Fed. Labor Relations Auth.*, 30 F.3d 1510, 1514 (D.C. Cir. 1994) ("[W]e frequently remand matters to agencies while leaving open the possibility that the agencies can reach exactly the same result as long as they rely on the correct view of a law that they previously misinterpreted, or as long as they explain themselves better or develop better evidence for their position."). *See generally* R.Levin, *A Blackletter Statement of Federal Administrative Law*, 54 Admin.L.Rev. 1, 44-45 (2003).

certain decommissioning sites from its proposed section 274 agreement, we approved an NRC staff-developed guideline for retaining NRC authority over subcategories of materials or activities within one of the three nuclear material categories (*i.e.* source, byproduct, or special nuclear material). The staff policy developed for the Oklahoma agreement provided that state requests for limited agreements would be considered by the NRC only if the state can "'identify discrete categories of material or classes of licensed activity that (1) can be reserved to NRC authority without undue confusion to the regulated community or burden to NRC resources, and (2) can be applied logically, and consistently to existing and future licensees over time.'"[21]

In *Shieldalloy*, the court indicated that the NRC's refusal to retain regulatory authority over the Newfield site, as Shieldalloy had requested, appeared to be inconsistent with the policy for limited agreements and retention of sites that we developed in the Oklahoma agreement context. Noting that "NRC practice leaves it far more leeway [to retain individual sites within a materials category] than its dismissive answer to Shieldalloy suggests,"[22] the court pointed out that the NRC approved a limited agreement with Oklahoma excluding "certain subcategories of materials that in fact covered a very limited set of sites" within the state.[23] The court found that the Oklahoma limited agreement was "strikingly relevant to Shieldalloy's situation" in view of Shieldalloy's argument that "*its* radioactive wastes constitute the sole New Jersey example of a discrete subcategory of materials," and that the NRC had not explained why "partial transfer was not an appropriate alternative arrangement."[24]

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[21] *See Shieldalloy*, 624 F.3d at 494.

[22] *Id.* at 493.

[23] *Id.* at 494.

[24] *Id.* (emphasis in original).

The court noted, however, that at oral argument NRC's counsel offered an original interpretation of section 274's agreement-state provisions that distinguished New Jersey's agreement proposal from Oklahoma's. Citing AEA section 274d, 42 U.S.C. § 2021d, NRC's counsel argued, in effect, that "the statute did not permit a partial transfer otherwise than at the request of the would-be transferee state" if the NRC determines that the conditions of state certification, adequacy, and compatibility are satisfied.[25] The court acknowledged that "[t]his [interpretation] would rule out limiting transfers at the behest of regulated firms."[26] But the court observed that a different AEA provision, section 274b (42 U.S.C § 2021(b)), providing that "'the Commission is *authorized* to enter into agreements' with a state 'with respect to *any one or more of*' a variety of classes of nuclear materials" raises an ambiguity as to the NRC's "discretion to negotiate the terms of the agreement with the state requesting authority."[27] The court concluded that under applicable Supreme Court precedent – *Chevron, U.S.A. v. Natural Res. Def. Council*, 467 U.S. 837 (1984); *SEC v. Chenery Corp.*, 318 U.S. 80 (1943); and *United States v. Mead Corp.*, 533 U.S. 218 (2001) – it could not "defer to interpretive proposals offered by NRC counsel at oral argument" and "affirm on the basis of that reading" when the statute does not "plainly compel" the reading being proposed.[28]

Shieldalloy claims that in this portion of its decision, the court "rejected" NRC counsel's proffered interpretation of the statute and "ruled that the NRC has no obligation to accept 'as is' an Agreement State application tendered by the applying State, but can modify it, on its own accord or as requested by regulated entities, to exclude certain

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[25] *Id*. at 495.

[26] *Id.*

[27] *Id*. (emphasis in original).

[28] *Id.*

facilities from the transfer of authority, as long as the criteria developed by the Staff [in the Oklahoma agreement context] . . . are satisfied."[29] According to Shieldalloy, therefore, "the NRC can retain jurisdiction over the Newfield facility even if it transfers other facilities to New Jersey."[30]

While we previously approved a staff-developed policy in the Oklahoma-agreement context for retaining jurisdiction over subcategories of materials or activities, until now we have not had occasion to squarely address the parameters of our legal authority to enter into partial agreements, whether at the request of a licensee or at the request of a state. We discuss our authority below.

At the outset, we reject Shieldalloy's position that the court rejected the statutory interpretation proffered by NRC counsel at oral argument. Based on familiar Supreme Court doctrine concerning judicial deference to an agency's interpretation of a statute that it administers, the court held only that "[o]n the current record we *cannot decide* the interpretation of the statute."[31] The court, in other words, left open the interpretive issue. Stating that it could not defer to an interpretation at issue offered at oral argument by counsel, the court said that the Commission itself "ha[d] not exercised any interpretive discretion."[32] In short, we remain entirely free, unrestrained by any judicial holding, to decide for ourselves what section 274 requires.

The pertinent statutory provisions on the scope of our authority in entering section 274 agreements are contained in sections 274b and 274d of the AEA, 42 U.S.C. §§ 2021(b), 2021(d). We start with subsection b. It states, in pertinent part, that "the

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[29] Shieldalloy Initial Response at 12.

[30] *Id*.

[31] *Shieldalloy*, 624 F.3d at 495 (emphasis added).

[32] *Id.*

Commission is authorized to enter into agreements with the Governor of any State providing for discontinuance of the regulatory authority of the Commission . . . with respect to any one or more of the following materials within the State." We give that subsection its most natural reading: it simply provides a general grant of legal authority to the Commission to turn regulatory authority over certain designated nuclear materials to the states, and gives no more specific command. We find support for our construction in the overall statutory language and legislative history underlying section 274. A stated purpose of the legislation was "to clarify the respective responsibilities under [the AEA] of the States and the Commission with respect to the regulation of byproduct, source, and special nuclear materials."[33] At the time the proposed agreement-state legislation was under consideration, there was still confusion and debate as to what room, if any, the AEA left for state regulation of nuclear materials – *i.e.*, whether the AEA preempted state regulation in the nuclear field. Explicitly giving the Commission the legal authority to turn its regulatory authority over to the states ended this debate, resulting in a framework clearly delineating when the states could regulate nuclear materials and when they could not:

> [T]here is a considerable view that under the [AEA] . . . , while the States may have some authority in areas of the Commission's regulatory responsibilities, there are undoubtedly some things the States do not have authority to do. The purpose of the bill is to provide a legal basis on which with legislative approval the Commission would be given the authority, as to certain designated areas which the States have a potential capability for controlling, to turn these over to the States and [the Commission's] regulatory responsibility would cease at that time if the States were prepared.[34]

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[33] AEA § 274a(1), 42 U.S.C. § 2021(a)(1).

[34] *Federal-State Relationships in the Atomic Energy Field: Hearings before the Joint Committee on Atomic Energy*, 86th Cong. at 301 (1959) (Joint Committee Hearings) (testimony of Robert Lowenstein, Atomic Energy Commission, Office of the General Counsel).

We turn now to a more specific provision, subsection d, which states, in pertinent part, that the Commission "*shall* enter into an agreement under subsection b of this section with any State *if*" certain conditions are met – namely, the state's governor "certifies that the State has a program for the control of radiation hazards adequate to protect the public health and safety with respect to the materials within the State covered by the proposed agreement, and that the State desires to assume regulatory responsibility for such materials," and "the Commission finds that the State program is . . . compatible with the Commission's program for regulation of such materials, and . . . adequate to protect the public health and safety with respect to the materials covered by the proposed agreement." (Emphasis added). We construe subsection d as providing the specific conditions under which the Commission "shall" exercise the general legal authority granted to it under subsection b.

As the court implicitly recognized in its remand decision[35], the term "shall," by its plain meaning, is mandatory in nature.[36] The legislative history of section 274 reveals that the use of a mandatory term was deliberate, replacing a discretionary term that had appeared in an earlier version of the agreement-state proposal.

The agreement-state provisions in AEA section 274 originated with proposed legislation submitted by the Atomic Energy Commission (AEC) to the Joint Committee on Atomic Energy, at the Joint Committee's request.[37] The AEC submitted a draft version of the proposed legislation in March 1959 and a final version in May 1959. In

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[35] *Shieldalloy*, 624 F.2d at 495.

[36] *See United States v. Monzel*, Nos. 11-3008, 11-3009, 2011 WL 1466365 at *2 (D.C. Cir. Apr. 19, 2011) ("'shall' is a term of legal significance, in that it is mandatory or imperative, not merely precatory").

[37] *See Report by the Joint Committee on Atomic Energy: Amendments to the Atomic Energy Act of 1954, as amended, with Respect to Cooperation with the States,* H.R. Rep. No. 86-1125, 86th Cong., 1st Sess. at 6 (Joint Committee Report).

both the draft and final versions, the AEC's legislative proposal contained a general authorization provision that tracks the current subsection b and a specific authorization provision that tracks the current subsection d. In the precursor to subsection d, however, the AEA's March 1959 draft did not use the word "shall." Instead, the March 1959 draft provided that the "Commission *may* enter into an agreement under subsection a of this section with any State if [the conditions of state certification and Commission finding of adequacy and compatibility are met]."[38] In the AEA's final May 1959 proposal, the discretionary term "may" was replaced with the mandatory term "shall."[39]

Given the mandatory language used in subsection d, we construe it as requiring us to enter into an agreement for state regulation of the particular categories of nuclear materials that a state certifies it both desires to regulate and has established a program for – provided that we find the state's program for regulation of such materials to be adequate and compatible.

Our construction of the statute is consistent with the central purpose and policy animating the agreement-state legislation – "to recognize the interests of the States in the peaceful uses of atomic energy. . . ."[40] In enacting the legislation (as amendments to the AEA in 1959), Congress acknowledged the significant interest of the states in regulating radiation hazards that are "local and limited" in nature[41] and do not involve

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[38] *Selected Materials on Federal-State Cooperation in the Atomic Energy Field*, 86th Cong., 1st Sess. at 27 (1959) (emphasis added) (Selected Materials on Federal-State Cooperation).

[39] *See* Joint Committee Hearings at 295. Companion bills, S.1987, introduced by Senator Anderson, and H.R.7214, introduced by Representative Durham, incorporated the AEA's final, May 1959 version of the proposed agreement-state legislation essentially verbatim. After a week of hearings, the Joint Committee approved minor amendments to the bills (renumbered S. 2568 and H.R. 8755), and the agreement-state legislation was enacted on September 23, 1959 as Public Law 86-376.

[40] AEA § 274a(1), 42 U.S.C. § 2021(a)(1) (2011).

[41] Joint Committee Report at 8.

"interstate, national, or international considerations."[42] Thus, the 1959 amendments were intended "generally to increase the States' role" in regulation of nuclear materials.[43] This legislative objective prompted Congress to resolve the complex and "difficult question of Federal-State relationship in connection with nuclear activities," mindful of the "delicate ground [that] exists between the jurisdiction of the Federal Government and the sovereign jurisdiction of the States. . . ."[44]

In the enacted legislation, as reflected in subsection d, Congress struck a balance between federal and state interests and gave the NRC and the states each a carefully defined role in effectuating a section 274 agreement. As evident from the statutory language, it is the state's role to determine, first and foremost, which categories of nuclear materials – source, byproduct, or special nuclear material – it wishes to assume regulatory authority over. Once a state makes this determination and proposes an agreement to assume regulation over certain nuclear materials, it is the NRC's role to determine whether the state's program is adequate for protection of the public health and safety and compatible with the NRC's program.

In its remand order, the court indicated that the language in subsection b, despite the mandatory provision in subsection d, suggests that the Commission may have been afforded some discretion in shaping the terms of an agreement. The court observed that subsection b, by providing that the Commission is "*authorized*" to enter into agreements

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[42] *Id.* at 3.

[43] *English v. Gen. Elec. Co.*, 496 U.S. 72, 81 (1990). *See also Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n*, 461 U.S. 190, 209 (1983) ("The point of the 1959 Amendments was to heighten the states' role.").

[44] 105 Cong. Rec. S17510 (Sept. 11, 1959) (Remark of Sen. Hickenlooper). *See also* 128 Cong. Rec. S17506 (Sept. 11, 1959) (Remark of Sen. Anderson) (expressing concern that "there will be confusion and possible conflict between Federal and State regulations and uncertainty on the part of the industry and possible jeopardy to the public health and safety" if the AEA continues to remain "silent as to the regulatory role of the States").

with respect to "'*any one or more* of' a variety of classes of nuclear materials, . . . suggests that NRC is not *required* to enter into agreements" but "that it has discretion to negotiate the terms of the agreement with the state requesting authority."[45]

We have closely examined the language of this subsection in light of the court's observation and in the context of the question presented here – whether subsection b gives us the discretion to retain a site under NRC jurisdiction at a licensee's request if the subsection d conditions of state certification and adequacy and compatibility are met. We conclude that subsection b does not reasonably lend itself to this interpretation. As discussed above, we construe subsection b as providing a general grant of legal authority to the NRC to enter into agreements with states to relinquish its authority, and subsection d as setting forth the specific conditions for the Commission's exercise of that authority. We agree that the particular language highlighted by the court – "one or more of the following materials within the State" – does give us some leeway in entering into agreements, but it is not the type of flexibility, or "discretion," sought by Shieldalloy and alluded to by the court.

The language "one or more of the following materials within the State" refers to each *category* of nuclear materials listed in subsection b – *i.e.*, source, byproduct, or special nuclear material in quantities not sufficient to form a critical mass. We interpret this language to give the Commission the flexibility to enter into agreements that cover less than all three nuclear material categories at one time. This would allow us, for example, to enter into an initial agreement for one nuclear material category and subsequent agreements for the remaining categories. Accordingly, we read subsections b and d, together, as giving us the authority and flexibility to enter into limited agreements depending on a state's desire and readiness to assume jurisdiction but not

[45] *Shieldalloy*, 624 F.3d at 495 (emphasis in original).

as giving us authority to withhold authority from a state that wants it and has a qualifying program.

Again, the legislative history supports our construction. It reflects considerable concern that there be a reasonable transition period following enactment of the legislation, so that authority not be turned over to the states hastily, before states had an opportunity to develop adequate regulatory programs. In its report on the companion bills that were enacted into law (H.R.8755 and S.2568), the Joint Committee stated that the "bill does not authorize a wholesale relinquishment or abdication by the Commission of its regulatory responsibilities but only a gradual, carefully considered turnover, on a State-by-State basis, as individual States may become qualified."[46] Likewise, in testimony during the hearings on the companion bills incorporating the AEA's proposed legislation (S.1987 and H.R.7214), a representative from the AEC's Office of the General Counsel explained:

> Before I left these three categories, I did want to point out that under this bill the Commission as a State became ready and by agreement with the Governor, could turn over any one or more of these categories. We would not try to break them down. If a State were ready to assume its responsibilities in the way of regulation with respect to byproduct materials, the agreement would provide for a turnover of these responsibilities with respect to this entire category. However, there might be a series of agreements with a particular State adding additional categories as time goes on, and the State program develops. It would be the intention of the Commission under this bill to enter into agreements with the States covering all of these three categories as soon as the States are prepared to assume those responsibilities.[47]

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[46] Joint Committee Report at 8.

[47] Joint Committee Hearings at 305 (testimony of Robert Lowenstein). *See also id.* at 292 ("I think we do not want to walk away . . . and expose the public health and safety unduly in the sense of being too fast . . . . It is certainly something which you would have to do in cooperation with the States . . . if this bill were enacted right away, you could not do it immediately.") (testimony of AEC Commissioner John S. Graham); *Selected Materials on Federal-State Cooperation* at 29 (1959) (analysis of AEA's March 1959 legislative proposal).

We find nothing in this legislative history or in the statute itself to suggest that we may, over the objections of a state desiring jurisdiction and for reasons other than health and safety or compatibility, retain regulatory authority over pending applications involving a nuclear materials category otherwise transferred to a state. The language and legislative history, if anything, appear to point the other way. Another stated purpose of the statute was "to promote an orderly regulatory pattern between the Commission and State governments with respect to nuclear development and use and regulation of byproduct, source, and special nuclear materials."[48] The legislative history sheds light on what Congress believed would undermine an "orderly regulatory pattern" between NRC and the states, reflecting a congressional intent to avoid any form of "concurrent" or piecemeal federal-state jurisdiction over a specified nuclear materials category. For example, in its report on the final companion bills, the Joint Committee explained:

> It is not intended to leave any room for the exercise of dual or concurrent jurisdiction by States to control radiation hazards by regulation of byproduct, source, or special nuclear materials. The intent is to have the material regulated and licensed either by the Commission, or by the State and local governments, but not by both. The Bill is intended to encourage States to increase their knowledge and capacities, and to enter into agreements to assume regulatory responsibilities over such materials.[49]

Thus, Congress wanted to provide a framework for "centralized responsibility."[50] It desired states to assume authority either over all of the sites within a particular nuclear materials category or over none of the sites within that category.

Where the requisite state certifications and NRC findings of adequacy and compatibility are met, limiting transfers over pending applications at a licensee's request, for reasons other than adequacy or compatibility, could seriously undermine

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[48] AEA § 274a(3).

[49] Joint Committee Report at 9.

[50] Joint Committee Hearings at 316 (testimony of Robert Lowenstein).

congressional intent to avoid a patchwork of federal-state regulation. Licensees would have an incentive to manipulate the license application process depending on which regulatory scheme they preferred for financial or other commercial interests apart from health and safety or compatibility. The statutory language and legislative history contain no suggestion that such interests were to play any part in the terms of our agreements with states or could override a state's desire and readiness to assume regulatory authority.[51]

Returning to the NRC-Oklahoma agreement that attracted the court's interest, the policy we approved there – approving the state's request to take authority for some but not all nuclear materials – reinforced our commitment to enforcing the statutory intent to respect the wishes of the states as to their readiness to regulate particular materials. The Oklahoma agreement came in the context of a *state* being unwilling to assume jurisdiction over certain subcategories within a particular nuclear material category. Limiting transfers over sites with pending applications, "at the behest of regulated firms"[52] and over a state's objection, as Shieldalloy would like, is quite a different

[51] The legislative history, in fact, reflects that the Joint Committee took no action on a suggested approach that would have required the Commission to consider financial interests of regulated entities as a condition of approving a proposed state agreement. Specifically, materials compiled for the Joint Committee in advance of the hearings on the original agreement-state companion bills, S.1987 and H.R.7214, included a lengthy academic study by professors at the University of Michigan "prepared especially for the Joint Committee." Selected Materials on Federal-State Cooperation at III. That study recommended two "[c]riteria for approval of [state] plans." *Id.* at 447. One criterion was essentially the same as the "adequacy" condition included in S.1987 and H.R. 7214 – that a proposed state program "must be adequate to protect the health and safety of the public." *Id.* But for the second criterion, the authors recommended that a proposed state plan "must not unnecessarily burden industry." *Id.* In the final bills, S.2568 and H.R.8755, the Joint Committee retained the "compatibility" criterion contained in the original companion bills, without adding any language related to "burdening industry."

[52] *Shieldalloy*, 624 F.3d at 495.

matter.[53] That approach would have the NRC override, on grounds not specified in the statute, the state's expression of readiness. The Oklahoma policy was never intended to apply – and has never been applied – in the context of a *licensee*'s request to remain under NRC's authority.

In sum, based on our examination of the statutory language and legislative history, and based on our past policy and practice, we cannot find that Congress gave us the discretion to retain regulatory authority in circumstances like Shieldalloy's. We cannot turn down a state's request for authority for reasons apart from the sole statutory considerations: a state program's adequacy and compatibility.

C. Adequacy and Compatibility of New Jersey's Program as to License Termination

In light of our conclusion regarding the scope of our legal authority, our decision whether to retain jurisdiction over the Newfield site or reinstate New Jersey's regulatory authority turns on whether New Jersey's license termination program is "adequate to protect the public health and safety with respect to the materials covered by the proposed agreement" and "compatible with the Commission's program for regulation of such materials" within the meaning of section 274d and our implementing agreement-state policies. As discussed below, we find that New Jersey's program is "adequate" and "compatible."

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[53] If a state is unable or unwilling to make the required certifications under subsection d – that it has an adequate program for the protection of public health and safety and desires to assume regulatory responsibility – for the subcategories of material or activity it wishes the NRC to retain, in effect, a statutory condition for the Commission to exercise its authority to enter into an agreement for those subcategories will not have been met. On the other hand, allowing states to enter into an agreement for something less than an entire category of nuclear materials, as Oklahoma had requested, ostensibly conflicts with congressional intent regarding concurrent federal-state jurisdiction. The Oklahoma policy, therefore, grew out of a need for the NRC to reconcile the interest of a state, reflected in subsection d, to decide what areas of nuclear regulation it is ready and willing to assume, with Congress's desire to avoid piecemeal NRC-state jurisdiction within a single materials category.

1. Regulatory Framework

Before we turn to the specific issues regarding adequacy and compatibility raised by Shieldalloy and implicated in the court's remand decision, we review our own and New Jersey's regulatory framework as relevant to this case.

a. The NRC's Agreement-State Policy

We have implemented section 274 through two major policy statements that set forth the framework for state regulatory programs that are both "adequate" to protect the public health and safety and "compatible" with the Commission's regulatory program, as section 274 requires. Our first policy statement, containing 36 criteria for assessing a state's program, including the criterion (Criterion 25) that was the focus of the court's remand decision, was issued in 1961 and updated in 1981, but remains virtually unchanged from its original issuance in 1961, except in respects not relevant here.[54] A later policy statement, issued in 1997, established a more refined approach for determining, with respect to both new and existing agreements, whether a state's program is "adequate" and "compatible."[55] As a general matter, "adequacy" focuses "on the protection of public health and safety within a particular State," to accommodate "local needs and conditions," whereas "compatibility" focuses "on the impacts of an Agreement State's regulation of agreement material on a nationwide basis or its potential effects on other jurisdictions."[56]

As we explained in our 1997 Policy Statement, "adequacy" "presumes" that the "level of protection of NRC's regulatory program is . . . that which is adequate to provide

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[54] *See generally* 1981 Policy Statement, 46 Fed. Reg. 7540.

[55] Statement of Principles and Policy for the Agreement State Program; Policy Statement on Adequacy and Compatibility of Agreement State Programs, 62 Fed. Reg. 46,517 (Sept. 3, 1997) (1997 Policy Statement).

[56] *Id.* at 46,520, 46,523-24.

a reasonable assurance of protection of public health and safety."[57] Thus, to be "adequate," the "overall level of protection of public health and safety provided by a State program should be equivalent to, or greater than, the level provided by the NRC program."[58]

Regarding "compatibility," a state's program is acceptable "when its program does not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis."[59] Our 1997 Policy Statement establishes five "compatibility categories" – A, B, C, D, and E – to be assigned to NRC's regulations for the purpose of assessing a state's proposed or existing program for compatibility.[60] These categories indicate which aspects of NRC's regulatory program a state *must* adopt, and which aspects a state has flexibility to depart from or modify. The compatibility designation for an NRC regulation is determined as part of the public rulemaking process, at the time the regulation is promulgated.

A state must adopt regulations that are "essentially identical" to NRC regulations classified as compatibility category "A" or "B."[61] Category A includes NRC regulations establishing "basic radiation protection standards," such as "dose limits, concentration and release limits related to radiation protection . . . that are generally applicable."[62]

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[57] *Id*. at 46,524.

[58] *Id*.

[59] *Id*.

[60] *Id*.

[61] *Id*.

[62] *Id*.

Category B consists of regulations, such as transportation regulations, that have "significant transboundary implications."[63]

Category C consists of those aspects of NRC's regulatory program (referred to as "program elements") that an agreement-state program must incorporate "to avoid conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis."[64] To be "compatible" with a Category C program element, an agreement state need not adopt regulations identical to NRC's, unlike those in Categories A and B, but the state's program must "embody the essential objective" of the corresponding NRC program element. *Id*. Categories D and E are not pertinent to this case.

b. ALARA

Our regulations establish maximum dose exposure standards – *i.e.*, dose limits – for protecting the public and occupational workers from radiation resulting from NRC-authorized activities, including license termination.[65] For example, the basic dose limit for individual members of the public from a licensed activity is a total effective dose equivalent of 100 millerem (mrem) per year[66], and the dose limit for license termination is a "constraint within the public dose limit" of 25 mrem per year to members of the public.[67]

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[63] *Id*.

[64] *Id*.

[65] *See* 10 C.F.R. Part 20.

[66] *See* 10 C.F.R. § 20.1301.

[67] *See* Final Rule, Radiological Criteria for License Termination, 62 Fed. Reg. 39,058, 39,080 (July 21, 1997) (License Termination Rule); 10 C.F.R. §§ 20.1402 and 20.1403(b).

Our regulations also contain a regulatory principle known as "ALARA" – "as low as is reasonably achievable." ALARA is defined in 10 C.F.R. Part 20 as "every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical consistent with the purpose for which the licensed activity is undertaken."[68]. ALARA is a general requirement for all "doses to members of the public" established in the "Radiation Protection Programs" in 10 C.F.R. Part 20, including the license termination dose criteria.[69]

For complex decommissioning activities, ALARA levels – that is, radiation exposures *below* regulatory dose limits – are determined through a cost-benefit analysis described in various NRC guidance documents.[70] An ALARA analysis calls for comparing potential benefits of incremental reductions in radioactivity levels below a specified dose limit to potential costs of such reductions.[71]

c. The NRC's License Termination Rule

In our license termination rule, we established a 25 mrem per year public dose limit and other criteria for license termination.[72] A comprehensive NRC guidance document, NUREG-1757, *Consolidated Decommissioning Guidance*, *supra*, explains in detail how we expect to implement the license termination rule. The rule provides

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[68] *See* 10 C.F.R. § 20.1003.

[69] *See* 10 C.F.R. § 20.1101(b) ("The licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).").

[70] *See, e.g.*, "Consolidated Decommissioning Guidance: Characterization, Survey, and Determination of Radiological Criteria," NUREG-1757, Vol. 2 (Rev. 1 Sept. 2006), Appendix N.

[71] *Id*. at N-3.

[72] *See generally* License Termination Rule, 62 Fed. Reg. at 39,058; 10 C.F.R. Part 20, Subpart E.

criteria for license termination for both "unrestricted use" and "restricted use." Terminating a license for unrestricted use would allow no dependence on "institutional controls," *i.e.*, governmental monitoring of engineered barriers and land-use restrictions, to achieve a maximum dose of 25 mrem per year to a member of the public upon termination of the license.[73] Terminating a license for restricted use would rely on legally enforceable institutional controls to achieve the 25 mrem dose limit.[74]

The ALARA requirement in 10 C.F.R. § 20.1101(b) applies to the dose criteria for license termination.[75] Thus, for license termination under either restricted use or unrestricted use, doses to a member of the public must not only be 25 mrem per year or lower but also as low as reasonably achievable.[76]

The license termination rule, in section 20.1403(a), requires that an ALARA-based analysis be performed to identify whether a site is eligible or ineligible for further consideration of restricted release.[77] As a threshold matter a licensee must demonstrate that it is entitled, or "initially eligible," to pursue license termination under restricted use.[78] The initial eligibility demonstration under section 20.1403(a) employs a cost-benefit analysis – either a conventional ALARA analysis or an analysis of "net public or

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[73] *See* 10 C.F.R. § 20.1402.

[74] *See* 10 C.F.R. § 20.1403.

[75] *See* 10 C.F.R. § 20.1101(b) (requiring that doses be ALARA for all "doses to members of the public" established in Part 20's "Radiation Protection Programs").

[76] *See also* 10 C.F.R. §§ 20.1402 and 20.1403; License Termination Rule, 62 Fed. Reg. at 39,065; "Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees," NUREG-1757, Vol. 1, (Rev. 2 Oct. 2006), § 17.7.6, at 17-87 (ML063000243) (doses for restricted release cannot exceed 25 mrem per year with institutional controls in place and must be as low as reasonably achievable).

[77] *See* 10 C.F.R. § 20.1403(a).

[78] *See* NUREG-1757, Vol. 1, § 17.7.2, at 17-70 (licensee must "demonstrat[e] that it is initially eligible to further evaluate release of the site, under the provisions of 10 C.F.R. § 20.1403").

environmental harm," which incorporates a subset of the factors used in a conventional ALARA analysis.[79]

Sites not "eligible" for restricted release must be remediated to unrestricted use in accordance with 10 C.F.R. § 20.1402. If a licensee is able to demonstrate initial eligibility for restricted release, it must then show that the restricted-release dose criteria will be met.[80] The licensee must establish that: the dose to a member of the public with legally enforceable institutional controls in place will not exceed 25 mrem per year, and is as low as reasonably achievable[81]; and if institutional controls fail and engineered barriers have degraded over a period of time,[82] the dose to a member of the public will not exceed 100 mrem per year (or 500 mrem per year under certain circumstances), and is as low as reasonably achievable.[83] If the licensee cannot satisfy those criteria, its site will not "be considered acceptable for license termination under restricted conditions,"[84] and the site must be remediated to unrestricted-release levels pursuant to 10 C.F.R. § 20.1402.

When the license termination rule was at the proposed-rule stage, we requested comments on a "compatibility" determination for the rule, for agreement-state purposes.

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[79] *See* NUREG-1757, Vol. 2, Rev. 1, at N-13, N-14.

[80] *See* 10 C.F.R. § 20.1403.

[81] 10 C.F.R. §§ 20.1101(b) and 20.1403(b); NUREG-1757, Vol. 1, § 17.7.6, at 17-87.

[82] NRC does not require dose calculations for the institutional controls failure scenario to assume "instantaneous and complete failure of a barrier" but permits the licensee to assume that "barriers may degrade over time." *See* NUREG-1757, Vol. 2, § 3.5.2, at 3-12.

[83] 10 C.F.R. § 20.1403(e).

[84] 10 C.F.R. § 20.1403.

Consistent with the local nature of the radiological impacts of license termination, we categorized the license termination rule as the equivalent of a Category C regulation.[85]

d. New Jersey's License Termination Program

In its regulations, New Jersey incorporated by reference many of our regulations in 10 C.F.R. Part 20, including 10 C.F.R. § 20.1101(b), requiring that public doses for all Part 20 radiation protection programs be as low as reasonably achievable (ALARA), and 10 C.F.R. § 20.1301, establishing a basic radiation protection public dose standard of 100 mrem per year.[86] With respect to license termination, New Jersey promulgated its own regulations rather than incorporate by reference our regulations in 10 C.F.R. §§ 20.1401-1405.[87]

Under New Jersey's license termination regulations, a licensee is required to show (using specified methods – concentration tables or dose modeling) that, for "an unrestricted use remedial action, limited restricted use remedial action, or a restricted use remedial action," the total effective dose equivalent to members of the public would not be more than *15 mrem* per year – as compared to the *25 mrem* per year limit in our regulations.[88] New Jersey also adopted other requirements relating to license termination that incorporate more conservative dose calculation methodologies than our requirements. New Jersey's license termination regulations require, *inter alia*, (1) that

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[85] At the time the license termination rule was issued, we were in the process of revising our compatibility categorization, ultimately approving the current compatibility categories reflected in the 1997 Policy Statement. The prior compatibility policy categorized rules into "Divisions." Division 2 is the equivalent of today's compatibility category "C." *See* License Termination Rule, 62 Fed. Reg. at 39,079. Agreement states were required to address the "underlying principles" of these rules but did not have to use language identical to the NRC's rules, and could "adopt requirements more stringent than NRC's rules." *Id*. at 39,079-80.

[86] *See* N.J. Admin. Code § 7:28-6.1(a).

[87] *Id.* § 7:28-6.1(c).

[88] *See id.* §§ 7:28-12.8(a)(1), 12.9, 12.10, and 12.11.

dose calculations be "performed out to the time of peak dose or 1000 years, whichever is longer,"[89] as compared to our requirement that dose calculations be limited to the first 1000 years after decommissioning;[90] (2) that doses to members of the public not exceed 100 mrem per year if there were a simultaneous and complete failure of both institutional controls and engineered barriers at a restricted use site,[91] as compared to our dose criteria of 100 mrem or 500 mrem under certain circumstances,[92] under the assumption that failure of institutional controls will result in engineered barriers degrading over time;[93] and (3) that radioactively contaminated ground and surface water must be remediated in accordance with New Jersey water quality requirements,[94] as compared to our "all pathways" approach without a separate release standard for water.

2. Analysis

a. Criterion 25

In its remand decision, the court, while acknowledging that "the NRC need not automatically consider every single pending licensing action individually" in its agreement-state decisions, observed that "in this case, the NRC had a long history of dialogue and cooperation regarding the termination of a license, the state has been consistently hostile to those termination proceedings, and the regulated entity alerted the NRC not only to the likely interference with decommissioning but also to partial transfer

[89] *Id.* § 7:28-12.10(d).

[90] 10 C.F.R. § 20.1401(d).

[91] N.J. Admin. Code §§ 7:28-12.10(e), 7:28-12.11(e),

[92] 10 C.F.R. § 20.1403(e).

[93] NUREG-1757, Vol. 2, § 3.5.2, at 3-12.

[94] N.J. Admin. Code § 7:28-12.8(b) and (c).

as a possible solution."[95] The court found that "[a]t the very least, the NRC should have explained how Shieldalloy's decommissioning process could proceed under the New Jersey regime free of the interference and interruption sought to be avoided by criterion 25."[96] In its filings, Shieldalloy echoes the court's remarks and claims that the "New Jersey Program violates Criterion 25 and the NRC cannot lawfully transfer regulatory authority over the Newfield Facility to the State."[97] The court, in its remand decision, as well as Shieldalloy, seemingly understand Criterion 25's terminology, "appropriate arrangements will be made by NRC and the State to ensure that there will be no interference with or interruption of . . . the processing of license applications, by reason of the transfer," to refer to ensuring continued application of the same *substantive* standards for processing pending applications. Viewed this way, Criterion 25's "intended preclusion of 'interference with or interruption of licensed activities or the processing of applications,'"[98], would oblige NRC to make arrangements with a state to ensure that, once transferred, pending applications will continue to be processed by the state under regulatory standards that are the same as or closely similar to ours, even if we approve a different, more stringent state regime as being adequate and compatible.[99] But our examination of 50 years of practice in applying Criterion 25 when entering into new agreements – there are 37 such agreements in place – shows that Criterion 25 was not

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[95] *Shieldalloy*, 624 F.3d at 494-95.

[96] *Id*. at 495.

[97] Shieldalloy Initial Response at 9.

[98] *Shieldalloy*, 624 F.3d at 494.

[99] Partial transfer – *i.e.*, NRC retention of regulatory authority over a pending application – was another alternative for meeting Criterion 25 the Court suggested we consider. *See Shieldalloy*, 624 F.3d at 495. We concluded above that we do not have authority to enter into partial transfers at the request of a licensee and over the objections of a state if we find the state's program adequate and compatible.

intended to be construed in this manner. We do not construe and have never construed Criterion 25 as in any way relating to substantive standards or the regulatory outcome of a pending license application, even where as in Shieldalloy's case a license application has been pending at the NRC for an extended period. Criterion 25 remains unchanged in substance from the Commission's 1961 Policy Statement.[100] With respect to pending applications, as well as existing licenses, Criterion 25 has from the beginning consistently been understood by us and the staff as purely administrative in nature.[101] The purpose of that criterion, which is applicable by its own terms to both the NRC and the state, is to ensure that licensing records are transferred to and received by the new agreement state in an orderly manner that ensures that no pending licensing actions will be significantly delayed or that no records will be lost or misplaced as a result of the transition of authority. It is a housekeeping criterion, not a substantive one. We historically have addressed Criterion 25 through a staff-developed transition plan for each new agreement. The transition plan involves coordinating with the state's regulatory staff to facilitate a smooth and seamless transfer of the NRC's records for all licenses and pending license applications in a form that can be readily used by the state to continue licensing actions and inspection programs under the state's own regulatory program, without interruption or interference.

Consistent with the approach followed for every other agreement-state application over the past 50 years, the staff developed a transition plan for the New Jersey agreement in coordination with New Jersey's regulatory staff, and transferred the

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[100] *See* Criteria for Guidance of States and AEC in Discontinuance of AEC Regulatory Authority and Assumption Thereof by States Through Agreement, 26 Fed. Reg. 2536, 2539 (Mar. 24, 1961).

[101] We note that we viewed Criterion 25 as an administrative matter in our order rejecting Shieldalloy's request for stay of the New Jersey agreement. *See Shieldalloy*, CLI-10-8, 71 NRC at 162.

relevant licensing records to New Jersey on the effective date of the New Jersey agreement.[102] In accordance with the transition plan, the staff transferred from NRC to New Jersey the records for 490 existing NRC licenses, including the existing Shieldalloy license and five other licenses involving source material, and seventeen pending license applications, including the pending decommissioning-plan application for the Newfield site. No licensing records have been identified as being lost or misplaced as a result of the transfer, and New Jersey was able to commence its regulation over the transferred licenses and pending applications immediately after the transfer. Thus, we believe that our staff, in coordination with the state's regulatory staff, fulfilled the administrative purpose of Criterion 25, to ensure that "there will be no interference with or interruption of licensed activities or the processing of license applications, by reason of the transfer."

In entering into an agreement with any state, we fully anticipate and expect that the state's regulatory approaches and decisions may differ from ours. We have long recognized that agreement states "should be provided with flexibility in program implementation to accommodate individual State preferences, State legislative direction, and local needs and conditions," including the flexibility to "incorporat[e] more stringent, or similar, requirements."[103] Thus, we do not view New Jersey's prompt implementation of the state's license termination regulations as in any way constituting "interference with or interruption of" Shieldalloy's pursuit of license termination at the Newfield site within the meaning of Criterion 25. To the contrary, by promptly notifying Shieldalloy that its license termination plan for the Newfield site would need to be revised in accordance with New Jersey's regulations, New Jersey, upon receipt of regulatory authority, was

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[102] *See State of New Jersey Transition Plan – Status Update* (June 15, 2011) (ML111671959). As described by the NRC staff, the "New Jersey Transition Plan . . . was for internal use by Region I DNMS staff as a guide for activities conducted during the transition of New Jersey to an Agreement State." *Id.*

[103] 1997 Policy Statement, 62 Fed. Reg. at 46,520.

simply moving the process for license termination at the Newfield site forward in a timely manner as contemplated by Criterion 25. In doing so, New Jersey acted well within its authority as a new agreement state to implement a regulatory program that we had found differed from ours in permissible ways.

Finally, contrary to Shieldalloy's view, we do not construe and have never construed Criterion 25 as a vehicle to preclude the transfer of pending license applications to an agreement state on the ground that NRC and the licensee had already devoted resources to the application when it was before the NRC. Our transfer of Shieldalloy's pending application to New Jersey, along with sixteen other pending applications, was consistent with our approach for every other agreement over the course of 50 years. Upon entering into a section 274 agreement, we have routinely and repeatedly transferred *all* pending NRC license applications to a state (absent a state's request for NRC retention, as in the Oklahoma situation). And we have done so under circumstances analogous to those here, where (1) an NRC proceeding on a pending application for decommissioning through restricted release was ongoing at the time of the regulatory transfer; (2) the NRC licensee strenuously objected to the transfer of regulatory authority as to its site; and (3) the state was strongly opposed to the licensee's application.[104]

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[104] *See Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-96-2, 43 NRC 13 (1996). *Kerr-McGee* involved a decommissioning application by Kerr-McGee Chemical Corporation for onsite disposal of radioactive uranium mill tailings at its defunct industrial site in West Chicago, Illinois. Both the State of Illinois and the City of West Chicago opposed Kerr-McGee's application for onsite disposal. While Kerr-McGee's application was pending, the Commission, over Kerr-McGee's objections, approved Illinois' proposal to enlarge its existing section 274 agreement authority to include uranium mill tailings. At the time we transferred regulatory authority over mill tailings and Kerr-McGee's site to Illinois, the Licensing Board, after protracted litigation, had approved a license authorizing on-site disposal at the Kerr-McGee site, but Illinois and the City of West Chicago were pursuing a challenge to the license before the Appeal Board. Thus, the NRC proceeding on Kerr-McGee's application for onsite disposal, while not over because of ongoing litigation at NRC, had actually reached the point of NRC approval of an onsite plan at the time of the transfer of authority to Illinois. *See*

Shieldalloy notes, as an aside, that "other States, such as Ohio, have honored and continued the ongoing NRC licensing process and have brought it to completion after due consideration, thus complying with both the letter and the intent of Criterion 25."[105] In the example that Shieldalloy cites, we transferred another Shieldalloy-owned site with a pending onsite decommissioning application to Ohio upon entry of a section 274 agreement with that state. Ohio eventually approved a restricted-release decommissioning plan with a continuation of the license in the form of a possession-only long-term care license for the site. However, in approving the transfer, we had not made any "arrangements" with Ohio, under Criterion 25 or otherwise, to influence the state's final decision on the license termination application; nor at the time we entered into the agreement with Ohio could we have anticipated what Ohio would ultimately conclude. In contrast to our license termination regime, Ohio's regime disallowed termination of a license through the use of institutional controls, so Ohio theoretically might have disapproved Shieldalloy's request for onsite disposal. In the end, though, Ohio approved onsite disposal. The significant point for our decision today is not that Ohio approved Shieldalloy's onsite disposal request, but that we did not construe Criterion 25 as precluding us from transferring the pending license termination application to Ohio for the state to continue to process under its own differing regulatory regime. To recap, we have consistently applied Criterion 25 as a purely administrative criterion for effectuating an orderly transfer of regulatory authority to an agreement state. We do not construe that criterion either as a vehicle for us to retain authority over applications pending at the

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Kerr-McGee, CLI-96-2, 43 NRC at 15. Here, by contrast, Shieldalloy's proposed plan not only remained under litigation at the Licensing Board, but the proposal also had not yet gained any form of NRC approval – Shieldalloy was still answering NRC staff inquiries – at the time of the transfer of authority.

[105] Shieldalloy Initial Response at 10 n.16.

time of transfer on substantive grounds, or as a vehicle to compel a state to take a particular regulatory approach on pending applications.

b. Protection of Public Health and Safety and ALARA

In an argument it belatedly raised before the court but not as a comment on the New Jersey agreement, Shieldalloy claims that New Jersey's license termination program is not as protective to the public health and safety as our regulations. Shieldalloy maintains that terminating a license under restricted release "would result in doses to the decommissioning workers and the general public that are lower than those that would result from digging up the materials, loading them onto trucks or train cars, shipping them cross-country, and disposing of them in a similar fashion in another state."[106] Shieldalloy also makes a related argument that New Jersey's program is inadequate because it fails to incorporate our ALARA requirement. *Id*. at 15-16. In its remand decision, the court paraphrased Shieldalloy's argument as follows:

> Because of the higher stringency [of New Jersey's license termination regulations], Shieldalloy states that it is prevented from using on-site disposal and will be forced to ship the materials to a facility in Utah. The consequence is that the doses of radiation to the public resulting from removing the radioactive materials from the site and relocating them in Utah will actually be *greater* than the public health and environmental harms that accompany on-site disposal of the materials.[107]

The court did not reach the merits of this argument but said that it presented a "troubling prospect."[108]

Shieldalloy claims that it had "repeatedly maintained, and its analyses have shown," that license termination using onsite disposal would result in lower doses to the

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[106] Shieldalloy Initial Response at 13.

[107] *Shieldalloy*, 624 F.3d at 496 (emphasis in original).

[108] *Id.*

public than offsite disposal.[109] Shieldalloy also claims that its "position has not been controverted at any time by the Staff or by New Jersey."[110] These statements are inaccurate. As the court recognized, Shieldalloy did not raise what amounts to a "comparative dose" claim in its original comment response.[111] Shieldalloy's "comparative dose" position may have been reflected in its proposed 2005 decommissioning plan, as the court observed, *id.*, but that plan was rejected by the staff as not being in compliance with our license termination regulations. The NRC staff's request for additional information (RAI) on Shieldalloy's proposed 2006 decommissioning plan indicates rejection of Shieldalloy's comparison approach and related technical concerns.[112]

Despite the open-ended opportunity we provided in this remand proceeding for Shieldalloy to fully articulate its position on this and other issues, it has presented its "comparative dose" position, and its related argument as to ALARA, in summary and conclusory fashion, leaving us largely to guess at the technical rationale and underlying foundation for its position.[113] This is unfortunate, given the highly complex and technical nature of our license termination regulations. While we endeavor to respond fully to Shieldalloy's comparative dose and related ALARA argument based on our

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[109] Shieldalloy Initial Response at 13.

[110] *Id.*

[111] *Shieldalloy*, 624 F.3d at 496.

[112] *See Request for Additional Information for Safety Review of Proposed Decommissioning Plan for Shieldalloy Metallurgical Corporation, Newfield, New Jersey* (License No. SMB-743), Enclosure, RAI numbers 27, 28, 29, 30 (July 5, 2007) (ML071640265).

[113] This echoes an observation we made with respect to Shieldalloy's arguments regarding ALARA (though not the comparative dose argument, which was not raised) when it requested a stay of the New Jersey agreement. *See Shieldalloy Metallurgical Corp*, CLI-10-8, 71 NRC at 154 (noting that Shieldalloy's arguments were "diffuse and difficult to follow.").

understanding of them, we are mindful of the admonition that "the 'dialogue' between administrative agencies and the public 'is a two-way street.'"[114]

Shieldalloy's position, as we understand it, is as follows: New Jersey's license termination regulations, in effectively precluding Shieldalloy from pursuing restricted release in favor of unrestricted release, would result in higher doses to the public than a restricted-release plan under our license termination regulations. Therefore, according to Shieldalloy, New Jersey's program is not as protective as ours, rendering New Jersey's program "inadequate" under our agreement-state policy. Shieldalloy's position appears to rest on a misguided understanding of our regulatory philosophy on license termination and our ALARA principle. We have not previously had occasion to address these misconceptions, and we do so here.

Embedded in Shieldalloy's position is a notion that our license termination regulations recognize restricted release as a more protective decommissioning option under certain conditions than unrestricted release. Shieldalloy apparently construes our license termination regulations as calling for a licensee to compare doses of the restricted-release and unrestricted-release decommissioning options and to choose the option that affords the lowest dose. This is a fundamentally inaccurate understanding of our license termination requirements and appears to lie at the heart of Shieldalloy's claim that New Jersey's program is not as protective of the public health and safety as our program with respect to the Newfield site.[115]

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[114] *See Northside Sanitary Landfill, Inc. v. Thomas*, 849 F.2d 1516, 1520 (D.C. Cir. 1988) (citation omitted).

[115] As we noted above, this very misunderstanding of our license termination requirements was the subject of a number of requests for additional information by the staff on Shieldalloy's 2006 decommissioning plan. *See Request for Additional Information*, *supra* note 112, RAI numbers 27, 28, 29, 30.

To be clear, our regulations neither explicitly nor implicitly require a comparison of the levels of protection afforded by the unrestricted and restricted decommissioning options. This is because the levels of protection of unrestricted release and restricted release are simply not susceptible to being compared meaningfully. Each option uses significantly different methods to achieve adequate protection and has significantly different risks and uncertainties associated with it.

Restricted release is far more complex and involves significantly greater uncertainties than offsite disposal. Restricted release relies on the sustained effectiveness of institutional controls over a 1000-year compliance period to restrict future access and use to meet the 25 mrem per year dose requirement.[116] Satisfaction of the 25 mrem per year dose requirement under restricted release also relies on the predicted effectiveness of engineered controls over a 1000-year compliance period. Such engineering controls over this 1000-year period would be depended upon to perform numerous complex functions, including shielding, erosion protection, and limiting infiltration of water that could result in leaching radionuclides out of the restricted area. Monitoring and maintenance over 1000 years also would be necessary to ensure that the engineered controls remain effective. Finally, sufficient long-term funding would be required by an independent third party to further ensure that the controls sustain protection over the 1000-year period.[117]

Unrestricted release requires the removal of contamination onsite to the extent necessary to comply with the dose criteria of 25 mrem per year and transportation of the contaminated material to an isolated and regulated long-term disposal site. Some

[116] The nuclear material at Shieldalloy's Newfield site consists of uranium and thorium isotopes, which are "long-lived" radionuclides – *i.e.*, radionuclides with long "half-lives." The predominant thorium isotope (Th-232) has a half-life of 14 billion years and the predominant uranium isotope (U-238) has a half-life of 4.46 billion years.

[117] *See* NUREG-1757, Vol. 1, Rev. 2, § 17.7.1, at 17-64; Vol. 2, Rev. 1, § 3.5.3, at 3-13.

uncertainties are inherent in these activities, but removing contaminated material from the site and transporting it to a regulated long-term disposal site generally involves well-known and quantifiable handling and associated radiological impacts on workers and the public over a short time period (one to two years). In contrast, dose estimates from contaminated slag left onsite are subject to limitations in understanding the performance of a disposal system and its institutional and engineering controls over the course of the 1000-year compliance period.[118] Restricted-release dose estimates, therefore, inherently involve much greater uncertainty than those from unrestricted release.

Citing its proposed 2009 revised decommissioning plan, Shieldalloy claims that "its analyses have shown . . . that terminating [its] license by [restricted release] . . . would result in doses to the decommissioning workers and the general public that are lower than those that would result from [unrestricted release]."[119] But Shieldalloy's own dose estimates for the Newfield site reflect that it is meaningless to compare the level of protection between unrestricted release and restricted release. Specifically, Shieldalloy's proposed 2009 revised plan calculates an infinitesimally small dose – 0.0000004 mrem per year – when institutional controls and engineered barriers are assumed to remain effective for 1000 years.[120] However, when institutional controls are assumed to fail and the engineered cover is assumed to degrade, Shieldalloy's filing

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[118] For example, estimates of engineered cover degradation and slag leach rate and degradation of the slag over time were some of the key uncertainties identified in the staff's RAI's that questioned the basis for Shieldalloy's long-term dose estimates for the onsite disposal option. *See Request for Additional Information, supra* note 112, RAI numbers 5, 17, 22, 23.

[119] Shieldalloy Initial Response at 13.

[120] *See* Letter from Hoy E. Frakes, Shieldalloy, to NRC Document Control Desk, "Shieldalloy Metallurgical Corporation, Source Material License No. SMB-743 Revised Decommissioning Plan for the Newfield Facility, Newfield, New Jersey" (Aug. 28, 2009) (transmitting Decommissioning Plan Revision 1b) (Aug. 28, 2009), § 5.3, at 42-43 (ML092940358) (package).

shows that the dose estimate would be far greater, up to a bounding dose of 86 mrem per year at the Newfield site.[121] This dose is well in excess of Shieldalloy's dose estimates for unrestricted release, which ranged from 1 to 25 mrem per year. Thus, while Shieldalloy's estimates purport to show that doses for onsite disposal (assuming fully functioning controls) are lower than those for unrestricted release, its own dose estimates for onsite disposal assuming the uncertainty and potential failure of controls over the long term in actuality show a *higher* dose.

Our license termination rule provides that unrestricted release and restricted release are both available as independent regulatory options that would provide adequate protection to the public health and safety *if* the applicable dose and other criteria are met. Contrary to another apparent Shieldalloy misunderstanding, nothing in our license termination regulations states or implies in any way that restricted-release decommissioning, under any circumstances, is a safer, more protective, or more desirable disposal option than unrestricted release. To the contrary, in view of the inherent complexities and uncertainties associated with restricted release, we explicitly expressed a preference for unrestricted release in adopting our license termination rule. We stated that we "expected licensees to make every reasonable effort to achieve unrestricted use."[122] And, in the context of the Shieldalloy decommissioning proceeding itself, we recently reaffirmed our position that "unrestricted release is the preferable method for terminating radioactive materials licenses."[123] In these circumstances, we cannot say that New Jersey's similar preference for unrestricted release inadequately protects the public health and safety.

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[121] *Id.*

[122] License Termination Rule, 62 Fed. Reg. at 39,069.

[123] *See Shieldalloy Metallurgical Corp.*, (License Amendment Request for Decommissioning of the Newfield, New Jersey Facility), CLI-09-1, 69 NRC 1, 5 (2009).

Although its submission is hardly clear on this point, Shieldalloy apparently believes that our ALARA principle compels us to compare decommissioning options and to allow a licensee to select the lowest-dose option. It argues that "[New Jersey's] [f]ailure to implement the ALARA standard would allow New Jersey to reject the decommissioning option for the Newfield Facility that would result in the *lowest* doses to the public and the environment . . . [and] [i]nstead, the State would be able to order . . . a decommissioning choice that would result in *higher* radiation doses to workers, the public and the environment, and would not be ALARA."[124] In other words, Shieldalloy appears to understand our ALARA principle as used in our regulations to mean "as low as achievable" as a *comparison* between *achievable* doses, rather than "as low as *reasonably* achievable" "*below* the dose limits."[125] This is a fundamental misconception of our ALARA principle and appears to be the root of Shieldalloy's misunderstanding of our approach to license termination.

As discussed above, our license termination regulations do not incorporate or call for a comparison of doses of restricted-release and unrestricted-release decommissioning options; nor do they imply that the restricted-release option would under any circumstances result in lower doses or be more protective than unrestricted release. Thus, the very premise of Shieldalloy's position on ALARA – that our license termination rule requires a *choice* to be made between a *higher* or *lower* dose option – is erroneous.

Nor does our ALARA principle itself, either as a general regulatory principle or as used in our license termination rule, incorporate or call for any comparative analysis of doses from restricted and unrestricted release. Under our license termination

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[124] *See* Shieldalloy Initial Response at 15-16 (emphasis added).

[125] *See* 10 C.F.R. § 20.1003.

regulations, the ALARA principle has been implemented for two purposes. The first purpose is traditional – to reduce doses from license termination below the applicable dose criteria to the extent reasonably achievable. This stems from our policy that small doses of radiation below dose limits, while safe and acceptable, may have some associated risk and should be reduced below limits when reasonable. The ALARA principle has also been incorporated into the restricted-use portion of the license termination rule for the purpose of providing a criterion to limit the use of restricted release – effectively, to screen out sites that should be removing contamination to achieve unrestricted use. This purpose is achieved in section 20.1403(a) through the use of a cost-benefit analysis as a regulatory tool to determine initial "eligibility" for restricted release. The eligibility criterion in section 20.1403(a) was intended to support our preference for the unrestricted-release decommissioning option.

While Shieldalloy has not set forth or explained the basis for its apparent position – that our ALARA principle as used in license termination calls for a comparison and choice between achievable doses – perhaps it is alluding to our ALARA-based eligibility criterion for restricted release, a requirement New Jersey did not incorporate in its license termination regulations. But, consistent with our general approach to license termination, no comparison of restricted-release and unrestricted-release doses is involved in our section 20.1403(a) eligibility criterion. The ALARA analysis for restricted-release eligibility purposes does not and was never intended to demonstrate whether one decommissioning option affords greater protection than another. In fact, because an ALARA analysis focuses on dose reductions *below* what we have determined to be necessary for adequate protection of the public health and safety, that analysis does not go to adequate protection at all. A licensee's demonstration of adequate protection is accomplished, instead, through satisfaction of the dose criteria and other conditions for its chosen decommissioning option.

Finally, as used in our license termination rule, the ALARA test does not compare or explicitly analyze any of the uncertainties that affect the level of protection afforded by a particular disposal option. As we discussed above, in the case of restricted release, the uncertainties are numerous and complex.

Having addressed Shieldalloy's various misunderstandings regarding our regulatory approach to license termination and ALARA principle, we may now consider in the proper context Shieldalloy's position that New Jersey's license termination regulations are not as protective as ours. First, and contrary to Shieldalloy's claim[126] New Jersey, by incorporating by reference our section 20.1101(b) into its regulations, did adopt the ALARA regulatory principle – the principle that doses must be reduced below regulatory limits if reasonably achievable – for its entire regulatory program, including license termination.[127] As noted above, New Jersey did not incorporate an ALARA-based criterion for restricted-release eligibility, as we did in section 20.1403(a), but that omission is immaterial to adequacy or compatibility. Again, our use of an ALARA test for restricted-release eligibility was intended to *limit* the use of restricted release in license termination. New Jersey's approach accomplishes this same objective by adopting more stringent criteria for license termination under restricted-release than for unrestricted

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[126] *See* Shieldalloy Initial Response at 15-16.

[127] In a footnote, Shieldalloy points to a New Jersey comment response on the state's proposed decommissioning rules as purportedly acknowledging that the state did not adopt the ALARA principle as a general regulatory policy. Shieldalloy Initial Response at 15 n.24. In the New Jersey comment response referred to by Shieldalloy, New Jersey references a state environmental statute as not allowing the New Jersey regulator to "include the provision of ALARA in meeting dose criteria." *See id*. We understand that the referenced legislation does not allow the consideration of costs when *setting* remediation standards. *See* Brief for State of New Jersey as Amicus Curiae Supporting Respondents at 16, Shieldalloy Metallurgical Corp. v. NRC, 624 F.3d 489 (D.C. Cir. 2010) (No. 09-1268) (ML11258A160). In view of the state's wholesale incorporation of our ALARA requirement in 10 C.F.R. Part 20, we do not construe New Jersey's comment response to mean, as Shieldalloy does, that the state will preclude the use of the ALARA principle to achieve a level of protection *below* the dose criteria, once such criteria have been established.

release, as well as more conservative criteria than ours for restricted release as permitted. Our decision, after notice-and-comment rulemaking, to assign license termination a "Category C" level of compatibility, allows New Jersey to choose more conservative criteria than ours.[128]

Moreover, since the ALARA test – either for its traditional purpose or as a tool for determining restricted-release eligibility – does not call for comparing doses of the unrestricted and restricted-release options or compel the selection of one decommissioning option over another, the ALARA requirement is irrelevant to whether Shieldalloy may pursue restricted release over unrestricted release in New Jersey. Nor are New Jersey's license termination regulations less protective than or incompatible with ours in making the terms of restricted release considerably more difficult than those for unrestricted release. Our regulations likewise heavily favor unrestricted over restricted release. If Shieldalloy has a more difficult time pursuing restricted release in New Jersey than under our regulations, then that is the function of New Jersey's permissibly more stringent regulatory scheme.

Finally and fundamentally, there is simply no evidence in the record suggesting that New Jersey is less committed to safety than the NRC. Indeed, New Jersey seems willing to entertain any safety-based arguments Shiedlalloy can offer. New Jersey points out that Shieldalloy has been granted a hearing on its request for an exemption from New Jersey's license termination regulations.[129] New Jersey then asserts that "if

[128] As we noted above, under NRC's agreement-state program, the "overall level of protection of public health and safety provided by a State program should be equivalent to, or greater than, the level provided by the NRC program." 1997 Policy Statement, 62 Fed. Reg. at 46,524. An agreement state, in other words, is free to deal with local conditions by establishing standards and procedures going beyond the NRC's. But the NRC's own program, of course, establishes national dose limits and other regulatory procedures that ensure adequate protection of the public health and safety.

[129] *See* New Jersey Reply at 7.

Shieldalloy can eventually demonstrate that onsite disposal is the safer option, that may be a basis for seeking the exemption to the New Jersey regulations it is currently pursuing."[130]

In sum, we reject Shieldalloy's position that New Jersey's license termination program is less protective than or incompatible with our program.

c. Restricted Release

Shieldalloy claims that New Jersey's program is incompatible with ours because it does not allow termination of materials licenses under restricted release. Shieldalloy asserts that "[n]one of the New Jersey regulations establish license termination subject to restricted conditions as a permissible decommissioning option."[131] It is clear from the face of New Jersey's regulations, however, that New Jersey does permit license termination under restricted use. New Jersey has two restricted-release options that permit license termination under specified soil concentration levels.[132] One option is for "limited restricted use" for sites where only institutional controls are used, and the second option is for "restricted use" for sites where both institutional controls and engineered controls are used.[133] New Jersey's regulations also allow licensees to petition for restricted release using "alternative remediation standards," under which license termination is based on dose modeling instead of soil concentration levels.[134] It simply is not true that New Jersey's rules do not provide for restricted release.

Contradicting its own claim that New Jersey does not allow restricted-release

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[130] *Id.*

[131] Shieldalloy Initial Response at 16.

[132] *See* N.J. Admin. Code § 7:28-12.8; 12.9, 12.10.

[133] *See id.* § 7:28-12.3.

[134] *See id.* § 7:28-12.11.

decommissioning, Shieldalloy acknowledges that New Jersey allows licensees to petition to use "alternative remediation standards" for restricted release. In its initial filing, Shieldalloy asserts, without further analysis or explanation, that the availability of license termination subject to restricted release under this provision is "illusory" because it is provided "without specification of the criteria for the granting of such petitions."[135] In its later filing, Shieldalloy admits that New Jersey does specify standards for license termination under its "alternative remediation standards" option but argues that those standards "would effectively prohibit on-site remediation of Shieldalloy's source material" because of New Jersey's "all controls failed" methodology for calculating the dose limit in the event of a failure of institutional and engineered controls.[136]

New Jersey's regulatory program for restricted-release decommissioning requires that doses to members of the public resulting from a simultaneous and complete failure of institutional and engineering controls not exceed 100 mrem per year.[137] This is in contrast to our methodology, which assumes that institutional controls fail immediately and completely while engineered barriers will degrade over time rather than all at once.

Given all of this, it appears that the gravamen of Shieldalloy's complaint is not truly that restricted release is "illusory" or impossible in New Jersey, but that New Jersey's regulations do not permit restricted release under the *same conditions* as our regulations – *i.e.*, conditions allowing Shieldalloy to pursue the same disposal option it was pursing under our regulations. *See, e.g.*, Feb. 11, 2011 filing at 11 ("New Jersey's unrestricted use, limited restricted use, and restricted use standards do not allow consideration of engineered barriers *such as that proposed by Shieldalloy*.") (emphasis

[135] Shieldalloy Initial Response at 16.

[136] Shieldalloy Reply at 11.

[137] *See* N.J. Admin. Code § 7:28-12.11(e).

added). This boils down to a complaint, then, that New Jersey's license termination regulations, including their dose calculation methodology with respect to failure of controls, are more conservative than ours. In view of our Category C designation for our license termination rule, however, more conservative New Jersey requirements are permissible.[138]

d. Departure from NRC's Regulations

Shieldalloy argues that we cannot find New Jersey's license termination program compatible with ours because it "significantly departs" from our program in ways that we had previously "addressed and rejected" in our license termination rulemaking.[139] In addition to ALARA and restricted release, which we have already discussed, Shieldalloy cites the following so-called "departures" from our regulations: (1) New Jersey's 15 mrem per year dose limit, versus our 25 mrem per year dose limit; (2) New Jersey's calculation of doses to the longer of the time of peak dose or 1000 years, versus our calculation limited to the first 1000 years of decommissioning; (3) New Jersey's failure to allow for potential doses over 100 mrem per year, versus our allowance of 500 mrem under certain circumstances; and (4) New Jersey's requirement that radioactively contaminated ground and surface water be remediated in accordance with New Jersey water quality requirements, versus our "all pathways" approach without a separate release standard

[138] Shieldalloy suggests in passing (in a footnote) that regardless of what New Jersey's regulations provide, New Jersey has "unambiguously declared that its regulations do not allow license termination based on onsite remediaton." Shieldalloy Initial Response at 16 n.26. Shieldalloy points to an undocumented December 2008 New Jersey communication, and to a December 11, 2009, letter from New Jersey to Shieldalloy. The letter cited by Shieldalloy reflects that New Jersey did not accept Shieldalloy's restricted-use plan because the plan failed to satisfy New Jersey's 100 mrem dose criterion for restricted use under an "all controls failed" scenario and because a long-term control license is required, which the New Jersey regulations do not allow. Thus, New Jersey's rejection of Shieldalloy's proposed plan simply reflects its implementation of a permissibly more conservative regulation.

[139] Shieldalloy Initial Response at 17.

for water.[140] Shieldalloy asserts that these differences are such that New Jersey's program fails to give effect to the "essential objective" of our regulations and therefore is incompatible with ours.

We disagree. We decided the compatibility issue in the license termination rulemaking, when we found, through our Level C designation, that states are free to impose more stringent requirements than ours.[141] The New Jersey variances cited by Shieldalloy are aspects of the state's regulations that are more stringent than ours on the same technical subject areas. As we have made clear throughout today's decision, our compatibility policy contemplates state variances to account for local needs, desires, and conditions, and explicitly permits more stringent state regulations for license termination. By adopting a lower dose limit and requiring more conservative dose calculation methodologies, New Jersey's approach embodies the "essential objective" of our license termination rule – "to provide specific radiological criteria for the decommissioning of lands and structures . . . to ensure that decommissioning will be carried out without undue impact on public health and safety and the environment."[142]

e. Criterion 23

Shieldalloy claims that New Jersey's license termination regulations are not "fair and impartial" as required by Criteron 23 of our 1981 Policy Statement, because they are "aimed solely at the Newfield site and intended to force the removal of the material stored at the Newfield site."[143] Shieldalloy claims that it is "extremely improbable, if not

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[140] *Id*.

[141] If Shieldalloy was dissatisfied with the compatibility designation for the license termination rule, it could have sought a change in the designation by filing a petition for rulemaking. *See* 10 C.F.R. § 2.802.

[142] *See* License Termination Rule, 62 Fed. Reg. at 39,058.

[143] Shieldalloy Initial Response at 18.

impossible, for a new facility where source materials are used to be licensed under New Jersey's radiation control rules."[144]

On its face, New Jersey's program incorporates all of the regulatory components specified in Criterion 23, including procedures for public participation, formulation of rules of general applicability, approving and denying applications for licenses to possess and use radioactive material, and taking disciplinary actions against licensees. All of these requirements, in addition to the license termination regulations, will apply to New Jersey's regulation of the Newfield site.

Moreover, we do not see anything unfair or unlawful in state regulations that may apply to just one licensee in a state at any given time. An agreement state must have a regulatory program in place for *all* of the nuclear material categories and activities that a state wishes to regulate, currently and potentially. In fact, the absence of comprehensive regulations would render a state's program inadequate and incompatible under section 274. Nothing in section 274 or any of our implementing policy statements or guidance documents suggests that there must be more than one licensee or multiple licensees in a nuclear material class or activity before a state may assume regulatory jurisdiction over or adopt regulations governing that class of material or material activity.

Neither do we view a state's regulations as inherently unfair because they may be designed to effectuate a state-desired regulatory outcome. It is the prerogative of a state under the section 274 agreement-state program to decide what local interests, preferences, and needs it wishes to accommodate. Our role under section 274 is to assess whether a state's program adequately protects the public health and safety and whether it is compatible with ours. In the case of New Jersey, we have found the

[144] *Id*.

provisions for both restricted release and unrestricted release to be adequate and compatible under our longstanding agreement-state policies.

f. Implementation of New Jersey's Program

Today, we have determined that New Jersey's regulatory program is adequate and compatible as to the Newfield site on a programmatic level. While we assume that an agreement state will conduct its regulatory actions in good faith and consistent with its approved program, a state's application of its regulations may raise issues that can only be addressed if and when they arise. For example, in the case of a state's program that, like New Jersey's, is considerably more stringent than ours but acceptable on its face, it is conceivable that unduly strict application could prove incompatible with our regulatory program. If a regulated entity believes that a state's program, as implemented, is unlawful or contrary to public health and safety, it may raise its agreement-state performance concerns with us. NRC will address agreement-state performance concerns through our Integrated Materials Performance Evaluation Program (IMPEP) process[145] or through an independent agreement-state performance concern evaluation, depending on the performance concern raised. We retain power under AEA section 274j.,[146] to revoke agreements with states and to restore NRC regulatory authority.

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[145] Our 1997 Policy Statement described the IMPEP as a process "to provide NRC and agreement-state management with systematic, integrated, and reliable evaluations of the strengths and weaknesses of their respective radiation control programs and identification of areas needing improvement." 1997 Policy Statement, 62 Fed. Reg. at 46,521. Our guidance for implementing this review program is contained in NRC Management Directive 5.6, *Integrated Materials Performance Evaluation Program. See* NRC Website, *Office of Federal and State Materials and Environmental Management Programs* (Feb. 26, 2004), available at <http://nrc-stp.ornl.gov/procedures.html#directives>. The first IMPEP review generally occurs approximately 18 months after an agreement is entered into, and every four or five years thereafter.

[146] 42 U.S.C. § 2021(j) (2011).

Accordingly, Shieldalloy is not without recourse if New Jersey's implementation of its license termination regulations at the Newfield site proves so inflexible or so lax as to diminish public health and safety. Were that to occur, it is within NRC's authority to find New Jersey's program, as applied, inadequate or incompatible. Shieldalloy is free to raise concerns of this kind at any time.

IV. CONCLUSION

For the foregoing reasons, we *reinstate* New Jersey's authority to regulate Shieldalloy's Newfield site.

IT IS SO ORDERED.

For the Commission

[NRC SEAL] **/RA/**

Andrew L. Bates
Acting Secretary of the Commission

Dated at Rockville, Maryland
this 12th day of October, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
SHIELDALLOY METALLURGICAL CORP.	)	Docket No. 40-7102-MLA
	)	
(License Amendment Request for Decommissioning of the Newfield, New Jersey Facility)	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **COMMISSION MEMORANDUM AND ORDER (CLI-11-12)**, have been served upon the following persons by electronic mail this date, followed by deposit of paper copies in the U.S. mail, first class, and NRC internal mail.

U.S. Nuclear Regulatory Commission
Atomic Safety and Licensing Board Panel
Mail Stop T-3 F23
Washington, DC 20555-0001

Alan S. Rosenthal, Chair
Administrative Judge
E-mail: alan.rosenthal@nrc.gov

Richard E. Wardwell
Administrative Judge
E-mail: richard.wardwell@nrc.gov

Dr. William H. Reed
Administrative Judge
E-mail: whrcville@embarqmail.com
william.reed@nrc.gov

U.S. Nuclear Regulatory Commission
Office of the General Counsel
Mail Stop O-15 D21
Washington, DC 20555-0001

Catherine Scott, Esq.
Michael J. Clark, Esq.
catherine.marco@nrc.gov
michael.clark@nrc.gov

OGC Mail Center:
OGCMailCenter@nrc.gov

U.S. Nuclear Regulatory Commission
Office of Commission Appellate Adjudication
Mail Stop: O-16C1
Washington, DC 20555-0001
E-mail: ocaamail@nrc.gov

U.S. Nuclear Regulatory Commission
Office of the Secretary of the Commission
Mail Stop: O-16C1
Washington, DC 20555-0001
hearingdocket@nrc.gov

Jay E. Silberg, Esq.
Matias F. Travieso-Diaz, Esq.
Robert B. Haemer, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 N Street, N.W.
Washington, DC 20037-1128
E-mail: jay.silberg@pillsburylaw.com;
matias.travieso-diaz@pillsburylaw.com;
robert.haemer@pillsburylaw.com

Stuart Rabner, Esq.
Attorney General of New Jersey
Andrew W. Reese, Esq.
Kenneth Elwell, Esq.
Deputy Attorneys General
New Jersey Office of the Attorney General
Department of Law and Public Safety
Division of Law
25 Market Street, P.O. Box 093
Trenton, NJ 08625-0093

E-mail: reeseand@dol.lps.state.nj.us
kenneth.elwell@dol.lps.state.nj.us

David R. Smith, Radiation Safety Officer
Shieldalloy Metallurgical Corporation
12 West Boulevard
P.O. Box 768
Newfield, NJ 08344-0768

[Original signed by Linda D. Lewis]
Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 12th day of October 2011

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National Advisory Committee on Occupational Safety and Health; Full Committee Meeting and Subgroup Meeting

Notice is hereby given that the National Advisory Committee on Occupational Safety and Health (NACOSH) will meet on February 25–27, 1981 at the Frances Perkins Department of Labor Building, Room N4437, Third Street and Constitution Avenue, N.W., Washington, D.C. The meetings will begin at 9:00 a.m. the public is invited to attend.

The National Advisory Committee was established under Section 7(a) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 656) to advise the Secretary of Labor and the Secretary of Health, Education and Welfare on matters relating to the administration of the Act.

Wednesday, February 25, 1981 will be devoted to Subgroup meetings. The Subgroups will discuss:

1. Reproductive Hazards.
2. Safety and Health Effects of New Energy Technologies.
3. Information Systems for NIOSH/OSHA Priority Setting.

The agenda for February 26 and 27 will include reports on OSHA and NIOSH activities, a discussion of repeat violations, and discussions of other safety and health matters relating to OSHA and NIOSH.

Written data or views concerning these agenda items may be submitted to the Division of Consumer Affairs. Such documents which are received before the scheduled meeting dates, preferably with 20 copies, will be presented to the Committee and included in the official record of the proceedings.

Anyone who wishes to make an oral presentation should notify the Division of Consumer Affairs before the meeting date. The request should include the amount of time desired, the capacity in which the person will appear and a brief outline of the content of the presentation. Oral presentations will be scheduled at the discretion of the chairman of the Committee to the extent which time permits.

For additional information contact:

Clarence Page, Division of Consumer Affairs, Occupational Safety and Health Administration, 3rd Street and Constitution Avenue, N.W., Rm. N3635, Washington, D.C. 20210, Telephone 202/523–8024.

Official records of the meetings will be available for public inspection at the Division of Consumer Affairs.

Signed at Washington, D.C., this 16th day of January 1981.

Eula Bingham,

Assistant Secretary of Labor.

[FR Doc. 81–2635 Filed 1–22–81; 8:45 am]

BILLING CODE 4510–26–M

NUCLEAR REGULATORY COMMISSION

Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Statement of Policy.

SUMMARY: The Nuclear Regulatory Commission has revised its statement of policy regarding criteria for guidance of States and NRC in discontinuance of NRC regulatory authority and assumption of regulatory authority by States through agreement. This action is necessary to make editorial changes to update the policy statement, to allow States to enter into agreements for low-level waste only, and to incorporate the provisions and requirements of the Uranium Mill Tailings Radiation Control Act of 1978. Adoption of this policy will allow interested States to enter into agreements with the NRC and regulate low-level waste sites only. Additionally, those States that meet the criteria for the regulation of uranium mills and tailings may exercise regulatory authority over these sources as provided by the Uranium Mill Tailings Radiation Control Act of 1978, as amended.

The revised statement of policy reflects the following principal changes:

1. Modification of Criterion 27 to allow a State to seek an agreement for the regulation of low-level waste as a separate category.
2. Inclusion of additional criteria for States wishing to continue regulating uranium and thorium processors and mill tailings after November 8, 1981.
3. Editorial and clarifying changes to make the statement current.

DATES: This policy statement is effective January 23, 1981.

FOR FURTHER INFORMATION CONTACT: John F. Kendig, Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone: 301–492–7767.

SUPPLEMENTARY INFORMATION:

1. These criteria were developed to implement a program, authorized by Pub. L. 86–373 which was enacted in the form of a new section to the Atomic Energy Act (Section 274) and approved by the President on September 23, 1959 and amended by Pub. L. 95–604 approved November 8, 1978. These criteria are intended to indicate factors which the Commission intends to consider in approving new or amended agreements. They are not intended to limit Commission discretion in viewing individual agreements or amendments. In accordance with these statutory provisions, when an agreement between a State and the NRC is effected, the Commission will discontinue its regulatory authority within that State over one or more of the following materials: byproduct material as defined in Section 11e(1) of the Act (radioisotopes), byproduct material as defined in Section 11e(2) of the Act (mill tailings or wastes), source material (uranium and thorium), special nuclear material (uranium 233, uranium 235 and plutonium) in quantities not sufficient to form a critical mass and permanent disposal of low-level waste containing one or more of the materials stated above but not including mill tailings.

2. An agreement may be effected between a State and NRC: (1) upon certification by the Governor that the State has a program for the control of radiation hazards adequate to protect the public health and safety with respect to the materials within the State covered by the proposed agreement and the State desires to assume regulatory responsibility for such materials; and (2) after a finding by the Commission that the State program is in accordance with the requirements of subsection o of section 274 and in all other respects compatible with the Commission's program for the regulation of such materials, and is adequate to protect the public health and safety with respect to the materials covered by the proposed agreement. It is also necessary that the State have enabling legislation authorizing its Governor to enter into such an agreement.

3. The original criteria were published on March 24, 1961 (26 FR 2537) after discussions with various State officials and other State representatives, to provide guidance and assistance to the States and the AEC (now NRC) in developing a regulatory program which would be compatible with that of the NRC. The criteria were circulated among States, Federal agencies, labor and industry, and other interested groups for comment.

4. The criteria require that the State authority consider the total accumulated occupational radiation exposure of individuals. To facilitate such an appoach, it is the view of the NRC that an overall radiation protection program is desirable. The maximum scope of

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each State's radiation protection program is not, however, a necessary or appropriate subject for coverage in the criteria. Consequently, the criteria are silent on the question of whether a State should have a total regulatory program covering all sources of radiation, including those not subject to control by the NRC under the Atomic Energy Act, such as x-rays, radium, accelerators, etc.

5. These revised criteria provide for entering into an agreement for a separate category of materials, namely, low-level waste material in permanent disposal facilities. They also provide new criteria for States wishing to continue regulating uranium and thorium processing and the wastes resulting therefrom under the provisions of the Uranium Mill Tailings Radiation Control Act of 1978 (Pub. L. 95-604) after November 8, 1981. The revised criteria also contain a number of editorial changes such as changing AEC to NRC where appropriate to conform to present practice and law.

6. Inquiries about details of the criteria or other aspects of the NRC Federal-State Relations Program should be addressed to the Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

Criteria [1]

Objectives

1. *Protection.* A State regulatory program shall be designed to protect the health and safety of the people against radiation hazards.

Radiation Protection Standards [2]

2. *Standards.* The State regulatory program shall adopt a set of standards for protection against radiation, which shall apply to byproduct, source and special nuclear materials in quantities not sufficient to form a critical mass.

3. *Uniformity in Radiation Standards.* It is important to strive for uniformity in technical definitions and terminology, particularly as related to such things as units of measurement and radiation dose. There shall be uniformity on maximum permissible doses and levels of radiation and concentrations of radioactivity, as fixed by Part 20 of the NRC regulations based on officially approved radiation protection guides.

4. *Total Occupational Radiation Exposure.* The regulatory authority shall consider the total occupational radiation exposure of individuals, including that from sources which are not regulated by it.

5. *Surveys, Monitoring.* Appropriate surveys and personnel monitoring under the close supervision of technically competent people are essential in achieving radiological protection and shall be made in determining compliance with safety regulations.

6. *Labels, Signs, Symbols.* It is desirable to achieve uniformity in labels, signs and symbols, and the posting thereof. However, it is essential that there be uniformity in labels, signs, and symbols affixed to radioactive products which are transferred from person to person.

7. *Instruction.* Persons working in or frequenting restricted areas [3] shall be instructed with respect to the health risks associated with exposure to radioactive materials and in precautions to minimize exposure. Workers shall have the right to request regulatory authority inspections as per 10 CFR 19, section 19.16 and to be represented during inspections as specified in section 19.14 of 10 CFR 19.

8. *Storage.* Licensed radioactive material in storage shall be secured against unauthorized removal.

9. *Waste Disposal.* The standards for the disposal of radioactive materials into the air, water, and sewers, and burial in the soil shall be in accordance with Part 20. Holders of radioactive material desiring to release or dispose of quantities in excess of the prescribed limits shall be required to obtain special permission from the appropriate regulatory authority.

10. *Regulations Governing Shipment of Radioactive Materials.* The State shall to the extent of its jurisdiction promulgate regulations applicable to the shipment of radioactive materials, such regulations to be compatible with those established by the U.S. Department of Transportation and other agencies of the United States whose jurisdiction over interstate shipment of such materials necessarily continues. State regulations regarding transportation of radioactive materials must be compatible with 10 CFR Part 71.

11. *Records and Reports.* The State regulatory program shall require that holders and users of radioactive materials (a) maintain records covering personnel radiation exposures, radiation surveys, and disposals of materials; (b) keep records of the receipt and transfer of the materials; (c) report significant incidents involving the materials, as prescribed by the regulatory authority; (d) make available upon request of a former employee a report of the employee's exposure to radiation; (e) at request of an employee advise the employee of his or her annual radiation exposure; and (f) inform each employee in writing when the employee has received radiation exposure in excess of the prescribed limits.

12. *Additional Requirements and Exemptions.* Consistent with the overall criteria here enumerated and to accommodate special cases or circumstances, the State regulatory authority shall be authorized in individual cases to impose additional requirements to protect health and safety, or to grant necessary exemptions which will not jeopardize health and safety.

Prior Evaluation of Uses of Radioactive Materials

13. *Prior Evaluation of Hazards and Uses, Exceptions.* In the present state of knowledge, it is necessary in regulating the possession and use of byproduct, source and special nuclear materials that the State regulatory authority require the submission of information on, and evaluation of, the potential hazards and the capability of the user or possessor prior to his receipt of the materials. This criterion is subject to certain exceptions and to continuing reappraisal as knowledge and experience in the atomic energy field increase. Frequently there are, and increasingly in the future there may be, categories of materials and uses as to which there is sufficient knowledge to permit possession and use without prior evaluation of the hazards and the capability of the possessor and user. These categories fall into two groups—those materials and uses which may be completely exempt from regulatory controls, and those materials and uses in which sanctions for misuse are maintained without pre-evaluation of the individual possession or use. In authorizing research and development or other activities involving multiple uses of radioactive materials, where an institution has people with extensive training and experience, the State regulatory authority may wish to provide a means for authorizing broad use of materials without evaluating each specific use.

14. *Evaluation Criteria.* In evaluating a proposal to use radioactive materials, the regulatory authority shall determine the adequacy of the applicant's facilities

[1] The criteria were first adopted in February 1961 (26 FR 2537, March 24, 1961, and amended in November 1965 (30 FR 15044, December 4, 1965). Minor editorial changes were made in June 1968 to reflect the authority of the U.S. Department of Transportation and Organization change in NCRP.

[2] Suggested State regulations and State legislation will give content to all criteria enunciated.

[3] "Restricted area" means any area access to which is controlled by the licensee for the purpose of radiation protection of individuals from exposure to radiation and radioactive materials. "Restricted area" shall not include any area used as residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area.

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and safety equipment, his training and experience in the use of the materials for the purpose requested, and his proposed administrative controls. States should develop guidance documents for use by license applicants. this guidance should be consistent with NRC licensing and regulatory guides for various categories of licensed activities.

15. *Human Use.* The use of radioactive materials and radiation on or in humans shall not be permitted except by properly qualified persons (normally licensed physicians) possessing prescribed minimum, experience in the use of radioisotopes or radiation.

Inspection

16. *Purpose; Frequency.* The possession and use of radioactive materials shall be subject to inspection by the regulatory authority and shall be subject to the performance of tests, as required by the regulatory authority. Inspection and testing is conducted to determine, and to assist in obtaining, compliance with regulatory requirements.

Freqency of inspection shall be related directly to the amount and kind of material and type of operation licensed, and it shall be adequate to insure compliance.

17. *Inspections Compulsory.* Licensees shall be under obligation by law to provide access to inspectors.

18. *Notification of Results of Inspection.* Licensees are entitled to be advised of the results of inspections and to notice as to whether or not they are in compliance.

Enforcement

19. *Enforcement.* Possession and use of radioactive materials should be amenable to enforcement through legal sanctions, and the regulatory authority shall be equipped or assisted by law with the necessary powers for prompt enforcement. This may include, as appropriate, administrative remedies looking toward issuance of orders requiring affirmative action or suspension or revocation of the right to possess and use materials, and the impounding of materials, the obtaining of injunctive relief, and the imposing of civil or criminal penalties.

Personnel

20. *Qualifications of Regulatory and Inspection Personnel.* The regulatory agency shall be staffed with sufficient trained personnel. Prior evaluation of applications for licenses or authorizations and inspection of licensees must be conducted by persons possessing the training and experience relevant to the type and level of radioactivity in the proposed use to be evaluated and inspected. This requires competency to evaluate various potential radiological hazards associated with the many uses of radioactive material and includes concentrations of radioactive materials in air and water, conditions of shielding, the making of radiation measurements, knowledge of radiation instruments—their selection, use and calibration—laboratory design, contamination control, other general principles and practices of radiation protection, and use of management controls in assuring adherence to safety procedures. In order to evaluate some complex cases, the State regulatory staff may need to be supplemented by consultants or other State agencies with expertise in geology, hydrology, water quality, radiobiology and engineering disciplines.

To perform the functions involved in evaluation and inspection, it is desirable that there be personnel educated and trained in the physical and/or life sciences, including biology, chemistry, physics and engineering, and that the personnel have had training and experience in radiation protection. For example, the person who will be responsible for the actual performance of evaluation and inspection of all of the various uses of byproduct, source and special nuclear material which might come to the regulatory body should have substantial training and extensive experience in the field of radiation protection. It is desirable that such a person have a bachelor's degree or equivalent in the physical or life sciences, and specific training radiation protection.

It is recognized that there will also be persons in the program performing a more limited function in evaluation and inspection. These persons will perform the day-to-day work of the regulatory program and deal with both routine situations as well as some which will be out of the ordinary. These persons should have a bachelor's degree or equivalent in the physical or life sciences, training in health physics, and approximately two years of actual work experience in the field of radiation protection.

The foregoing are considered desirable qualifications for the staff who will be responsible for the actual performance of evaluation and inspection. In addition, there will probably be trainees associated with the regulatory program who will have an academic background in the physical or life sciences as well as varying amounts of specific training in radiation protection but little or no actual work experience in this field. The background and specific training of these persons will indicate to some extent their potential role in the regulatory program. These trainees, of course, could be used initially to evaluate and inspect those applications of radioactive materials which are considered routine or more standardized from the radiation safety standpoint, for example, inspection of industrial gauges, small research programs, and diagnostic medical programs. As they gain experience and competence in the field, trainees could be used progressively to deal with the more complex or difficult types of radioactive material applications. It is desirable that such trainees have a bachelor's degree or equivalent in the physical or life sciences and specific training in radiation protection. In determining the requirement for academic training of individuals in all of the foregoing categories proper consideration should be given to equivalent competency which has been gained by appropriate technical and radiation protection experience.

It is recognized that radioactive materials and their uses are so varied that the evaluation and inspection functions will require skills and experience in the different disciplines which will not always reside in one person. The regulatory authority should have the composite of such skills either in its employ or at its command, not only for routine functions, but also for emergency cases.

Special Nuclear Material, Source Material and Tritium

21. *Conditions Applicable to Special Nuclear Material, Source Material and Tritium.* Nothing in the State's regulatory program shall interfere with the duties imposed on the holder of the materials by the NRC, for example, the duty to report to the NRC, on NRC prescribed forms (1) transfers of special nuclear material, source material and tritium, and (2) periodic inventory data.

22. *Special Nuclear Material Defined.* Special nuclear material, in quantities not sufficient to form a critical mass, for present purposes means uranium enriched in the isotope U–235 in quantities not exceeding 350 grams of contained U–235; uranium 233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of

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such ratios for all of the kinds of special nuclear material in combination should not exceed "1" (i.e., unity). For example, the following quantities in combination would not exceed the limitation and are within the formula, as follows:

$$\frac{175 \text{ (grams contained U-235)}}{350} + \frac{50 \text{ (grams U-233)}}{200} + \frac{50 \text{ (grams Pu)}}{200} = 1$$

(This definition is subject to change by future Commission rule or regulation.)

Administration

23. State practices for assuring the fair and impartial administration of regulatory law, including provision for public participation where appropriate, should be incorporated in procedures for:

a. Formulation of rules of general applicability;

b. Approving or denying applications for licenses or authorization to possess and use radioactive materials, and

c. Taking disciplinary actions against licensees.

Arrangements For Discontinuing NRC Jurisdiction

24. *State Agency Designation.* The State should indicate which agency or agencies will have authority for carrying on the program and should provide the NRC with a summary of that legal authority. There should be assurances against duplicate regulation and licensing by State and local authorities, and it may be desirable that there be a single or central regulatory authority.

25. *Existing NRC Licenses and Pending Applications.* In effecting the discontinuance of jurisdiction, appropriate arrangements will be made by NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications, by reason of the transfer. For example, one approach might be that the State, in assuming jurisdiction, could recognize and continue in effect, for an appropriate period of time under State law, existing NRC licenses, including licenses for which timely applications for renewal have been filed, except where good cause warrants the earlier reexamination or termination of the license.

26. *Relations With Federal Government and Other States.* There should be an interchange of Federal and State information and assistance in connection with the issuance of regulations and licenses or authorizations, inspection of licensees, reporting of incidents and violations, and training and education problems.

27. *Coverage, Amendments, Reciprocity.* An agreement providing for discontinuance of NRC regulatory authority and the assumption of regulatory authority by the State may relate to any one or more of the following categories of materials within the State, as contemplated by Public Law 86–373 and Public Law 95–604:

a. Byproduct materials as defined in section 11e(1) of the Act,

b. Byproduct materials as defined in section 11e(2) of the Act,

c. Source materials,

d. Special nuclear materials in quantities not sufficient to form a critical mass,

e. Low-level wastes in permanent disposal facilities, as defined by statute or Commission rules or regulations containing one or more of the materials stated in a, c, and d above but not including byproduct material as defined in Section 11e(2) of the Act;

but must relate to the whole of such category or categories and not to a part of any category.[4] If less than the five categories are included in any discontinuance of jurisdiction, discontinuance of NRC regulatory authority and the assumption of regulatory authority by the State of the others may be accomplished subsequently by an amendment or by a later agreement.

The agreement may incorporate by reference provisions of other documents, including these criteria, and the agreement shall be deemed to incorporate without specific reference the provisions of Pub. L. 86–373 and Pub. L. 95–604 and the related provisions of the Atomic Energy Act.

Arrangements should be made for the reciprocal recognition of State licenses and Federal licenses in connection with out-of-the-jurisdiction operations by a State or Federal licensee.

28. *NRC and Department of Energy Contractors.* The State should provide exemptions for NRC and DOE contractors which are substantially equivalent to the following exemptions:

a. Prime contractors performing work for the DOE at U.S. Government-owned or controlled sites;

b. Prime contractors performing research in, or development, manufacture, storage, testing, or transportation of, atomic weapons or components thereof;

c. Prime contractors using or operating nuclear reactors or other nuclear devices in a U.S. Government-owned vehicle or vessel; and

d. Any other prime contractor or subcontractor of DOE or NRC when the State and the NRC jointly determine (i) that, under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety and (ii) that the exemption of such contractor or subcontractor is authorized by law.

Additional Criteria for States Regulating Uranium or Thorium Processors and Wastes Resulting Therefrom After November 8, 1981

Statutes

29. State statutes or duly promulgated regulations should be enacted, if not already in place, to make clear State authority to carry out the requirements or Public Law 95–604, Uranium Mill Tailings Radiation Control Act (UMTRCA) as follows:

a. Authority to regulate the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

b. That an adequate surety (under terms established by regulation) will be provided by the licensee to assure the completion of all requirements established by the (cite appropriate State agency) for the decontamination, decommissioning, and reclamation of sites, structures, and equipment used in conjunction with the generation or disposal of such byproduct material.

c. If in the States' licensing and regulation of byproduct material or of any activity which produces byproduct material, the State collects funds from the licensee or its surety for long-term surveillance and maintenance of such material, the total amount of the funds collected by the State shall be transferred to the U.S. if custody of the byproduct material and its disposal site is transferred to the Federal Government upon termination of the State license. (See 10 CFR 150.32.) If no default has occurred and the reclamation or other bonded activity has been performed, funds for the purpose

[4] A State which does not wihh to continue regulation of uranium and thorium processors and byproduct material, as defined in Section 11e.(2) of the Atomic Energy Act as amended, after November 8, 1981 pursuant to Pub. L. 95–604 may obtain authority over all source material licenses within the State except for uranium or thorium processors.

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are not to be transferred to the Federal Government. The funds collected by the State shall be sufficient to ensure compliance with the regulations the Commission establishes pursuant to Section 161X of the Atomic Energy Act.

d. In the issuances of licenses, an opportunity for written comments, public hearing (with transcript) and cross examination is required.

e. In the issuances of licenses, a written determination of the action to be taken based upon evidence presented during the public comment period and which is subject to judicial review is required.

f. A ban on major construction prior to completion of the aforementioned stipulations.

g. An opportunity shall be provided for public participation through written comments, public hearings, and judicial review of rules.

30. In the enactment of any supporting legislation, the State should take into account the reservations of authority to the U.S. in UMTRCA as stated in 10 CFR 150.15a and summarized by the following:

a. The establishment of minimum standards governing reclamation, long-term surveillance or maintenance, and ownership of the byproduct material.

b. The determination that prior to the termination of a license, the licensee has complied with decontamination, decommissioning and reclamation standards, and ownership requirements for sites at which byproduct material is present.

c. The requirement that prior to termination of any license for byproduct material, as defined in Section 11e.(2), of the Atomic Energy Act or for any activity that results in the production of such material, title to such byproduct material and the disposal site be transferred to the Federal Government or State at the option of the State, provided such option is exercised prior to termination of the license.

d. The authority to require such monitoring, maintenance, and emergency measures after the license is terminated as necessary to protect the public health and safety for those materials and property for which the State has assumed custody pursuant to Pub. L. 95-604.

e. The authority to permit use of the surface or subsurface estate, or both of the land transferred to the United States or State pursuant under provision of the Uranium Mill Radiation Tailings Control Act.

f. The authority to exempt land ownership transfer requirements of Section 83(b)(1)(A).

31. It is preferable that State statutes contain the provisions of Section 6 of the Model Act, But the following may be accomplished by adoption of either procedures by regulation or technical criteria. In any case, authority for their implementation should be adequately supported by statute, regulation or case law as determined by the State Attorney General.

In the licensing and regulation of ores processed primarily for their source material content and for the disposal of byproduct material, procedures shall be established which provide a written analysis of the impact on the environment of the licensing activity. This analysis shall be available to the public before commencement of hearings and shall include:[5]

a. An assessment of the radiological and nonradiological public health impacts;

b. An assessment of any impact on any body of water or groundwater;

c. Consideration of alternatives to the licensed activities; and

d. Consideration of long-term impacts of licensed activities (see Item 36b.(1).

Regulations

32. State regulations should be reviewed for regulatory requirements, and where necessary incorporate regulatory language which is equivalent to the extent practicable or more stringent than regulations and standards adopted and enforced by the Commission, as required by Section 274o (see 10 CFR 40 and 10 CFR 150.31(b)).

Organizational Relationships Within the States

33. Organizational relationships should be established which will provide for an effective regulatory program for uranium mills and mill tailings.

a. Charts should be developed which show the management organization and lines of authority. This chart should define the specific lines of supervision from program management within the radiation control group and any other department within the State responsible for contributing to the regulation of uranium processing and disposal of tailings. When other State agencies or regional offices are utilized, the lines of communication and administrative control between the agencies and/or regions and the Program Director should be clearly drawn.

b. Those States that will utilize personnel from other State Departments or Federal agencies in preparing the environmental assessment should designate a lead agency for supervising and coordinating preparation of this environmental assessment. It is normally expected that the radiation control agency in Agreement States will be the lead agency. The basic premise is that the lead agency is required to prepare the environmental assessment. Utilization of an applicant's environmental report in lieu of a lead agency assessment of the proposed project is not adequate or appropriate. However, the lead agency may prepare an environmental assessment based upon an applicant's environmental report. Other credible information may be utilized by the State as long as such information is verified and documented by the State.

c. When a lead agency is designated, that agency should coordinate preparation of the statement. The other agencies involved should provide assistance with respect to their areas of jurisdiction and expertise. Factors relevant in obtaining assistance from other agencies include the applicable statutory authority, the time sequence in which the agencies become involved, the magnitude of their involvement, and relative expertise with respect to the project's environmental effects.

In order to bring an environmental assessment to a satisfactory conclusion, it is highly recommended that an initial scoping document be developed which clearly delineates the area and scope of work to be performed by each agency within a given time constraint.

d. For those areas in the environmental assessment where the State cannot identify a State agency having sufficient expertise to adequately avaluate the proposal or prepare an assessment, the State should have provisions for obtaining outside consulting services. In those instances where non-governmenatal consultants are utilized, procedures should be established to avoid conflict of interest consistent with State law and administrative procedures.

Medical consultants recognized for their expertise in emergency medical matters, such as the Oak Ridge and Hanford National Laboratories, relating to the intake or uranium and its diagnosis thereof associated with uranium mining and milling should be identified and available to the State for advice and direct assistance.

During the budget preparation, the State should allow for funding costs incurred by the use of consultants. In addition, consultants should be available for any emergencies which

[5] It is strongly recommended that a 30-day period be provided for public review.

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may occur and for which their expertise would be needed immediately.

Personnel

34. Personnel needed in the processing of the license application can be identified or grouped according to the following skills: Technical; Administrative; and Support.

a. Administrative personnel are those persons who will provide internal guides, policy memoranda, reviews and managerial services necessary to assure completion of the licensing action. Support personnel are those persons who provide secretarial, clerical support, legal, and laboratory services. Technical personnel are those individuals who have the training and experience in radiation protection necessary to evaluate the enginering and radiological safety aspects of a uranium concentrator. Current indications are that 2 to 2.75 total professional person years' effort is needed to process a new conventional mill license, in situ license, or major renewal, to meet the requirements of UMTRCA. This number includes the effort for the environmental assessment and the in-plant safety review. It also includes the use of consultants. Heap leach applications may take less time and is expected to take 1.0 to 1.5 professional staff years' effort, depending on the circumstances encountered. Current indications are that the person years effort for support and legal services should be one secretary for approximately 2 conventional mills and ½ staff years for legal services for each noncontested mill case. The impact on environmental monitoring laboratory support services is difficult to estimate but should be added into the personnel requirements.

In addition, consideration should be given to various miscellaneous post-licensing ongoing activities including the issuance of minor amendments, inspections, and environmental surveillance. It is estimated that these activities may require about 0.5 to 1 person years effort per licensed facility per year, the latter being the case for a major facility. These figures do not include manpower for Title I activitives of UMTRCA.

b. In evaluating license applications the State shall have access to necessary specialities, e.g., radiological safety, hydrology, geology and dam construction and operation.

In addition to the personnel qualifications listed in the "Guide for Evaluation of State Radiation Control Programs," Revision 3, February 1, 1980, the regulatory staff involved in the regulatory process (Radiation) should have additional training in Uranium Mill Health Physics and Environmental Assessments.

c. Personnel in agencies other than the lead agency are included in these total person year numbers. If other agencies are counted in these numbers then it shall be demonstrated that these personnel will be available on a routine and continuing basis to a degree claimed as necessary to successfully comply with the requirements of UMTRCA and these criteria. The arrangements for making such resources available shall be documented, such as an interagency memorandum of understanding and confirmed by budgetary cost centers.

Functions To Be Covered

35. The States should develop procedures for licensing, inspection, and preparation of environmental assessments.

a. *Licensing*

(1) Licensing evaluations or assessments should include in-plant radiological safety aspects in occupational or restricted areas and environmental impacts to populations in unrestricted areas from the plant.

(2) It is expected that the State will review, evaluate and provide documentation of these evaluations. Items which should be evaluated are:

(a) Proposed activities;
(b) Scope of proposed action;
(c) Specific activities to be conducted;
(d) Administrative procedures;
(e) Facility organization and radiological safety responsibilities, authorities, and personnel qualifications;
(f) Licensee audits and inspections;
(g) Radiation safety training programs for workers;
(h) Radiation safety program, control and monitoring;
(i) Restricted area markings and access control;
(j) At existing mills, review of monitoring data, exposure records, licensee audit and inspection records, and other records applicable to existing mills;
(k) Environmental monitoring;
(l) Emergency procedures, radiological;
(m) Product transportation; and
(n) Site and physical decommissioning procedures, other than tailings.
(o) Employee exposure data and bioassay programs.

b. *Environmental Assessment*

(1) The environmental evaluation should consist of a detailed and documented evaluation of the following items:

(a) Topography;
(b) Geology;
(c) Hydrology and water quality;
(d) Meteorology;
(e) Background radiation;
(f) Tailings retention system;
(g) Interim stabilization, reclamation, and Site Decommissioning Program;
(h) Radiological Dose Assessment;
(1) Source terms
(2) Exposure pathway
(3) Dose commitment to individuals
(4) Dose commitment to populations
(5) Evaluation of radiological impacts to the public to include a determination of compliance with State and Federal regulations and comparisons with background values
(6) Occupational dose
(7) Radiological impact to biota other than man
(8) Radiological monitoring programs, pre-occupational and operational
(i) Impacts to surface and groundwater, both quality and quantity;
(j) Environmental effects of accidents; and
(k) Evaluation of tailings management alternatives in terms of regulations.

(2) The States are encouraged to examine the need to expand the scope of the assessment into other areas such as:

(a) Ecology;
(b) Environmental effects of site preparation and facility construction on environment and biota;
(c) Environmental effects of use and discharge of chemicals and fuels; and
(d) Economic and social effects.

c. *Inspections*

(1) As a minimum, items which should be inspected or included during the inspection of a uranium mill should adhere to the items evaluated in the in-plant safety review. The principal items recommended for inspection are:

(a) Administration;
(b) Mill circuit, including any additions, deletions, or circuit changes;
(c) Accidents/Incidents;
(d) Part 19 or equivalent requirements of the State;
(e) Action taken on previous findings;
(f) A mill tour to determine compliance with regulations, and license conditions;
(g) Tailings waste management in accordance with regulations and license conditions (see NRC Reg. Guide 3.11.1);
(h) Records;
(i) Respiratory protection in accordance with license conditions or 10 CFR Part 20.
(j) Effluent and environmental monitoring;
(k) Training programs;
(l) Transportation and shipping;
(m) Internal review and audit by management;

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(n) Exit interview; and
(o) Final written report documenting the results of the inspection and findings on each item.

(2) In addition, the inspector should perform the following:

(a) Independent surveys and sampling.

(3) Additional guidance is contained in appropriate NRC regulatory and inspection guides. A *complete* inspection should be performed at least once per year.

d. *Operational Data Review*

(1) In addition to the reporting requirements required by the regulations or license conditions, the licensee will submit in writing to the regulatory agency within 60 days after January 1 and July 1 of each year, reports specifying the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in gaseous effluents during the previous six months of operation. This data shall be reported in a manner that will permit the regulatory agency to confirm the potential annual radiation doses to the public.

(2) All data from the radiological and non-radiological environmental monitoring program will also be submitted for the same time periods and frequency. The data will be reported in a manner that will allow the regulatory agency to conform the dose to receptors.

Instrumentation

36. The State should have available both field and laboratory instrumentation sufficient to ensure the licensee's control of materials and to validate the licensee's measurements.

a. The State will submit its list of instrumentation to the NRC for review. Arrangements should be made for calibrating such equipment.

b. Laboratory-type instrumentation should be available in a State agency or through a commercial service which has the capability for quantitative and qualitative analysis of radionuclides associated with natural uranium and its decay chain, primarily; U-238, Ra-226, Th-320, Pb-210, and Rn-222, in a variety of sample media such as will be encountered from an environmental sampling program.

Analysis and data reduction from laboratory analytical facilities should be available to the licensing and inspection authorities in a timely manner. Normally, the data should be available within 30 days of submittal. State acceptability of quality assurance (QA) programs should also be established for the analytical laboratories.

c. Arrangements should also be completed so that a large number of samples in a variety of sample media resulting from a major accident can be analyzed in a time frame that will allow timely decisions to be made regarding public health and safety.

d. Arrangements should be made to participate in the Environmental Protection Agency quality assurance program for laboratory performance.

Dated at Washington, D.C. this 16th day of January, 1981.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Assistant Secretary of the Commission.

[FR Doc. 81-2428 Filed 1-22-81; 8:45 am]

BILLING CODE 7590-01-M

Advisory Committee on Reactor Safeguards; Proposed Meetings

In order to provide advance information regarding proposed meetings of the ACRS Subcommittees and Working Groups, and of the full Committee, the following preliminary schedule reflects the current situation, taking into account additional meetings which have been scheduled and meetings which have been postponed or cancelled since the last list of proposed meetings published Dec. 22, 1980 (45 FR 84182). Those meetings which are definitely scheduled have had, or will have, an individual notice published in the Federal Register approximately 15 days (or more) prior to the meeting. Those Subcommittee and Working Group meetings for which it is anticipated that there will be a portion or all of the meeting open to the public are indicated by an asterisk (*). It is expected that the sessions of the full Committee meeting designated by an asterisk (*) will be open in whole or in part to the public. ACRS full Committee meetings begin at 8:30 a.m. and Subcommittee and Working Group meetings usually begin at 8:30 a.m. The time when items listed on the agenda will be discussed during full Committee meetings and when Subcommittee and Working Group meetings will start will be published prior to each meeting. Information as to whether a meeting has been firmly scheduled, cancelled, or rescheduled, or whether changes have been made in the agenda for the February 1981 ACRS full Committee meeting can be obtained by a prepaid telephone call to the Office of the Executive Director of the Committee (telephone 202/634-3267, ATTN: Mary E. Vanderholt) between 8:15 a.m. and 5:00 p.m., Easter Time.

ACRS Subcommittee Meetings

**Fort St. Vrain,* January 27, 1981, at site, near Longmont, CO. The Subcommittee will review operating experience, degree of success in eliminating the core power fluctuations, core performance (fuel and structural), plans for testing and operation at levels above 70% of rated power and plans for future operations, modifications, refueling, and shift manning requirments. Notice of this meeting was published Jan. 12.

**Safety Philosphy, Technology and Criteria,* January 28, 1981, Los Angeles, CA. The Subcommittee will discuss requirements for new (beyond Near-Term Construction Permit) reactor plants. Notice of this meeting was published Jan. 14.

**Extreme External Phenomena,* January 29–30, 1981, Los Angeles, CA. The Subcommittee will discuss the status of the Seismic Safety Margins Program. Notice of this meeting was published Jan. 14.

**San Onofre 2 and 3,* January 31, 1981, Los Angeles, CA. The Subcommittee will meet to review the seismology and geology related items for San Onofre Units 2 and 3 for an Operating License. Notice of this meeting was published Jan. 15.

**Regulatory Activities,* February 3, 1981, Washington, DC. The Subcommittee will discuss proposed Regulatory Guides and Regulations. Notice of this meeting was published Jan. 19.

**Plant Features Important to Safety,* February 3, 1981, Washington, DC. The Subcommittee will discuss the NRC definitions of the terms "safety grade", "safety related" and "important to safety" as developed for testimony related to the Three Mile Island Unit 1 restart, as well as review the generic implications of the use of these definitions in the licensing process. Notice of this meeting was published Jan. 19.

**NRC Safety Research Program,* February 4, 1981, Washington, DC. The Subcommittee will discuss NRC's long-range safety research plan and ACRS comments on the Office of Nuclear Regulatory Research response to ACRS recommendations in NUREG-0699. Notice of this meeting was published Jan. 21.

**Safety Philosophy, Technology and Criteria,* February 4, 1981, Washington, DC. The Subcommittee will discuss the proposed Near-Term Construction Permit. Notice of this meeting was published Jan. 21.

**Reactor Radiological Effects,* February 5, 1981, (1:00 p.m.), Washington, DC. The Subcommittee is to review and comment on the NRC Staff's paper to the NRC Commissioners on the current status of thinking and

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the enforcement of the operating rules and timetable are adequate for the safe operation of passenger trains over this district. (R-81-69)

Railroad: *Head-on Collision Between Baltimore & Ohio Railroad Company Train No. 88 and the Brunswick Helper 7603-7545 Near Germantown, Maryland, February 9, 1981 (NTSB-RAR-81-6).*—Recommendations issued June 23 to—

Baltimore & Ohio Railroad Company: Establish a train reporting procedure at Rocks and similar locations, that will enable each train dispatcher and the tower operator, in advance and to the rear of the train, to have a record of the times trains pass the reporting point. (R-81-70)

Evaluate the workloads carried by the Old Main Line and the Baltimore Terminal dispatchers to determine if they are manageable. If either is not, adjust the workloads so that each dispatcher has a manageable assignment. (R-81-71)

Redesign the Baltimore train dispatcher's office to provide facilities based on good human engineering principles and to eliminate the current distractions and uncomfortable environment. (R-81-72)

Upgrade the radio system to eliminate the marginal coverage area between Barnesville and Gaithersburg. (R-81-73)

Federal Railroad Administration: Establish regulations that would require all trains operating on main track to be equipped with an operable radio. (R-79-73) (This reiterated recommendation is still in "open" status.)

Note.—Single copies of Board reports are available without charge as long as limited supplies last. Copies of recommendation letters, responses and related correspondence are also free of charge. All requests must be in writing, identified by recommendation or report number. Address request to: Public Inquiries Section, National Transportation Safety Board, Washington, D.C. 20594.

Multiple copies of Board reports may be purchased from the National Technical Information Service, U.S. Department of Commerce, Springfield, Va. 22161.

(49 U.S.C. 1903(a)(2), 1906)

Margaret L. Fisher,

Federal Register Liaison Officer.

July 10, 1981.

[FR Doc. 81-20713 Filed 7-15-81; 8:45 am]

BILLING CODE 4910-58-M

NUCLEAR REGULATORY COMMISSION

Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement; Statement of Policy

AGENCY: Nuclear Regulatory Commission.

ACTION: Revision of Criterion 29f.

SUMMARY: In a Federal Register document published on January 23, 1981 (46 FR 7540-7546, FR Doc. 81-2428), the NRC published Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement. As published at 46 FR 7544, Col. 1, Criterion 29f. which states "ban on major construction prior to completion of the aforementioned stipulations," is inaccurate. This document corrects the text of Criterion 29 by revising paragraph f. to read as follows:

"f. A ban on major construction prior to completin of the written environmental analysis stipulated in Criterion 31."

FOR FURTHER INFORMATION CONTACT: John F. Kendig, Office of State Programs, Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 492-9891.

Dated at Washington, D.C. this 10th day of July 1981.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary of the Commission.

[FR Doc. 81-20681 Filed 7-15-81; 8:45 am]

BILLING CODE 7590-01-M

[Docket Nos. 50-458 and 50-459]

Gulf States Utilities Co., Cajun Electric Power Cooperative; Receipt of Antitrust Information

Gulf States Utilities Company, on behalf of itself and Cajun Electric Power Cooperative, has filed antitrust information for their application for operating licenses for the River Bend Station, Units 1 and 2. This information was filed pursuant to Part 2.101 of the Commission Rules and Regulations and is in connection with the owners' plans to operate two boiling water reactors in West Feliciana Parish, Louisiana. The application contains antitrust information for review pursuant to NRC Regulatory Guide 9.3 to determine whether there have been any significant changes since the completion of the antitrust review at the construction permit stage. The remainder of the application for operating licenses is currently undergoing acceptance review. Following docketing, a notice will be published in the Federal Register.

Following completion of staff antitrust review of the above-named application, the Director of Nuclear Reactor Regulation will issue an initial finding as to whether there have been "significant changes" under section 105c(2) of the Atomic Energy Act. A copy of this finding will be published in the Federal Register and will be sent to the Washington and local public document rooms and to those persons providing comments or information in response to this notice. If the initial finding concludes that there have not been any significant changes, request for reevaluation may be submitted for a period of 60 days after the date of the Federal Register notice. The results of any reevaluations that are requested will also be published in the Federal Register and copies sent to the Washington and local public document rooms.

A copy of the application for operating licenses and the antitrust information submitted are available for public examination and copying for a fee at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555 and in the local public Document Rooms at the Audubon Library, West Feciliana Branch, Ferdinand Street, St. Francisville, Louisiana and at the Louisiana State University, Government Document Department, Baton Rouge, Louisiana.

Any person who desires additional information regarding the matter covered by this notice or who wishes to have his views considered with respect to significant changes related to antitrust matters which have occurred in the applicant's activities since the construction permit antitrust reviews for the above-named plant should submit such requests for information or views to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Chief, Utility Finance Branch, Office of Nuclear Reactor Regulation, on or before September 14, 1981.

Dated at Bethesda, Maryland, this 30th day of June 1981.

For the Nuclear Regulatory Commission.

A. Schwencer,

Chief, Licensing Branch No. 2, Division of Licensing.

[FR Doc. 81-20662 Filed 7-15-81; 8:45 am]

BILLING CODE 7590-01-M

[Docket No. 50-382]

Louisiana Power & Light Co.; Availability of Safety Evaluation Report; Waterford Steam Electric Station, Unit 3

Notice is hereby given that the Office of Nuclear Reactor Regulation has published its Safety Evaluation Report relating to the proposed operation of the Waterford Steam Electric Station, Unit 3, to be located in St. Charles Parish, Louisiana. Notice of receipt of the application by the Louisiana Power & Light Company to operate the Waterford Steam Electric Station, Unit 3 was published in the Federal Register on January 2, 1979 (44 FR 125).

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devices and has chosen one for further development.

American Public Works Association: Apr. 29: P–83–5: Will inform its members of the circumstances of the accident in Portales, New Mexico, on June 28, 1982, and will urge them to cooperate with the pipeline operator in determining the extent of damage when pipeline facilities have been damaged.

Mountain Bell: Apr. 7: P–20–48 and –49: All contractors performing work for Mountain Bell must sign Bell System Practices and Contract Documents, which apply to both Mountain Bell employees and contract workers and which are strictly enforced.

The Gas Service Company (Kansas City, Missouri): Apr. 5: P–78–68, –69, and –73: Issued written policy in April 1979 concerning: (1) the need to establish and maintain lines of communication with cities and others relative to public works projects, (2) paying strict attention to requests for facility locations and keeping proper records, (3) maintaining field contact with contractors doing excavating work, along with continued field observation of work progress, so as to maintain integrity of markers, etc., and (4) requiring that on-site inspections in areas of excavation include being sure previously installed markers are visible and accessible. Introduced a new "Request to Locate Form" to provide a record of requests for locations in May 1981. *P–78–70:* Continually stresses that proper records must be kept so as to document any work effort. *P–78–71 and –75:* A procedure was written into the Operation, Maintenance and Inspection Manual in May 1979 regarding repairs, especially regarding the need to consider downward a revision of pressures and/or the shutdown of a piping system so as to accomplish a repair. Also specified was the need to train workmen as to how to properly install various repair fittings and to periodically check repair fitting stock to be sure of continued property so as to be ready for use. *P–78–72:* A revised emergency plan format was issued in May 1980 which meets the requirements of 49 CFR 192.615. Company Claims Department personnel present audiovisual programs to fire departments, along with dispensing handout-type information. *P–78–74:* Has required the use of flame-retardant clothing since December 1979.

U.S. Research and Special Programs Administration: Mar. 21: P–72–63; P–73–3, –37, and –50; P–74–29 and –38; P–75–1, –7, and –8; P–76–5, –10,–16, –43, –44, –45, and –66; P–77–34, –35, and –36; P–78–11, –44, –50, –58, –59, –60, and –61; P–79–30; P–80–29, –47, –59, –69, –72, –74, –89, and –90; P–61–6, and –14; and P–83–1: Response letter summarizes the actions taken by the Dept. of Transportation to improve the public safety in the pipeline transportation of natural gas and liquid hazardous materials; and the relationship between these actions and the 38 recommendations listed.

Railroad—*National Railroad Passenger Corporation (Amtrak): Mar. 31: R–82–89:* Modifications have placed the original equipment strobe lights on the battery side of the "protector" of all AEM–7 locomotives so that the lights will remain on after a battery protector trip. *R–82–90:* Original equipment of the AEM–7 includes a DC current meter in the battery charging system which is located in the locomotive machine room at a main control panel. There is also a fault light indicating no battery charge in the engineer's cab. R–82–91: AEM–7 locomotives had only three critical systems connected to the battery side of the battery voltage protector relay, and have been modified to add the white and red strobe lights to the battery side of the voltage protector. *R–82–92:* Modified the wording of the Format "Q" Train Order to include the maximum permissible speed in the body of the train order, and lowered that speed from "reduced" to "restricted." *R–82–93:* Believes recommendation that the maximum allowable speed of a locomotive be posted in a conspicuous location adjacent to the operating position is not warranted because all locomotives operating within the Northeast Corridor have maximum allowable speeds which are governed by their operating configuration and which are subject to track speed restrictions. *R–82–94:* Believes that the provisions of 49 CFR 218.37 as reflected in rule 99 of Amtrak's operating rules are adequate to provide protection against following moves in automatic block territory. *R–82–95 and –96:* Holds a 5-day training class for transportation supervisors and train dispatchers that focuses directly on the proper interpretation of operating rules and instructions, and holds a 6–week review program in transportation management for trainmasters and road foremen. Will increase the length of its annual operating rules requalification classes for train and engine personnel. *R–82–97:* Believes that the format and structure of the Northeast Corridor Timetable is not undly complex considering that, although it may in total be a "formidable document," its schedules are arranged by division, and although the Special Instructions are arranged in relationship to the operating rules and to subject matter, a code system is used to identify on which division or divisions a given instruction applies. *Apr. 19: R–82–5:* Revised switch inspection and test report.

New Jersey Department of Transportation: Apr. 14: R–82–107: Electric lock mechanisms for facing point switches have been requested in the FY 84 Capital Program.

The Atchison, Topeka and Santa Fe Railway Company: Apr. 18: R–82–4: Reevaluated its practices and procedures in the inspection and maintenance of special track areas.

Note.—Single copies of these response letters are available on written request to: Public Inquiries Section, National Transportation Safety Board, Washington, D.C. 20594. Please include respondent's name, date of letter, and recommendation number(s) in your request. The photocopies will be billed at a cost of 20 cents per page ($2 minimum charge).

H. Ray Smith, Jr.,
Federal Register Liaison Officer.
July 15, 1983.

[FR Doc. 83–19595 Filed 7–20–83; 8:45 am]
BILLING CODE 4910–58–M

NUCLEAR REGULATORY COMMISSION

Discontinuance of NRC Authority and Assumption Thereof by States Through Agreement; Criteria for Guidance of States and NRC

AGENCY: Nuclear Regulatory Commission.

ACTION: Statement of policy: Revision.

SUMMARY: Criterion 9 of the NRC's Policy for Discontinuance of Authority dated January 23, 1981 appearing at 46 FR 7540–7546, deals with waste disposal. It states that the standards for disposal into air, water and sewer, and burial in soil shall be in accordance with 10 CFR Part 20. The Commission's regulation 10 CFR Part 61, which became effective December 27, 1982, provides licensing procedures, performance objectives, technical requirements and financial assurance requirements for the issuance of licenses by NRC for the land disposal of most wastes that are commonly referred to as low-level waste. In addition, the Nuclear Waste Policy Act of 1982 requires that the NRC and the Agreement States provide and approve certain stated financial arrangements prior to issuance of a license for low-level radioactive waste disposal or in the case of licenses in effect, prior to termination of such licenses. The financial arrangements are to cover completion of all requirements for the decontamination, decommissioning, site closure and reclamation of sites, structures and equipment used in conjunction with low-level waste disposal.

The Commission believes that States seeking an agreement pursuant to Section 274b of the Atomic Energy Act of 1954, as amended, to regulate land disposal of radioactive waste should establish standards for disposal which are in accord with the applicable technical definitions, performance objectives, technical requirements, and financial assurance requirements of 10 CFR Part 61 and the waste transfer and manifest system prescribed in 10 CFR Part 20. For the waste manifest system to function effectively on a national basis, it is necessary for all licensees, both NRC and Agreement State, to follow the same system. Thus, the Agreement States are expected to adopt and implement this system for their licensees.

Therefore, the NRC is revising Criterion 9 to include reference to the performance objectives, technical requirements and financial assurance requirements contained in Part 61 and the waste transfer and manifest system

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contained in Part 20. The revision also satisfies the provisions of the Nuclear Waste Policy Act of 1982. Criterion 9 will be used in judging the adequacy and compatibility of that aspect of a State's regulatory program for regulating land disposal of low-level radioactive waste. No additional revisions to the criteria are considered necessary at this time to enter into an agreement with a State which includes authority to regulate low-level radioactive waste disposal.

For Agreement States currently regulating operating burial sites, NRC has been and will continue to work with the States to implement Part 61 provisions on a case-by-case basis, to the extent practicable. The waste transfer and manifest system, 10 CFR 20.311 becomes effective December 27, 1983. On an interim basis, arrangements are being made with the Agreement States regulating the existing burial sites to implement the waste classification system and waste transfer and manifest system through the burial site licensees.

FOR FURTHER INFORMATION CONTACT: Kathleen N. Schneider, Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: 301–492–9893.

SUPPLEMENTARY INFORMATION: Criterion 9 is revised to read as follows:

* * * * *

9. Radioactive Waste Disposal.

(a) Waste disposal by material users. The standards for the disposal of radioactive materials into the air, water and sewer, and burial in the soil shall be in accordance with 10 CFR Part 20. Holders of radioactive material desiring to release or dispose of quantities or concentrations of radioactive materials in excess of prescribed limits shall be required to obtain special permission from the appropriate regulatory authority.

Requirements for transfer of waste for the purpose of ultimate disposal at a land disposal facility (waste transfer and manifest system) shall be in accordance with 10 CFR 20.

The waste disposal standards shall include a waste classification scheme and provisions for waste form, applicable to waste generators, that is equivalent to that contained in 10 CFR Part 61.

(b) Land disposal of waste received from other persons. The State shall promulgate regulations containing licensing requirements for land disposal of radioactive waste received from other persons which are compatible with the applicable technical definitions, performance objectives, technical requirements and applicable supporting sections set forth in 10 CFR Part 61. Adequate financial arrangements (under terms established by regulation) shall be required of each waste disposal site licensee to ensure sufficient funds for decontamination, closure and stabilization of a disposal site. In addition, Agreement State financial arrangements for long-term monitoring and maintenance of a specific site must be reviewed and approved by the Commission prior to relieving the site operator of licensed responsibility (section 151(a)(2), Pub. L. 97–425).

Commissioner Roberts, in disapproving, stated "Given the states' and the public's interest in all aspects of our waste disposal regulations and guidance, this revision should go out for public comments."

Dated at Washington, D.C. this 14th day of July, 1983.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary of the Commission.

[FR Doc. 83–19710 Filed 7–20–83; 8:45 am]

BILLING CODE 7590–01–M

[Docket No. 50–366]

Georgia Power Co. et al.; Confirming Licensee Commitments on Pipe Crack Related Issues

I

The Georgia Power Company (GPC or the licensee) and three other co-owners are the holders of Facility Operating License NPF–5 which authorizes operation of the Edwin I. Hatch Nuclear Plant, Unit 2 (Hatch or the facility) at steady state reactor power levels not in excess of 2436 megawatts thermal. The facility is a boiling water reactor located at the licensee's site in Appling County, Georgia.

II

During the current 1983 refueling outage at Hatch Unit 2, augmented inservice inspection was performed on the recirculation reactor heat removal and reactor water cleanup system piping in accordance with Office of Inspection and Enforcement Bulletin 83–02. The original sample size was expanded to 108 welds after ultrasonic indications were reported on welds in the original sampling. Welds most likely to crack were selected for the expanded inspection. Overall, out of a total of 108 welds inspected, a total of 39 were found to show linear indications which consist of 23 12-inch riser welds, four 22-inch manifold end cap welds, nine 28-inch recirculation welds, two residual heat removal system 20-inch welds and one residual heat removal system 24-inch weld. All indications were reported to be parallel to the weld in the heat-affected-zone. The deepest indication reported in the 12-inch riser welds is 32% of wall thickness. The deepest indication in the large-size pipe welds is 42% of the wall thickness in a 22-inch manifold end cap weld.

Evaluation by the licensee, submitted by letters dated May 26 and June 8, 1983, indicates that the projected crack sizes, due to intergranular stress corrosion cracking (IGSCC) and fatigue crack growth, in the 12 large-diameter defective welds at the end of an 18-month fuel cycle would be within the ASME Code limits.

The licensee's evaluation also showed that the 23 12-inch riser welds and the four 22-inch manifold end cap welds required repair for continued service because their calculated projected cracks would exceed the Code limits at the end of an 18-month fuel cycle.

All 23 of the defective 12-inch riser welds and three of the four defective end cap welds were repaired using a weld overlay process. The remaining end cap was replaced. The licensee's evaluation showed that each weld overlay was designed such that the weld joint meets the ASME Code Section III requirements, including fatigue. The predicted ultimate failure load based on tearing modulus approach was calculated for each overlay design. The ultimate failure load was shown to be at least three times the normal applied loads, which provides a safety margin larger than that inherent in the Code.

The staff has reviewed the licensee's submittals including analysis of weld overlay design and the calculation of IGSCC crack growth, based on current crack growth data, to support the continuing service for an 18-month fuel cycle with the 25 overlay repaired 12-inch riser and 22-inch manifold end cap welds, and the 12 unrepaired large-diameter defective welds.

The staff has performed independent calculations of crack growth, also based on current crack growth data, on the worst circumferential crack among the 12 large-diameter defective welds. Our calculated final crack depth at the end of an 18-month period meets the Code limit with adequate margin. Therefore, based on the staff's calculations and review of the licensee's analyses using current crack growth data, we conclude that the continuous service of the 12 large-diameter defective welds without repair for one 18-month fuel cycle would be acceptable because the Code design margin is maintained. However, recent field experience has indicated that the

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April 22, 1997

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: OKLAHOMA AGREEMENT STATE NEGOTIATIONS:STATE REQUESTS THAT MAJOR FACILITIES UNDERGOING SITE DECOMMISSIONING NOT BE RELINQUISHED TO STATE

PURPOSE:

To obtain Commission direction on Oklahoma's draft Agreement proposal which would exclude major facilities undergoing decommissioning.

SUMMARY:

The State of Oklahoma's draft application to become an Agreement State requests that NRC retain jurisdiction for the five Site Decommissioning Management Plan (SDMP) sites located in Oklahoma. While the Commission has entered into a variety of "limited" Agreements with States in the past, Oklahoma's proposed approach would be inconsistent with past Commission practice in this area. From a policy perspective, the proposal is likely to create an unwieldy and confusing pattern of regulation in Oklahoma and, possibly, other States in the future. In addition, under these circumstances, implementation of the approach may be inconsistent with the Commission's authority under the Atomic Energy Act (AEA). As such, the staff plans to deny Oklahoma's request. This paper sets out the staff's planned approach to address requests for limited Agreements in the future.

BACKGROUND:

In June 1995, the Office of State Programs received a draft application for an Agreement under 274b of the AEA, as amended, from the Executive Director of the State of Oklahoma's Department of Environmental Quality. The draft application indicated that Oklahoma would like to seek a full Agreement, with authority to regulate AEA 11e(1) byproduct materials, source material, and special nuclear materials in less than critical mass quantities. In addition, the draft application indicated that the State would like to have excluded from its proposed Agreement AEA 11e(2) byproduct materials, and major facilities undergoing decommissioning. These facilities would remain under Federal jurisdiction. The State of Oklahoma identified these facilities as Sequoyah Fuels, Kerr-McGee facilities at Crescent and Cushing, Fansteel, and Kaiser Aluminum. The State noted that these facilities are in various stages of decommissioning and that in order for Oklahoma to assume regulatory responsibility over these facilities the State would have to rapidly develop its expertise, which the State believes would lengthen the decommissioning process. The State of Oklahoma also indicated in a subsequent letter dated November 16, 1995 (Attachment 1) that in addition to a delay in decommissioning, they believe there are potential legal and technical problems involved in acquiring jurisdiction over these facilities. Additional information regarding these problems and Oklahoma's view that there are equity and practicality grounds for granting their request are contained in a recent letter dated March 10, 1997 (Attachment 2).

Staff notes that Oklahoma states in their March 10, 1997 letter that NRC would always have exercised regulatory jurisdiction over the identified SDMP facilities since they are fuel cycle facilities. First, staff notes that fuel cycle facilities that do not qualify as production facilities under the AEA and possess only source materials licenses (e.g., mills, conversion plants) would normally be subject to Agreement State regulation. Second, with the exception of Sequoyah Fuels, the facilities identified by Oklahoma are not fuel cycle facilities. In fact, all of the facilities identified by Oklahoma would fall under the State's jurisdiction if the State were to enter into a 274b Agreement that includes source material in the transfer of jurisdiction.

DISCUSSION:

I. Historical

Section 274b of the AEA states,

> "... the Commission is authorized to enter into Agreements with the Governor of any State providing for discontinuance of the regulatory authority of the Commission under chapters 6, 7, and 8, and section 161 of the Act, with respect to any one or more (Emphasis added) of the following materials within the State --
>
> (1) byproduct materials as defined in section 11e(1);
>
> (2) byproduct materials as defined in section 11e(2);
>
> (3) source materials;
>
> (4) special nuclear materials in quantities not sufficient to form a critical mass."

From the first Agreement signed with the State of Kentucky in 1962 to the 25th Agreement signed in 1974 with New Mexico, all the Agreement documents in Article I specified the areas to be assumed by the State as byproduct materials, source materials and special nuclear materials in quantities not sufficient to form a critical mass. In 1978, Congress enacted the Uranium Mill Tailings Radiation Control Act (UMTRCA), which, among other things, added to the category of byproduct material "tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore

processed primarily for its source material content." In addition, the Low Level Radioactive Waste Policy Act of 1980 was enacted which required States to develop low-level radioactive waste disposal facilities.

As a result of these legislative changes, in January 1981 the Commission revised its policy statement regarding criteria for guidance of States and NRC in discontinuance of NRC regulatory authority and assumption of regulatory authority by States through Agreement (46 FR 7540, January 23, 1981; as amended by policy statements published at 46 FR 36969, July 16, 1981; and 48 FR 33376, July 21, 1983). The policy statement allowed States to enter into Agreements for low-level radioactive waste only, and incorporated provisions and requirements of the UMTRCA. The revisions to the policy statement also allowed States that meet the criteria for the regulation of uranium mills and tailings under UMTRCA to obtain regulatory authority over 11e(2) byproduct materials through an Agreement. Thus, subsequent to 1978, all Agreement documents in Article I specified byproduct materials 11e(1) and/or 11e(2) as an area being assumed through Agreement with the Commission. In addition, those States which had entered into an Agreement prior to 1978 and desired to have authority over mill tailings, i.e., AEA 11e(2) byproduct materials, amended their Agreements with NRC to cover this regulatory area (Colorado, Texas, and Washington).

An additional policy change has affected the areas of regulatory authority addressed in Agreements with States. This change is reflected in the Commission's June 30, 1995 decision in response to SECY-95-136, "Options to Improve and Standardize the Evaluation and Approval of Sealed Sources and Devices Manufactured in Agreement States." The Commission decision offers the Agreement States the opportunity to either voluntarily return to the NRC the authority to evaluate sealed sources and devices (SS&D) or to retain it.

Collectively, these changes have allowed States to enter into more specific Agreements tailored to State needs. These Agreements involve the transfer of authority over "subcategories" of material and, as such, constitute limited Agreements. In other words, the transfer of authority has involved portions of the regulated activity covered by the specific categories delineated in Section 274b. For example, a State can elect to obtain authority to regulate byproduct, source, and limited amounts of special nuclear material in all activities, regulate these materials only with respect to disposal of low-level radioactive waste or elect to exclude low-level radioactive waste or uranium mill tailings activities from its Agreement with the NRC. Examples include the return by the New Mexico Agreement State Program of authority for the regulation of uranium mills to the NRC and the recent decisions by some Agreement States to return jurisdiction to evaluate and approve SS&Ds. Despite these examples, the acceptable bounds for entering into tailored or limited Agreements has never been fully defined by NRC. However, absent concerns of national defense, NRC has not entertained requests for Agreements involving the transfer of authority over single licensees absent an identified subcategory of material. Such Agreements have been viewed as inconsistent with the provisions of the AEA.

Thus, the staff believes that the approach taken by NRC in addressing Oklahoma's request could have a significant impact in the development of future Agreements and any amendments to existing ones. For instance, an approach that may be workable in the context of the Oklahoma Agreement may create significant difficulties if applied to another State, such as allowing States to refrain from obtaining Agreement authority over individual licenses perceived as difficult or complex.

II. Requests from States

Recently, some Agreement States and non-Agreement States have expressed an interest in obtaining more specific Agreements tailored to their needs. Some non-Agreement States have indicated their desire to forego assumption of authority over specific licensees when these States enter into an Agreement with the NRC pursuant to Section 274b of the AEA. In addition, similar issues have been raised in the past by existing Agreement States. For example, in 1994, Wyoming inquired about the possibility of entering into a limited 274b Agreement with the NRC for in situ uranium mining only. Under this proposed Agreement, the NRC would not relinquish regulatory authority over conventional mining and associated mill tailings disposal. The State of Wyoming was informed that the NRC needed to further evaluate whether such a limited program would be consistent with the Subsection 274a(3) of the AEA provision which identifies one of the purposes of Section 274 as promoting "... an orderly pattern between the Commission and the State governments with respect to the development and use and regulation of byproduct, source, and special nuclear materials." In addition, the staff informed the State of Wyoming that before the NRC proceeded with further evaluation of a limited Agreement for in situ uranium recovery, the State should provide the NRC additional clarification on whether the State desired to pursue the limited Agreement further. No clarification on this issue has yet been provided.

Utah has expressed interest in obtaining a modification to their Agreement to allow the State to assume authority over disposal of 11e(2) byproduct material at one facility, Envirocare of Utah, Inc. The staff informed the State of Utah that an NRC Agreement for the transfer of regulatory authority for a single licensee would be inconsistent with the provisions of Section 274b of the AEA. The State of New York requested a decision on their ability to return SS&D evaluation authority back to the Commission. Through the Commission's direction in the Staff Requirement Memorandum for SECY-95-136, "Options to Improve and Standardize the Evaluation and Approval of Sealed Sources and Devices Manufactured in Agreement States," the Commission approved voluntary relinquishment of authority over SS&D programs by an Agreement State.

III. Oklahoma's Proposal

As noted under the "Background" section of this paper the Oklahoma draft application for Agreement State status indicated that the State would like to seek a full Agreement, with authority to regulate AEA 11e(1) byproduct materials, source material, and special nuclear materials in less than critical mass quantities. However, the State would like to have exempted from its proposed Agreement major facilities undergoing decommissioning. The State of Oklahoma identified these facilities as Sequoyah Fuels, Kerr-McGee facilities at Crescent and Cushing, Fansteel, and Kaiser Aluminum. The State would like these facilities to remain under Federal jurisdiction.

The staff believes that the Oklahoma proposed Agreement approach would be inappropriate from a policy perspective. In addition, the Office of the General Counsel has indicated that implementation of this approach may be inconsistent with the Commission's authority under the AEA. As such, the

The Oklahoma request raises several concerns. First, the limitation of NRC authority to a few, discrete licensees is likely to create future problems if the State otherwise receives authority to regulate the types of activities conducted by those reserved licensees. Under Oklahoma's proposal, NRC retains authority over Fansteel, a source material licensee conducting rare earth extraction. If a similar operation sought a license a month after the Agreement, Oklahoma would have to license and regulate that licensee under the State's newly acquired authority over source material. This would create a form of dual regulation. Both NRC and Oklahoma would be regulating the same type of activities in the same State. Nothing in the Oklahoma proposal would allow the State and NRC to avoid the confusion and duplication created by this approach. If such an approach were employed in Oklahoma and other States, the pattern of NRC and Agreement State regulation could become confusing. This is not the case with limited Agreements created by NRC in the past such as the reservation of SS&D authority.

In addition, the basis for Oklahoma's proposal would raise concerns regarding NRC's confidence in the adequacy of Oklahoma's program. At the time of the Agreement, NRC should have reasonable assurance that the State can adequately regulate any matters involving activities and materials included under the Agreement regardless of the complexity of such activities. Accordingly, the fact that the specific sites identified by Oklahoma involve particularly complex regulatory issues is a poor rationale for retaining NRC authority in the manner proposed by Oklahoma.

IV. Future Approach

In order to aid in addressing such issues in the future, the staff seeks Commission consideration and approval of the staff's planned approach. Since, as discussed earlier, NRC has already entered into a variety of limited Agreements in the past, there is precedent for certain types of arrangements. However, there is little guidance to address new proposals that have not been considered in the past.

Due to the variety of material and licensed activities involved, specific, detailed guidance on this issue is not appropriate. As such, the staff plans to approach future requests for limited Agreements on a case by case basis giving consideration to the following general guidelines stemming from issues raised by the Oklahoma proposal. Overall, the staff would consider whether the proposed Agreement would jeopardize "...an orderly regulatory pattern between the Commission and the State governments..." as indicated by Section 274a(3) of the AEA. In particular, requests for limited Agreements would have to identify discrete categories of material or classes of licensed activity that (1) can be reserved to NRC authority without undue confusion to the regulated community or burden to NRC resources, and (2) can be applied logically, and consistently to existing and future licensees over time. Under this approach, NRC would not reserve authority over a single license unless that licensee clearly constituted a single class of activity or category of material meeting the two criteria described above.

In applying this approach in the future, the staff will inform the Commission concerning any issues that are difficult to resolve or that involve significant disagreement between NRC and a State.

RECOMMENDATION:

That the Commission approve:

1. The denial of the Oklahoma request to enter into an Agreement which would exclude five SDMP sites, Sequoyah Fuels, Kerr-McGee facilities at Crescent and Cushing, Fansteel, and Kaiser Aluminum.

2. The staff's approach for the handling of requests for limited Agreements.

COORDINATION:

The Office of the General Counsel has no legal objections with the staff's recommended approach, noting that there would be legal issues if the Oklahoma proposal were approved.

L. Joseph Callan
Executive Director for Operations

CONTACT: Cardelia H. Maupin, OSP
415-2312

Attachments
1. Letter Dated November 16, 1995 from H. A. Caves to R. Bangart
2. Letter Dated March 10, 1997 from H. A. Caves to R. Bangart

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NUCLEAR REGULATORY COMMISSION

10 CFR Parts 20, 30, 40, 50, 51, 70 and 72

RIN 3150–AD65

Radiological Criteria for License Termination

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations regarding decommissioning of licensed facilities to provide specific radiological criteria for the decommissioning of lands and structures. The final rule is intended to provide a clear and consistent regulatory basis for determining the extent to which lands and structures can be considered to be decommissioned. The final rule will result in more efficient and consistent licensing actions related to the numerous and complex site decommissioning activities anticipated in the future.

EFFECTIVE DATE: This regulation becomes effective on August 20, 1997. However, licensees may defer rule implementation until August 20, 1998.

FOR FURTHER INFORMATION CONTACT: Cheryl A. Trottier, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, telephone: (301) 415–6232, e-mail CAT1@nrc.gov; Frank Cardile, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, telephone: (301) 415–6185; e-mail FPC@nrc.gov; Dr. Carl Feldman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, telephone: (301) 415–6194, e-mail CXF@nrc.gov; or Christine M. Daily, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, telephone: (301) 415–6026, e-mail CXD@nrc.gov.

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I. Introduction

The Nuclear Regulatory Commission is amending its regulations regarding decommissioning of licensed facilities to provide specific radiological criteria for the decommissioning of lands and structures. This action is necessary to ensure that decommissioning will be carried out without undue impact on public health and safety and the environment.

These criteria apply to the decommissioning of licensed facilities and facilities subject to the NRC's jurisdiction. The Commission will apply these criteria in determining the adequacy of remediation of residual radioactivity resulting from the possession or use of source, byproduct, and special nuclear material. The criteria apply to decommissioning of nuclear facilities that operate through their normal lifetime and to those that may be shut down prematurely.

The intent of this rulemaking is to provide a clear and consistent regulatory basis for determining the extent to which lands and structures must be remediated before decommissioning of a site can be considered complete and the license terminated. The Commission believes that inclusion of criteria in the regulations will result in more efficient and consistent licensing actions related to the numerous and frequently complex site remediation activities anticipated in the future. The Commission has reassessed residual contamination levels contained in existing guidance based on changes in basic radiation protection standards, improvements in remediation and radiation detection technologies, decommissioning experience, public comments received on rule drafts and public comments presented at workshops held as part of the rulemaking effort and public comments received on the proposed rule.

The NRC has previously applied site release criteria for decommissioning on a site-specific basis using existing guidance. Although site-specific situations will still occur, the Commission believes that codifying radiological criteria for decommissioning in the regulations will allow the NRC to more effectively carry out its function of protecting public health and the environment at decommissioned sites by providing for more efficient use of NRC and licensee resources, consistent application across all types of licenses, and a predictable basis for decommissioning planning.

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II. Background

On August 22, 1994 (59 FR 43200), the NRC published a proposed rule for comment in the **Federal Register** to amend 10 CFR part 20 of its regulations "Standards for Protection Against Radiation" to include radiological criteria for license termination. The public comment period closed on January 20, 1995. Comments received on the proposed rule were summarized in NUREG/CR–6353. A workshop was held on December 6–8, 1994, to solicit additional comments related to site-specific advisory boards as described in the proposed rule. Comments received during that workshop were summarized in NUREG/CR 6307 [1]. A workshop was also held on September 29, 1995, to specifically discuss methods for implementing the rule. Additionally, communication with the public on the proposed rule was maintained through the Electronic Bulletin Board system.

III. Overview of Public Comments

Over 100 organizations and individuals submitted comments on the proposed rule. The commenters represented a variety of interests. Comments were received from Federal and State agencies, electric utility licensees, material and fuel cycle licensees, citizen and environmental groups, industry groups, native American organizations, and individuals. The commenters offered from 1 to over 50 specific comments and represented a diversity of views. The commenters addressed a wide range of issues concerning all parts of the rule. The reaction to the rule in general and to specific provisions of the rule was varied. Viewpoints were expressed both in support of and in disagreement with nearly every provision of the rule.

IV. Summary of Public Comments, Responses to Comments, and Changes From Proposed Rule

The following sections describe the principal public comments received on the proposed rule (organized according to the major subject areas and sections of the proposed rule), present NRC responses to those comments, and explain principal changes to the proposed rule (where they occur) in response to those comments. The comments are organized according to the following major subject areas and sections of the proposed rule and are presented in the following subsections:

(a) Overall license termination approach (unrestricted use, restricted use, exemptions, and alternate criteria), and specific issues on criteria for unrestricted use (including total effective dose equivalent (TEDE), as low as is reasonably achievable (ALARA), objective of decommissioning, average member of critical group);

(b) Specific issues on criteria for restricted use (bases for using restricted use, reliance on institutional controls, 1 mSv (100 mrem) TEDE cap, engineered barriers, financial assurance);

(c) Specific issues on exemptions and alternate criteria for license termination (facilities with large volumes of low level wastes, uranium and thorium mills, exemptions);

(d) Groundwater protection criteria (use of Environmental Protection Agency (EPA) drinking water standards of 40 CFR 141 in NRC's regulation);

(e) Public participation (means of notification, site-specific advisory boards (SSABs));

(f) Other procedural and technical issues (state compatibility, grandfathering, finality, minimization of contamination, readily removable residual radioactivity, radon, calculation of TEDE over 1000 years to demonstrate compliance with dose standard); and

(g) Other comments (definitions, regulatory guidance; timeliness rule; wastes; recycle; rulemaking process).

The comments received from both public comment and the workshops have been factored into the Commission's decisionmaking on the final rule and into the technical basis for guidance documents implementing the final rule. The description of changes to the final rule made as a result of the comments in each of the major subject areas follows each comment/response section.

A. Overall License Termination Approach and Criteria for Unrestricted Use (Proposed Rule §§ 20.1402 and 20.1404)

A.1 Proposed Rule Content

The proposed rule (§ 20.1402(d)) presented an overall approach for license termination involving either of two basic methods, i.e., unrestricted use or restricted use of sites after license termination. The proposed rule indicated that unrestricted use was generally preferred, but that restricted use was also permitted because it was recognized that there may be cases where achieving unrestricted use would not be reasonable.

Specific requirements for use of each of these two basic methods were presented in the proposed rule. The preamble to the proposed rule also indicated that there may be certain licensees that would seek exemptions from the decommissioning criteria of the proposed rule, although it did not codify this exemption path.

Section IV.A.2 reviews in detail the development of unrestricted use criteria; and, in doing so it also indicates, in general, how the overall approach for license termination has been reexamined to consider public comments. Specific issues and requirements regarding other areas, specifically restricted use, exemptions, and alternate criteria, are discussed in more detail in Sections IV.B and IV.C of this preamble.

Section 20.1402(a) of the proposed rule indicated that the objective of decommissioning is to reduce residual radioactivity in structures, soils, groundwater, and other media at the site so that the concentration of each radionuclide that could contribute to residual radioactivity is indistinguishable from the background radiation concentration for that nuclide. Section 20.1402(a) further noted that, as a practical matter, it would be extremely difficult to demonstrate that such an objective had been met and that a site release limit for unrestricted use was being proposed.

Section 20.1404 of the proposed rule indicated that a site would be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in TEDE to an average member of the critical group of 0.15 mSv/y (15 mrem/y) and has been reduced to levels that are ALARA.

Section 20.1402(d) of the proposed rule indicated that release for unrestricted use of a facility is the preferred approach but that the alternative of release for restricted use would also be allowed if its use were justified (see Section IV.B).

A.2 Criteria for Unrestricted Use, Including TEDE, ALARA, and Decommissioning Objective

A.2.1 Comments. Some commenters (including EPA) agreed that 0.15 mSv/y (15 mrem/y) is an acceptable criterion because it is attainable, provides a margin of safety, and isn't unjustifiably costly. The Department of Energy (DOE) agreed that 0.15 mSv/y (15 mrem/y) could be acceptable if reasonable scenarios were considered although it preferred 0.25 mSv or 0.3 mSv/y (25 or 30 mrem/y) with ALARA. However, most commenters did not agree with the

[1] Copies of NUREGS may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013–7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and/or copying at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

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0.15 mSv/y (15 mrem/y) criterion. Some opposed 0.15 mSv/y (15 mrem/y) as being too high and preferred alternatives that reduced the contamination level to lower levels, including preexisting background. The majority of commenters opposed 0.15 mSv/y (15 mrem/y) as being too low and gave alternatives that generally included increasing the limit to 0.25, 0.3, 0.5, or 1 mSv/y (25, 30, 50, or 100 mrem/y) with further reduction based on ALARA. The categories of reasons given by commenters opposing 0.15 mSv/y (15 mrem/y) as either too high or too low included potential health impacts or the lack of demonstrable health effects at these levels, consistency with national and international standards, effect of multiple sources, consistency with other NRC/EPA regulations, analysis of costs vs. benefits, ability to measure, effect on disposal capacity, effect on sites with naturally occurring radioactive material (NORM), and responsibility for cleanup of sites.

The proposed rule indicated that licensees would be expected to demonstrate that doses are ALARA below the proposed 0.15 mSv/y (15 mrem/y) dose criterion. Some commenters endorsed ALARA analyses in specific cases to determine if doses should be reduced below 0.15 mSv/y (15 mrem/y) and recommended that a value of 0.03 (or less) mSv/y (3 (or less) mrem/y) be the ALARA objective. Some of these commenters also requested that the NRC explicitly mandate that technical and economic analyses be performed. Other commenters indicated that ALARA principles and analyses should not be required to determine if cleanup should be performed to reduce doses below 0.15 mSv/y (15 mrem/y) because the costs are large in comparison with the small reduction in risk. Several commenters indicated, alternatively, that ALARA should be allowed above 0.15 mSv/y (15 mrem/y) and that the rule should allow ALARA analyses to be used to permit a licensee to release its site at a value higher than 0.15 mSv/y (15 mrem/y) (up to 1 mSv/y (100 mrem/y)) if ALARA calculations support this alternative. Another commenter disagreed and recommended that ALARA analyses be applied only to demonstrate if additional cleanup is required below 0.15 mSv/y (15 mrem/y). Some commenters stated that guidance should be provided describing how ALARA should be achieved, how doses would be quantified, how models and parameters would be selected, what $/person-rem value would be used, how nonradiological risks would be considered, how net risks would be evaluated, how flexibility would be incorporated, what degree of simplification of complex models would be incorporated, and what final criteria would be used.

The proposed rule also contained, in § 20.1402(a), a decommissioning objective of reducing residual radioactivity to levels that are indistinguishable from background. Section 20.1402(a) further noted that such an objective may be difficult to meet as a practical matter. Many commenters opposed establishment of the decommissioning objective because it is arbitrary, serves no purpose for industrial sites, is costly and a waste of resources, is unlikely to be achieved, and cannot be measured. Some commenters supported establishing the proposed objective because it is reasonable from a health standpoint. Others suggested alternative objectives such as ALARA or using a dose that is indistinguishable from the variation in background.

A.2.2 Response. The preamble to the proposed rule described three broad considerations as providing the overall rationale for the proposed rule's approach to license termination. The first two considerations were related to health and safety, i.e., level of risk and need for a constraint or margin of safety below the 1 mSv/y (100 mrem/y) public dose limit of 10 CFR part 20 to account for the potential effect of multiple sources of radiation exposure. The third consideration was related to practicality and reasonableness of costs. The preamble to the proposed rule noted that the risk implied by use of the proposed 0.15 mSv/y (15 mrem/y) dose is comparable to other standards and practices of EPA and NRC for areas of unrestricted access in the vicinity of facilities, and that the proposed 0.15 mSv/y (15 mrem/y) standard provides a substantial margin of safety (constraint) for a single source below the 1 mSv/y (100 mrem/y) public dose limit in 10 CFR part 20 to account for the potential exposure of a member of the public to other sources. This "constraint" approach was noted as being consistent with generic constraint recommendations made by national and international scientific bodies such as the International Commission on Radiation Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP). Requirements related to ALARA, the decommissioning objective, and restricted use were included in the rule based on the NRC staff analysis in the Draft Generic Environmental Impact Statement (GEIS) (NUREG–1496) that showed that the costs of reducing exposures to, or in some cases below, a 0.15 mSv/y (15 mrem/y) criterion would not generally be unduly burdensome for most licensees, although in those cases where the costs would present an unreasonable burden, release of the site with restrictions placed on its use would provide an alternative means for achieving the same level of protection. Achieving levels of less than 0.15 mSv/y (15 mrem/y), including achieving the decommissioning objective, was generally seen as not cost-effective because increasingly larger volumes of concrete and soil would have to be removed at a greater net risk due to deaths from transportation accidents and because more difficult survey measurements would have to be made with little net benefit in dose reduction.

The NRC considered alternatives suggested in public comments and reexamined the rationale of the proposed rule. A summary of that reexamination, along with a description of particular comments on the rationale, is contained in the following subsections.

A.2.2.1 Level of risk and consistency with other EPA/NRC standards. Some commenters criticized the health risk associated with a 0.15 mSv/y (15 mrem/y) limit as too high thereby providing inadequate public protection. In particular, they objected to the NRC's reliance on ICRP and NCRP because recent research (including findings in the aftermath of the 1986 Chernobyl accident and in the 1990 report on Biological Effects of Ionizing Radiation (the BEIR V report)) showed risks to be higher than ICRP or NCRP indicated, or suggested other sources for limits, including a British standard and a National Academy of Sciences statement on radiation safety. Commenters also indicated that 0.15 mSv/y (15 mrem/y) was too high because it is higher than other NRC or EPA standards such as those for operating reactors.

The majority of commenters criticized 0.15 mSv/y (15 mrem/y) as too low for reasons which included that it is far below the level at which health effects have been observed in studies, that the risks associated with other EPA and NRC standards (including 10 CFR parts 20, 60 and 61, 40 CFR parts 190 and 191, and EPA's radon action level) are higher, and that it is based on the linear non-threshold theory which is not appropriate for setting such standards. These commenters also criticized the relationship of the risks implied by this rule to those implied by standards for chemical hazards.

In general, many commenters stated that the NRC should work closely with

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the EPA in developing its decommissioning regulations to assure that there are no conflicting or duplicate requirements and that the acceptable risk levels and associated requirements developed by the two agencies are compatible or the same. DOE noted that a nonuniform approach could significantly impact the DOE environmental restoration program and that NRC/EPA regulations will have an impact beyond NRC licensees. There was some commenter disagreement as to whether EPA or NRC should take the lead in issuance of exposure standards. In its comments on the NRC's proposed rulemaking, the EPA supported the 0.15 mSv/y (15 mrem/y) limit.

In response, the NRC has considered recent information and recommendations in ICRP Publication 60 and NCRP No. 116. These documents are developed by recognized experts in the fields of radiation protection and health effects and contain reviews of current significant research in radiation health effects. The NCRP is a nonprofit corporation chartered by the U.S. Congress to develop and disseminate information and recommendations about protection against radiation and to cooperate with the ICRP and other national and international organizations with regard to these recommendations. The ICRP has continued to update and revise its estimates of health effects of radiation since its inception in 1928. In its deliberations, ICRP maintains relationships with United Nations health and labor organizations.

In addition, the NRC evaluated the proposed Federal Radiation Protection Guidance for Exposure of the General Public (FRG) as published for comment on December 23, 1994 (59 FR 66414), in which the EPA, under its charter, made recommendations to the President of the United States concerning recommended practices for protection of the public and workers from exposure to radiation.

Recent recommendations contained in ICRP 60, NCRP No. 116, and the proposed FRG are essentially similar. Use of these sources for formulating basic radiation protection standards is consistent with NRC's general approach regarding risk decisions as is noted in the preamble to issuance of 10 CFR part 20 on May 21, 1991 (56 FR 23360). The NRC considers it reasonable and appropriate to use the findings of these bodies in developing criteria for license termination to apply to its licensees.

The ICRP and NCRP and EPA have reviewed current, significant studies made by other health research bodies, such as the National Academy of Sciences-National Research Council's Committee on the Biological Effects of Ionizing Radiation (BEIR) and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), and have developed recommendations regarding limitations on exposure to radiation. In particular, the BEIR Committee conducted major reviews of the scientific data on health risks of low levels of ionizing radiation in 1972, 1980, 1988, and 1990, and similar reviews were published by UNSCEAR in 1977, 1982, 1986, and 1988. As noted in the proposed FRG, these studies have provided more certainty about radiation risks at high doses and dose rates. Using that information and assumptions of linearity with low dose/dose rate reduction factors, BEIR V contains updated risk factors.

Concerning recent information from the Chernobyl accident noted by a commenter, there are still ongoing studies of the effects of the accident. A report published by the principal international organization studying health effects from the accident, the Organization for Economic Co-operation and Development (OECD), entitled "Chernobyl: Ten Years On; Radiological and Health Impact," summarized the findings regarding health impacts by noting that scientific and medical observation of the population has not revealed any increase in cancers or other radiation induced disease that could be attributable to the Chernobyl accident. The only area where an increase was noted was for thyroid cancer. However, these effects most likely resulted from the release of short-lived radioiodine from the accident and the affinity of the thyroid gland for iodine. Similar effects would not be applicable in decommissioning because radioactive iodine is not expected to be a significant contaminant. The report further notes that, while studies continue on long term effects, it is unlikely that the exposure to contaminants in the environment will lead to discernible radiation effects in the general population. Thus, this research does not appear to indicate that the findings of the ICRP and NCRP will be shown to underestimate risks.

Specifically with regard to the risk level, some of the commenters stated that the risk of fatal cancers from 0.15 mSv/y (15 mrem/y) is too high in comparison with risk goals in the range 1×10^{-4} to 1×10^{-6} used by EPA in Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) regulations. Other commenters disagreed and stated that precedents from earlier NRC rulemakings support a level of risk significantly greater than that and more appropriately in a range of 1×10^{-2} to 1×10^{-3} (e.g., the level of lifetime risk corresponding to the 1 mSv/y (100 mrem/y) public dose limit of 10 CFR Part 20, that is NRC's basic standard for public safety, is about 1.5×10^{-3}). Several of these commenters also criticized 0.15 mSv/y (15 mrem/y) as too low because the linear non-threshold model overestimates the risk and should not be used in the analysis. In response to comments on the risk level, constant exposure over a 30-year time period to dose levels of about 0.15–0.25 mSv/y (15–25 mrem/y), results in an estimated lifetime risk of fatal cancer of about 2.3×10^{-4} to 3.8×10^{-4} which is at the upper end of the acceptable risk range suggested by EPA in their comments on NRC's proposed rule but lower than that in NRC's public dose limits.[2] These estimates are based on use of the linear non-threshold model for calculating risk estimates. In response to specific comments on use of the linear non-threshold model in estimating risk, use of the linear non-threshold model for estimating incremental health effects per radiation dose incurred is considered a reasonable assumption for regulatory purposes by international and national scientific bodies such as ICRP and NCRP. The principal international and national radiological protection criteria, including the NRC's, are based on this assumption as a measure of conservatism. NRC's policy regarding use of the linear non-threshold model was stated in the preamble to the issuance of 10 CFR part 20 (56 FR 23360; May 21, 1991) noting that the assumptions regarding a linear non-threshold dose effect model are appropriate for formulating radiation protection standards. Although this matter continues to be the subject of further consideration at this time, there is not sufficient evidence to convince the NRC to alter its policy as part of this rulemaking.

To provide some perspective on the conservatism of considering dose criteria in the range of 0.15–0.25 mSv/

[2] The risks are estimated assuming a risk coefficient of 5×10^{-4} per rem and a 30-year lifetime exposure that is used by EPA in estimating risk from contaminated sites based on the assumption that it is unlikely that an individual will continue to live or work in the same area for more than 30 years. Such an estimate is seen as providing a conservative estimate of potential risk because land use patterns are generally such that persons living at or near a site will not continuously receive the limiting dose, and, for most of the facilities covered by this rule, the TEDE is controlled by relatively short-lived nuclides of half-lives of 30 years or less for which the effect of radioactive decay will, over time, reduce the risk significantly (e.g., at reactors where much of the contamination is from Co-60 with a half-life of 5.3 years).

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y (15–25 mrem/y), it should be noted that, as described in the Final GEIS (NUREG–1496) prepared in support of this rulemaking, these levels are small when compared to the average level of natural background radiation in the United States (about 3 mSv/y (300 mrem/y)) and the variation of this natural background across the United States. In addition, although as noted above NRC is not altering its policy regarding use of the linear non-threshold model as part of this rulemaking, there is uncertainty associated with estimating risks at such dose levels. This uncertainty occurs because evidence of radiation dose health effects has only been observed at high dose levels (200 mSv (20,000 mrem) and above) and significant uncertainty in risk estimation is introduced when extrapolating to the very low dose levels being considered in this rulemaking. The health effects resulting from even a dose of 1 mSv (100 mrem) are uncertain. The BEIR Committee stated in its 1990 report (BEIR V) that "Studies of populations chronically exposed to low-level radiation, such as those residing in regions of elevated natural background radiation, have not shown consistent or conclusive evidence of an associated increase in the risk of cancer."

The risk associated with a dose criterion in the range of about 0.15–0.25 mSv/y (15–25 mrem/y) is generally consistent with the risk levels permitted in the performance objectives for low-level waste facilities in 10 CFR 61.41, and for fuel cycle facilities and for spent fuel and high level waste in EPA's 40 CFR 190 and 191. In addition, doses in the range of 0.15–0.25 mSv/y (15–25 mrem/y) are comparable to current NRC practices for decommissioning of reactors and certain materials facilities and fuel cycle facilities. Specifically, reactors have been decommissioned in accordance with Regulatory Guide 1.86 and with an NRC license termination letter to Stanford University (April 21, 1982, Docket No. 50–141). Materials facilities have been released in accordance with the levels for external radiation for beta/gamma exposure in NRC's Policy and Guidance Directive FC 83–23. In addition, a dose criterion in the range of 0.15–0.25 mSv/y (15–25 mrem/y) is generally at the low end of the range of values estimated for Option 1 of the 1981 Branch Technical Position (BTP) for sites with uranium and thorium and used for Ra-226 in 10 CFR 40, Appendix A, for uranium mill contamination.

A.2.2.2 Effect of multiple sources and margin of safety below 1 mSv/y (100 mrem/y). Some commenters suggested that 0.15 mSv/y (15 mrem/y) is too low and indicated that the NRC limit was inconsistent with ICRP and NCRP especially with regard to considerations of multiple sources of exposure, and that it would be unusual for an individual to be exposed to multiple sources approaching the 1 mSv/y (100 mrem/y) limit. These commenters suggested that 25–30 percent of 1 mSv (100 mrem) is an adequate margin to account for multiple sources.

In response, and by way of background, it is noted that the NCRP in its publication No. 116 (Chapter 15) recommends that, for continuous exposure, the effective dose to members of the public not exceed 1 mSv/y (100 mrem/y) from all man-made sources, other than medical and not including natural background sources. Similarly, ICRP, in Table 6 of ICRP Publication 60, recommends a limit of 1 mSv/y (100 mrem/y) as the dose limit for the public, and recommendation No. 3 of the draft EPA Federal Radiation Protection Guidance (FRG) indicates that the combined radiation doses incurred in any single year from all sources of exposure (excluding medical and natural background) should not normally exceed 1 mSv (100 mrem) and that continued or chronic exposure of an individual over substantial portions of a lifetime at or near 1 mSv/y (100 mrem/y) should be avoided. Consistent with these bodies, the NRC issued 10 CFR part 20 (56 FR 23360) in 1991 that established a public dose limit of 1 mSv/y (100 mrem/y) in 10 CFR 20.1301.

These national and international bodies also note and agree that, although the limit for the public dose should be 1 mSv/y (100 mrem/y) from all man-made sources combined, it would seem appropriate that the amount that a person would receive from a single source should be further reduced to be a fraction of the limit to account for the possibility that an individual may be exposed to more than one source of man-made radioactivity, thus limiting the potential that an individual would receive a dose at the public dose limit. Recommendations from these bodies, as well as from the NRC's Advisory Committee on Nuclear Waste (ACNW), regarding what the fraction from a source should be are:

(a) NCRP No. 116, Chapter 15, notes that no single source or set of sources under one's control should result in an individual being exposed to more than 0.25 mSv/y (25 mrem/y). This fraction was presented as a simple alternative to having a site operator (where a site could expose individuals to levels greater than 0.25 mSv/y (25 mrem/y)) investigate all man-made exposures that an individual at the site would be exposed to so as to demonstrate that the total dose does not exceed 1 mSv/y (100 mrem/y). The clear implication in this simple alternative is that, if individual sources are constrained to 0.25 mSv/y (25 mrem/y), NCRP believes it likely, given the low potential for multiple exposures, that the public dose limits will be met. Further reductions considering ALARA would still be considered by NCRP No. 116.

(b) ICRP 60, Section 5.5.1, in discussing the principles of constraints and limits, notes that it is appropriate to select dose constraints applied to each source to allow for contributions from other sources so as to maintain doses below the 1 mSv/y (100 mrem/y) limit. ICRP 60 does not contain numerical guidance on dose constraints for particular practices, but notes that cumulative exposures to individuals from existing sources near 1 mSv/y (100 mrem/y) are rarely a problem primarily because of the widespread use of source-related dose constraints.

Further explanation of the fundamental concepts of ICRP 60 are contained in the paper, "The ICRP Principles of Radiological Protection and Their Application to Setting Limits and Constraints for the Public from Radiation Sources," by Professor Roger Clarke, Chairman of the ICRP (January 12, 1995; a copy is available in the file for this rulemaking in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC). The paper notes that the constraint approach derives from the optimization principle of radiation protection in which, for any source, individual doses should be ALARA and also be constrained by restrictions on doses to individuals (i.e., dose constraints). The paper further notes that a constraint is an individual related criterion applied to a single source to ensure that the overall dose limits are not exceeded, and that a dose constraint would therefore be set at a fraction of the dose limit as a boundary on the optimization of that source. Based on the principles presented in the paper, the constraint recommended in the paper for a decommissioned site is 0.3 mSv/y (30 mrem/y) and that further optimization through the ALARA principle is appropriate. As is the case for NCRP No. 116, the implication of the paper and ICRP 60 is that the constraint level is a boundary on the dose from this source and is sufficient to assure that members of the public are not exposed to levels in excess of the public dose limit. The rationale for this is expressed in Section 5.5.1 of ICRP 60 where it is noted that the critical group

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is not normally exposed to the constraint level from more than one source although it may be exposed to some dose level less than the constraint level from more than one source.

(c) The proposed FRG in recommendation No. 4 indicates that individual sources should have "authorized limits" set at a fraction of the 1 mSv/y (100 mrem/y) limit for all sources combined. The draft FRG notes that the basis for this recommendation is the various categories of activities using radiation that can lead to exposure to members of the public, and also notes the need for broad assumptions about future activities involving radiation use.

The draft FRG does not recommend a level for any one source although it does note that setting such a fraction will necessarily be a broad judgment based on a general observation of the characteristics of existing activities, projections for continuing those activities in the future, and the potential for other uses in the future that can be identified now. Thus, the draft FRG notes that, in the case of authorized limits for broad categories of sources, the judgments will often necessarily be broad and may lead to somewhat higher values, with further implementation of the ALARA process left to management of individual sources within a category. The draft FRG does not indicate how this judgment is to be made although it cites authorized standards for certain sources that currently exist, including 40 CFR part 190 for the nuclear fuel cycle, Appendix I to 10 CFR part 50 for power reactors, 10 CFR part 61, and 40 CFR part 141. All of these set authorized fractions at 25 percent or less of the 1 mSv/y (100 mrem/y) public dose limit. NRC, in its comments on EPA's draft FRG, questioned what was the appropriate fraction of the public dose limit in 10 CFR part 20 that should be used in setting constraints that would become "authorized" limits.

(d) In its review of how the principles and recommendations of the ICRP, NCRP, and FRG are relevant to the proposed NRC rule, NRC's Advisory Committee on Nuclear Waste (ACNW) noted that 0.15 mSv/y (15 mrem/y) represented an unnecessarily conservative fraction of the 1 mSv/y (100 mrem/y) annual limit. The ACNW agreed that the need to partition the annual recommended dose limit among several sources to which a person is likely to be exposed appears justifiable and noted that no explicit guidance from the various national and international bodies on this subject exists. ACNW stated that a constraint of 25 percent or 30 percent of the 1 mSv/y (100 mrem/y) limit appears more justified and appropriate based on the likelihood that no more than 3 or 4 separate regulated sources will affect the critical group at any instance. ACNW further noted that the selection of 0.15 mSv/y (15 mrem/y), that represents about 1/7 of the annual limit, assumes that a person will encounter a simultaneous dose from seven different regulated sources and that this appears to them to be unjustified, particularly because the ALARA principle accompanies all such NRC regulatory actions.

The recommendations of the previously cited organizations can be summarized as suggesting that a constraint value should be set as part of the process of optimizing the dose from a particular source and that this constraint value should be set as a boundary value below which further optimization or ALARA principles should be employed. The recommendations also appear to suggest that setting a source constraint of 25–33 percent of the annual dose limit of 1 mSv/y (100 mrem/y) is appropriate and adequate to ensure that the dose limit is met, and do not tend to lend support to 0.15 mSv/y (15 mrem/y) as the appropriate fraction to which to constrain the dose from an individual source because it is not likely that a critical group will be exposed to as many as seven sources. Thus, the recommendations appear to indicate that the constraint value should be set using a more reasonable approach.

In discussing the bases for the 0.15 mSv/y (15 mrem/y) dose criterion in the proposed rule, the Commission noted in the preamble (at 59 FR 43219; August 22, 1994) that 0.15 mSv/y (15 mrem/y) would provide a "substantial" margin of safety and be appropriate for decommissioned facilities. As part of its review of the public comments, the Commission considered the recommendations of the standards-setting bodies previously cited. Further, in making a judgment on the appropriate value of the fraction, the Commission also considered principles of optimization, numbers and types of sources, potential for exposure of critical groups to more than one source at the constraint value, and assumptions regarding the manner in which a critical group would be exposed. NRC reviewed the assumptions of the Draft and Final GEIS regarding exposure pathways and also NUREG/CR–5512 upon which the Draft and Final GEIS are based. NUREG/CR–5512 provides an analysis of exposure pathways for critical groups at decommissioned facilities. The principal limiting scenarios include: (a) Full time residence and farming at a decommissioned site, (b) exposure while working in a decommissioned building, and (c) renovation of a newly decommissioned building. These principal limiting exposure scenarios are intended to overestimate dose and also tend to be somewhat mutually exclusive; i.e., a person living near a decommissioned nuclear facility would only receive a dose near the constraint level if his living pattern includes full-time residency and farming at the site. This living pattern would make it difficult for the member of this critical group to also be a member of the critical group from other licensed or decommissioned sources. Conversely, a person having less residency than a full time farmer (e.g., apartment dweller, homeowner who works away from the site) might receive doses from other sources but would receive less than the constraint value from the decommissioned site because the exposure time and the number of pathways would be reduced. Thus, given the assumptions regarding living patterns made in evaluating compliance with the constraint level, it is difficult to envision an individual receiving levels approaching constraint levels from more than one licensed or decommissioned source. It is also likely that individuals at a decommissioned site will actually be exposed to doses substantially below the constraint level because of ALARA considerations and because of the nature of the cleanup process itself, i.e., the process of scabbling of concrete removes a layer of concrete which likely contains a large fraction of the remaining radioactivity, and the process of soil excavation is a gross removal process that is also likely to remove large fractions of the radioactivity. For example, the Final GEIS indicates that, for the reference cases analyzed, removal of a layer of concrete by scabbling will result in doses at levels from 2 to more than 10 times lower than a constraint value. In addition to consideration of decommissioned sources, it is also difficult to envision that an individual could come in contact with more than a few other sources as part of normal living patterns. For example, the NCRP in NCRP No. 93, "Ionizing Radiation Exposure of the Population of the United States," September 1987, reviewed likely radiation exposures to the public from consumer products, air emissions, and fuel cycle facilities (including nuclear power plants) and found that, in general, exposure to the public is a small fraction of 1 mSv/y (a few mrem/y). Recent experience on

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nuclear power plant emissions and dose commitments (NUREG/CR–2850) tends to support the conclusions of NCRP No. 93 about power plant exposures.

NRC's generic evaluation of uses of and doses from various sources, including decommissioned sources, supplemented by the recommendations of the standards setting bodies and advisory committee noted above, suggests that the substantial added margin of safety provided by the 0.15 mSv/y (15 mrem/y) value may be too restrictive for its intended purpose of constraining doses from this category of sources in establishing an appropriate boundary constraint. Rather, the evaluation leads NRC to conclude that 25 percent of the public dose limit is a sufficient and ample fraction to use as the limitation for decommissioned sources.

Thus, the Commission concludes that a generic dose constraint or limitation for decommissioning sources of 0.25 mSv/y (25 mrem/y) for unrestricted release of a site is reasonable from the standpoint of providing a sufficient and ample margin of safety for protection of public health and safety. It is recognized that this conclusion reflects a judgment regarding the likelihood of individuals being exposed to multiple sources with cumulative doses approaching 1 mSv/y (100 mrem/y) rather than an analysis based on probability distributions for such exposures. However, considering the kinds of occupancy time typically assumed for the average member of the critical group at a site, it is highly unlikely that individuals could realistically be expected to experience exposures to other sources with a cumulative effect approaching 1 mSv/y (100 mrem/y).

A.2.2.3 Cost and practicality of standard. Comments received on cost and practicality were analyzed to determine whether such an analysis can provide additional information related to the criteria of this rule. This analysis includes how, and to what level, ALARA efforts should be made, how the proposed decommissioning objective of returning a site to background should be applied, and what provisions should there be (e.g., restricted use) for sites where it is unreasonable or unwise to attain the unrestricted dose criterion.

Some commenters criticized the proposed rule for including considerations of cost-effectiveness, objecting to using cost in decisionmaking. Other commenters criticized the rule because, although they favored use of cost-benefit analyses in decisionmaking, they believed that the cost-benefit analysis in the draft GEIS and draft Regulatory Analysis (RA) was inadequate to justify a 0.15 mSv/y (15 mrem/y) dose criterion because it used an improper approach (i.e., combining the building and soil analysis). They also believed that it underestimated the amount of contamination at reference facilities, as well as the costs of remediation and final site closeout surveys.

The Commission considered the concerns of commenters who criticized inclusion of cost as a consideration in decisionmaking. NRC methods and policy regarding cost considerations are stated in NUREG/BR–0058, Rev. 2, and call for preparation of an appropriate regulatory analysis in support of regulatory decisions. NUREG/BR–0058 does note that costs cannot be considered for regulatory actions necessary to ensure adequate protection of the health and safety of the public; however, it further notes that costs can be a factor in those cases where there may be more than one way to reach a level of adequate protection. Thus, the analysis in the GEIS and RA was prepared in support of the rulemaking to provide additional information to decisionmakers about the rule criteria being considered.

The Commission has also considered the concerns of those commenters that criticized the analysis of costs and risks as incomplete and inadequate and reviewed information submitted in support of those comments. In general, some of the major comments suggested, and provided data on, the following:

(a) Additional data from actual decommissionings should be included that would consider variations in site contamination characteristics, including the concentration and volume of contamination and the profile of the contamination with depth;

(b) Reevaluation of remediation and survey costs should be conducted, including consideration of variation in waste burial charges, remediation methods, and survey procedures;

(c) Separate analyses of the cost-effectiveness of soil removal and building removal should be performed. A commenter illustrated that separate analyses would clarify differences between costs and impacts of cleanup of soils and structures that were not obvious in the Draft GEIS. Commenters also suggested deleting the "knee-in-curve" approach as not clearly illustrating the information regarding costs and impacts for cleanup of both soils and structures; and

(d) Potential alternative uses of the site lands and facilities should be considered to provide a higher level of realism in the dose estimates. These alternative uses can result in variations in direct exposure and ingestion pathways and in the number of persons exposed and thus the collective exposure and net health effects.

Based on the comments and information received, additional information has been added to the GEIS. Data on contamination submitted by the commenters were reviewed, compared with other existing data, including that in the Draft GEIS, and incorporated into the Final GEIS as appropriate. The Final GEIS thus considers additional soil contamination data as well as soil and building contamination comparable to that in the draft GEIS. It also considers the range of disposal costs and survey methods and costs presented in the Draft GEIS, as well as those suggested in the comments. The Commission agrees with the commenters that consideration of soil and buildings separately can provide added information. Thus the Final GEIS has used the analysis of the Draft GEIS, that contained the data for performing separate analyses, and has presented the data more clearly in revised tables. In addition, the "knee-in-curve" figures, that provided general information about behavior of costs and impacts associated with cleanup, have been replaced with a simpler set of tables similar to the presentation in the Draft Regulatory Analysis, in Tables 6.1 and 6.2. In response to comments suggesting that the Final GEIS consider more realistic post decommissioning uses, the Final GEIS considers a range of possible uses, including residential farming, denser residential use, industrial/office use, and higher building occupancy rates.

Given the range of possible parameters, scenarios, and site-specific situations, the Final GEIS concludes, in a manner similar to the Draft GEIS, that there is a wide range of cost-benefit results among the different facilities and within facility types and that there is no unique algorithm that decisively produces an ALARA result for all facilities. Despite these difficulties, the Final GEIS and RA provide the following results that can be helpful for gaining insight in making decisions regarding ALARA, the decommissioning objective, and whether restricted use should be permitted:

(a) *Achieving, as an objective of ALARA, reduction to preexisting background.* The objective of returning a site to preexisting background conditions is consistent with the concept of returning a site to the radiological condition that existed before its use. However, the question of whether this objective, as a goal of ALARA, should be codified by rule depends on a variety of factors,

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including cost, practicality (e.g., measurability) of achieving the objective, and the type of facility involved.

As noted in Section 7.3.1 of the Draft GEIS, decommissioning is expected to be relatively easy for a certain class of non-fuel-cycle nuclear facilities (i.e., those that use either sealed radioactive sources or small amounts of short-lived nuclides), because there is usually no residual radioactive contamination to be cleaned up and disposed of, or, if there is any, it should be localized or it can be quickly reduced to low levels by radioactive decay. Decommissioning operations will generally consist of disposing of a sealed source or allowing licensed short-lived nuclides to decay in storage, submitting Form NRC–314, and demonstrating (either through radiation survey or other means such as calculation of reduction of the contamination level by radioactive decay) compliance with the requirements for license termination. Because contamination at these facilities is expected to be negligible or to decay to negligible levels in a short time, achieving an objective of returning these facilities to background would not appear to be an unreasonable objective of ALARA.

However, in general, for those nuclear facilities where contamination exists in soils and/or structures, the Final GEIS analysis shows, in a manner similar to the Draft GEIS, that achieving an ALARA decommissioning objective of "return to a preexisting background" is not reasonable as it may result in net detriment or because cost cannot be justified because detriments and costs associated with remediation and surveys tend to increase significantly at low levels, while risk reduction from radiation exposure from criteria near background is marginal.

(b) *ALARA analysis for soil contamination.* Soil contamination can exist onsite at nuclear facilities because of a variety of reasons including spills or leaks, deposition from airborne effluents, or burial or placement of system byproducts or other waste materials in onsite soils. The level of soil contamination for the large majority of NRC-licensed facilities (>6000) is either zero or minimal (it is expected that the large majority of Agreement State licensees would have similar contamination). Certain facilities (e.g., power reactors, fuel facilities, industrial facilities) may have greater soil contamination, and certain of these facilities have been identified as having extensive soil contamination (albeit generally at relatively low levels) and have been placed in the Site Decommissioning Management Plan (SDMP) (see NUREG–1444, October 1993). These sites warrant specific NRC attention regarding their decommissioning.

For the generic scenarios considered, the results of the Final GEIS evaluation indicate that there is a wide range of possible cost-benefit ratios. Nevertheless, there appears to be a strong indication that removing and transporting soil to waste burial facilities to achieve exposure levels at the site at or below a 0.25 mSv/y (25 mrem/y) unrestricted use dose criterion is generally not cost-effective when evaluated using NRC's regulatory analysis framework presented in NUREG/BR–0058 and NUREG–1530. Further, even for a range of cleanup levels at or above a 0.25 mSv/y (25 mrem/y) criterion, there can also be cases where costs are unreasonable in comparison to benefits realized.

(c) *ALARA analysis for structures containing contamination.* Building floors and walls at nuclear facilities can be contaminated for a variety of reasons, including system leaks, spills, tracking, and activation. The large majority of NRC licensed facilities have zero or limited building contamination. Generally, contamination does not penetrate the surface of concrete and can be readily removed by water jets or concrete scabbling. If the building is reused for some new industrial, office, or other use after license termination, persons can be in direct contact with the decommissioned floors and walls.

For the range of generic situations considered, the results of the Final GEIS evaluation indicate that there is a wide range of possible cost-benefit ratios. It appears that cleanup of concrete to levels at or below 0.25 mSv/y (25 mrem/y) can be cost effective, depending on the number of individuals projected to be occupying a building, when using the decisionmaking guidelines of NUREG/CR–0058 and NUREG–1530.

A.2.3 Conclusions regarding overall approach to license termination and unrestricted dose criterion. Based on the above discussion, the Commission has concluded that the overall license termination approach of this final rule should include:

- An unrestricted use dose criterion of 0.25 mSv/y (25 mrem/y) applicable on a generic basis without site-specific analysis;
- Considerations regarding ALARA, including the decommissioning objective;
- A tiered approach of unrestricted use and allowing restricted use if certain provisions are met; and
- Codifying alternate criteria in the rule to alleviate the need for exemptions in certain difficult site-specific circumstances.

The reasons for these conclusions are discussed in the following subsections.

A.2.3.1 An unrestricted use dose criterion of 0.25 mSv/y (25 mrem/y) applicable on a generic basis without site-specific analysis. For the reasons described above, the Commission is establishing a dose of 0.25 mSv/y (25 mrem/y) as an acceptable criterion for release of any site for unrestricted use without further analysis of the potential for exposures from other man-made sources excluding medical. The Commission concludes that a generic dose constraint or limitation for decommissioning sources of 0.25 mSv/y (25 mrem/y) for unrestricted use of a site appears reasonable from the standpoint of providing a sufficient and ample margin of safety in protection of public health and safety. This conclusion reflects the Commission's judgment that the likelihood of individuals being exposed to multiple sources with cumulative doses approaching 1 mSv/y (100 mrem/y) is quite small. This conclusion is based on consideration of the kinds of occupancy times generally expected for the average member of the critical group at typical decommissioned sites and the low probability that individuals could realistically be expected to experience significant exposures to other sources, particularly with a cumulative effect approaching 1 mSv/y (100 mrem/y). In view of these perspectives, the Commission believes that a generic dose criterion of 0.25 mSv/y (25 mrem/y) provides a sufficient and ample, although not necessary, margin to protect the public.

A.2.3.2 Considerations regarding ALARA, including the decommissioning objective. The ICRP, NCRP, and draft FRG all suggest that, in addition to setting a constraint value for an individual source, achievement of exposures that are ALARA should continue to be considered as a means of optimization. For this reason and because the generic analysis of the Final GEIS tends to indicate that achieving doses below 0.25 mSv/y (25 mrem/y) may be ALARA for some cases, the rule continues to require an ALARA evaluation below the unrestricted dose criterion.

It would be useful if the analyses in the Final GEIS could have arrived at a value of ALARA for all facilities or classes of facilities so that no further estimate of ALARA would be needed in site-specific cases. However, it was not feasible for the Commission to use the

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results of the Final GEIS to determine a generic optimum ALARA dose because of the variety of possible scenarios, assumptions, parameters, and site-specific conditions that could exist. Nevertheless, the Final GEIS does contain information about certain trends in impacts and costs of decommissioning that can be useful in preparation of regulatory guidance supporting site-specific ALARA provisions. In particular, it is clear from the Final GEIS that removal of soil to achieve dose levels below the 0.25 mSv/y (25 mrem/y) dose criterion is generally unlikely to be cost-effective, whereas it may be for concrete in certain cases. It is also clear that removal of soil or concrete to "pre-existing background" levels is generally not cost effective.

Thus, for those facilities where soil or building contamination exists, it would be extremely difficult to demonstrate that an objective of return to background had been achieved. Therefore it is concluded, as was previously done in the proposed rule, that for these sites use of the unrestricted dose criterion with appropriate ALARA considerations would be appropriate. For restricted use, the Final GEIS suggests that although removal of soil to achieve dose levels below 0.25 mSv/y (25 mrem/y) may not be cost-effective, other simple and less costly measures to restrict the use of the site such as fencing or barrier plantings may be cost-effective and should be considered as part of the ALARA process. For groundwater contamination, as discussed later in Section IV.D, ALARA considerations should consider the situation where populations use groundwater plumes from a facility as drinking water.

In actual situations, it is likely that, even if no specific analysis of ALARA were required for soil and concrete removal, the actual dose will be reduced to below 0.25 mSv/y (25 mrem/y) because of the nature of the removal process. For example, the process of scabbling of concrete removes a layer of concrete that likely contains a large fraction of the remaining radioactivity, and the process of soil excavation is a gross removal process that also is likely to remove large fractions of the radioactivity.

To clarify the concept of ALARA, the regulatory guidance to be prepared will refer to the existing requirements of §§ 20.1003 and 20.1101 where ALARA is defined to include considerations of the state of technology, economics of improvement in relation to the state of technology, economics of improvements in relation to benefits to the public health and safety, and other societal and socio-economic considerations. Although preparation of guidance is in a preliminary stage, it is anticipated that this guidance would likely indicate that ALARA during decommissioning should include typical good practice efforts (e.g., floor and wall washing, removal of readily removable radioactivity in buildings or in soil areas), as well as ALARA analyses for buildings to levels less than 0.25 mSv/y (25 mrem/y) based on the number of individuals projected to be occupying the building, but that an ALARA analysis below 0.25 mSv/y (25 mrem/y) for soil removal would not need to be done. It is expected that use of the dose criterion of the final rule and the regulatory guidance on ALARA would achieve consistency with current practices where it is cost-effective to do so.

The Commission also believes that, in any ALARA analysis conducted to support decisions about site cleanup, all reasonably expected benefits and detriments resulting from the cleanup activities should be taken into consideration in balancing costs and benefits. An example of such a detriment would be transportation deaths that might occur as contaminated waste is transported away from the site.

A.2.3.3 Tiered approach of unrestricted use and allowing restricted use if certain provisions are met. It appears reasonable to retain the basic structure presented in the proposed rule and allow for both unrestricted and restricted use of sites. Allowance of restricted use is appropriate because there can be situations where restricting site use can provide protection of public health and safety by reducing the TEDE to 0.25 mSv/y (25 mrem/y) in a more reasonable and cost-effective manner than unrestricted use. This protection is afforded by limiting the time period that an individual spends onsite or by restricting agricultural or drinking water use. For many facilities, the time period needed for restrictions can be fairly short; i.e., long enough to allow radioactive decay to reduce radioactivity to levels that permit release for unrestricted use. For example, at reactors, manufacturing facilities, or broad scope licensees, where the principal contaminants can have half-lives of 5–30 years (e.g., Co-60, Cs-137), restricting site use for about 10–60 years can result in achieving unrestricted use levels. Thus, it continues to be appropriate to allow restricted use if accompanied by provisions that ensure the restrictions remain in place to achieve a dose of 0.25 mSv/y (25 mrem/y). Considerations for assuring that restrictions remain in place and that public health and safety is protected are discussed further in Section IV.B. In addition, because restricting site use can affect the local community, Sections IV.B and IV.E indicate that licensees should seek advice from such affected parties and, in seeking that advice, provide for: (1) Participation by representatives of a broad cross section of community interests, (2) an opportunity for a comprehensive, collective discussion on the issues, and (3) a publicly available summary of the results of all such discussions.

A.2.3.4 Codifying alternate site-specific criteria in the rule to alleviate the need for exemptions in special circumstances. The preamble to the proposed rule recognized that there could be certain difficult sites presenting unique decommissioning problems where licensees would seek exemptions from the rule's requirements. However, as noted in Section IV.C below, because the Commission finds that it would be preferable to deal with those facilities under the aegis of a rule rather than as exemptions, the Commission has included in its final rule a provision under which the Commission may terminate a license using alternate criteria in certain specific cases. In allowing such a provision, it is nevertheless the Commission's judgment that: (1) It is generally preferable for sites to reduce doses to 0.25 mSv/y (25 mrem/y) due to the uncertainty over the number of sources where nuclides may be present for a long time-frame; (2) the large majority of sites can reduce doses to less than 0.25 mSv/y (25 mrem/y) through restricting site use; and (3) permitting large numbers of licensees to propose alternate criteria is not advisable because it would be contrary to one of the goals of this rulemaking to achieve more efficient and consistent licensing actions. Therefore, the Commission has limited the conditions under which a licensee could apply for alternate criteria and expects that its use would be rare. A licensee proposing to terminate a license at a site-specific level above 0.25 mSv/y (25 mrem/y) would be required to:

(a) Provide assurance that public health and safety would continue to be protected by means of a complete and comprehensive analysis of possible sources of exposure so that it is unlikely that the dose from all potential man-made sources combined, other than medical, would exceed the 1 mSv/y (100 mrem/y) public dose limit of 10 CFR part 20;

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(b) Employ, to the extent practical, restrictions on site use for minimizing exposures at the site using the provisions for restricted use outlined in Section IV.B, below; and

(c) Reduce doses to ALARA levels.

(d) Seek advice from affected parties regarding this approach and, in seeking such advice, provide for: (1) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning, (2) an opportunity for a comprehensive, collective discussion on the issues, and (3) a publicly available summary of the results of all such discussions, and

(e) Obtain the specific approval of the Commission. The Commission will make its decision on allowing use of alternate criteria in specific cases only after consideration of the NRC staff's recommendations that will address any comments provided by the Environmental Protection Agency and any public comments submitted regarding the decommissioning or license termination plan.

A description of these circumstances and potential resolutions on a site-specific basis, short of exempting a facility from this rule, appears in Section IV.C.

If license termination still cannot be met even under alternate criteria, it may be necessary for the site (or a portion thereof) to be kept under license in order to ensure that exposures to the public are appropriately monitored. The evaluation of the maintenance of a site or a portion thereof under a continued license is outside the scope of this rulemaking because this rule contains provisions addressing radiological criteria that apply to termination of a license.

A.2.4 Summary of rule revisions on unrestricted use and plans for implementation. The final rule has been modified to indicate that the dose criterion for unrestricted use is 0.25 mSv/y (25 mrem/y). Requirements that a licensee consider how the ALARA requirements of 10 CFR part 20 can be applied to achieve a dose below the dose criterion have been retained.

Regulatory guidance is planned on how to meet these existing ALARA requirements. In addition, to assist in implementing the dose criterion, regulatory guidance will also be issued to provide clear guidance to licensees on how to demonstrate compliance with the dose criterion by using either:

(a) Screening analyses that use relatively simple approaches for demonstrating compliance; or

(b) Site-specific modeling for more complex sites and contamination. Regulatory guidance will also be issued to provide clear guidance on statistical tests and survey methods available to licensees for demonstrating compliance.

The Commission is retaining the distinguishable from background provision in the final rule to allow release of sites when residual contamination, if any, cannot be distinguished from background on a statistical basis using proper survey techniques. In particular, at the levels of the dose criterion, concentrations of uranium and thorium in soil are extremely low and may not be distinguishable from background on a statistical basis even when using proper survey techniques.

A.3 General Comments on the Dose Criterion

A.3.1 Comments. Comments were received on the 0.15 mSv/y (15 mrem/y) dose criterion that questioned its effect on disposal capacity, the relationship to naturally occurring radioactive material (NORM), and the issue of fixing the responsibility for cleanup.

A.3.2 Response. Some commenters were concerned about the effect of 0.15 mSv/y (15 mrem/y) criterion on disposal capacity. As noted in Section IV.A.2.2, several of the assumptions, models, and approaches in the GEIS and Regulatory Analysis have been revised to include additional data and alternate waste disposal costs. A complete discussion of these revisions and analysis of disposal capacity is in the Final GEIS and the Regulatory Analysis.

Some commenters questioned the relationship of this rule to NORM. In response, the criteria of this rule apply to residual radioactivity from activities under a licensee's control and not to naturally occurring background radiation. Issues related to NRC-licensed sites containing materials that occur in nature are discussed in Sections IV.B and IV.C.

There is a wide variety of sites containing NORM subject to EPA jurisdiction and not licensed by the NRC. The extent to which criteria in this rule would apply to these sites would be based on a separate evaluation although certain aspects of the rule, for example control of sites with restrictions imposed, could be similar. For further discussion, see also Section IV.G.6.

With regard to responsibility for cleanup, several commenters stated that the 0.15 mSv/y (15 mrem/y) limit is too high because licensees should have to clean up contamination that they created. Because these are final licensing actions before releasing the site to the public, they stated that only a lower criterion such as return to background would adequately protect the public. In response, the NRC agrees with the need to fix responsibility for decommissioning of licensed sites. The planning and financial assurance requirements adopted June 27, 1988 (53 FR 24018), recognized the responsibility of licensees to plan for the cleanup of their sites and to provide adequate financial assurance for that cleanup. Similarly in this regulation, licensees are not permitted to release a facility for unrestricted or restricted public use unless the dose criteria stipulated in the rule have been satisfied. As noted in the Final GEIS, further cleanup to levels such as background is not generally reasonable because it results in very little additional health benefit with very large costs incurred and could result in an increase in the overall risk associated with cleanup of a particular site when all factors (e.g., estimated fatalities due to transportation accidents during transport of radioactive wastes) are considered. Therefore, for the reasons discussed in Section IV.A.2.2, the criteria in the final rule are considered appropriate to protect public health and safety and to permit release of the sites and termination of license.

A.4 Average Member of the Critical Group

A.4.1 Comment. Some commenters agreed with provisions of the rule that would apply the dose limit to an average member of the critical group rather than to the "reasonably maximally exposed (RME) individual" because it is consistent with ICRP and provides an appropriate protection standard. Other commenters objected to use of "an average member of the critical group." These commenters favored applying the dose limit to the most exposed person rather than to an average person. They asserted that this would be consistent with the approach used for other licensed activities and environmental protection.

A.4.2 Response. Section 20.1003 of the proposed rule defined the term "critical group" as the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances. For example, if a site were released for unrestricted use, the critical group would be the group of individuals reasonably expected to be the most highly exposed considering all reasonable potential future uses of the site. As noted in the preamble to the proposed rule (at 59 FR 43218; August 22, 1994), NUREG/CR– 5512 defines the critical group as an individual or relatively homogeneously exposed

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group expected to receive the highest exposure within the assumptions of a particular scenario and the dosimetric methods of 10 CFR part 20. The average member of the critical group is an individual who is assumed to represent the most likely exposure scenario based on prudently conservative exposure assumptions and parameter values within model calculations. For example, the critical group for the building occupancy scenario can be the group of regular employees working in a building that has been decontaminated. If a site were converted to residential use, the critical group could be persons whose occupations involve resident farming at the site, not an average of all residents on the site.

Although the terms "critical group" and "average member" are new terms in NRC regulations, they are consistent with ICRP practice of defining and using a critical group when assessing individual public dose from low levels of radioactivity similar to those expected from a decommissioned site. ICRP recommends that such analyses should consider exposure to individuals representative of those expected to receive the highest dose using cautious but reasonable assumptions. This approach has been adopted in the proposed FRG and is also consistent with the recommendations of the National Academy of Sciences on the Yucca Mountain Standards (August 1995).

A.4.3 Summary of rule revisions. Based on this discussion, the proposed rule has not been changed.

B. Criteria for Restricted Use (Proposed Rule §§ 20.1402(d) and 20.1405)

B.1 Proposed Rule Content

As described in the proposed rulemaking and restated in Section IV.A.2.2, there are potential situations under which termination of a license under restricted conditions could be used in the decommissioning of a site. Proposed § 20.1405 indicated that a site would be considered acceptable for license termination under restricted conditions if the licensee:

(1) Made provisions for institutional controls that provide reasonable assurance that the TEDE to the average member of the critical group would not exceed the unrestricted use dose criterion;

(2) Reduced residual radioactivity at the site so that, if the controls were no longer in effect, there is reasonable assurance that the TEDE would not exceed 1 mSv/y (100 mrem/y);

(3) Demonstrated that complying with the unrestricted use dose criterion would be prohibitively expensive, result in net public or environmental harm, or not be technically achievable;

(4) Obtained advice on the restrictions from the affected community by convening a site-specific advisory board, and;

(5) Provided financial assurance to ensure the controls remain in place.

B.2 Comments on Acceptability of Restricted Use for Decommissioned Sites

A variety of comments was received on the restricted use option. The major comment categories are listed below. Although the comment categories address somewhat separate issues, they are listed and answered together to develop a unified response on the issue of restricted use.

B.2.1 The general concept of restricted use. Some commenters agreed with the proposal to permit restricted use of decommissioned sites because it may be financially impractical to reach unrestricted levels, especially if health and safety considerations do not warrant it and because restricted release allows realistic land uses to be considered. Some commenters opposed the concept of any planned restricted release of decommissioned sites because of concerns over the durability and effectiveness of institutional controls, and because license termination should be a final action with full licensee responsibility for site disposition and cleanup costs previously considered.

B.2.2 The need for licensees to demonstrate that restricted use is appropriate for their sites. In allowing restricted use, the proposed rule would have required licensees to demonstrate the appropriateness of restricting site use for their particular situation by showing that it would be "prohibitively expensive," "technically unachievable," or cause "net public or environmental harm" to achieve unrestricted use (proposed § 20.1405(a)). Some commenters supported the restricted use of sites but indicated that the proposed requirements for demonstrating its appropriateness were unreasonably restrictive. These commenters stated that the provisions in proposed § 20.1405(a) were structured so narrowly that few sites would be able to qualify for license termination under restricted conditions. Commenters stated that these terms should be explained, deleted, or replaced with a less onerous requirement allowing restricted use if justified by an ALARA analysis or if there were continued ownership and industrial use of the site.

B.2.3 The durability of institutional controls. Several commenters opposed or expressed concern about the ability of institutional controls to provide needed protection of public health and safety at decommissioned sites because they cannot be enforced indefinitely into the future and can be struck down or become ineffective. Other commenters favored reliance on more flexible institutional controls and recommended that the rule should not assume that they will eventually fail. Approaches for using institutional controls were suggested including Federal Government ownership of sites or legislative solutions for complex sites similar to the National Waste Policy Act (NWPA) of 1982.

B.2.4 The 1 mSv/y (100 mrem/y) cap if institutional controls fail. Some commenters stated that the proposed 1 mSv/y (100 mrem/y) restriction is unreasonably low when used to assess the worst case scenario. They recommended that the rule should not stipulate that a licensee must assume that all institutional controls will eventually fail. Alternatively, they recommended that a 5 mSv/y (500 mrem/y) backup limit be allowed if restrictions such as institutional controls or engineered features fail. The commenters believed that a 5 mSv/y (500 mrem/y) limit is consistent with other regulations, since residential use of an industrial site is unlikely, and failure of controls is speculative. Several commenters objected to the last sentence of proposed § 20.1405(d), that stated that licensees may not assume any benefits from an earthen cover, other earthen barriers, or engineered controls in complying with the 1 mSv/y (100 mrem/y) cap unless specifically authorized by the Commission and recommended that the sentence be deleted. Some commenters recommended that the rule specify the extent to which licensees may take credit for engineered barriers. Other commenters stated that 1 mSv/y (100 mrem/y) is too high and that a lower value (e.g., 0.15, 0.3, 0.5, 0.75 mSv/y (15, 30, 50, or 75 mrem/y)) should be applied because institutional controls are uncertain, concerns over health effects would exist, and doses in excess of 40 CFR Part 190 are unreasonable. Some commenters agreed with establishing a maximum TEDE of 1 mSv/y (100 mrem/y) in the event institutional controls are no longer in effect.

B.2.5 Financial assurance for restricted use. Some commenters questioned the need for financial assurance provisions and suggested that more flexibility be provided for

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licensees. Other commenters questioned whether the financial assurance provisions were adequate. One commenter stated that there should be more detail on financial assurance provided in the rule.

B.3 Response

B.3.1 The general concept of restricted use. Current NRC regulations pertaining to decommissioning, issued on June 27, 1988 (53 FR 24018), do not contain provisions for release of a facility for restricted use but limit a licensee's options in decommissioning to release of a facility for unrestricted use. Experience with decommissioning of facilities since 1988 has indicated that for certain facilities, achieving unrestricted use might not be appropriate because there may be net public or environmental harm in achieving unrestricted use, or because expected future use of the site would likely preclude unrestricted use, or because the cost of site cleanup and waste disposal to achieve unrestricted use is excessive compared to achieving the same dose criterion by restricting use of the site and eliminating exposure pathways. The input received from the rulemaking workshops held from January through May 1993 confirmed this experience and indicated that restricted use of a facility, if properly designed and if proper controls were in place, was a reasonable means for terminating licenses at certain facilities.

Current NRC-licensed sites that might request restricted use are largely industrial sites. It is reasonable for them to remain industrial because of their locations and previous siting considerations. Nevertheless, there may be instances where, if a site had high cultural value, such considerations would be presented as part of the public input that is part of the process of restricted use (see Section IV.E) and could be considered as a socioeconomic effect under the ALARA process.

The proposed rule thus provided for both unrestricted and restricted use of sites. Both the Draft and Final GEIS provide discussions of the environmental impact of decommissioning for the reference sites and of the costs related to decommissioning. From this it may be concluded that release of certain facilities for restricted use is an appropriate option assuming the presence of the specific provisions described below to ensure that appropriate controls are in place so that the restrictions on use remain in effect.

B.3.2 The need for licensees to demonstrate that restricted use is appropriate for their sites. As described in Section IV.B.3.1, the proposed rule allowed restricted use because release of a site under restricted conditions can be an appropriate method of decommissioning from both health and safety, and cost-benefit bases, especially for certain facilities with soil contamination. Nevertheless it did so under the philosophy (stated in § 20.1402(d)) that, in general, termination of a license for unrestricted use is preferable because it requires no additional precautions or limitations on use of the site after licensing control ceases, in particular for those sites with long-lived nuclides. In addition, there may be societal or economic benefits related to future value of the unrestricted use of the land to the community. Thus, § 20.1405(a) of the proposed rule stated the provisions the NRC would consider in evaluating a request for termination of a site under restricted conditions, including that it is "prohibitively expensive" or there is "net public or environmental harm" in achieving unrestricted release.

The Commission continues to believe that unrestricted use is generally preferable for the reasons noted. However, the NRC has reexamined the provisions for allowing restricted use because of the potential benefits. In explaining the provision of "prohibitive" cost, the proposed rule noted (at 59 FR 43220) that costs to achieve unrestricted use may be "excessive," indicating that this means there may be situations where removal and disposal of large quantities of material is simply "not reasonable" from a cost standpoint. Consistent with this, the proposed rule noted in § 20.1402(d) that the Commission expected licensees to make every reasonable effort to achieve unrestricted release. The specific cost that would be considered excessive, not reasonable, or prohibitive was not included in the proposed rule. This value depends on costs of unrestricted and restricted use, and on an evaluation of these alternatives using the regulatory analysis framework presented in NUREG/BR–0058 and NUREG–1530. NUREG/BR–0058 provides a decisionmaking tool for deciding between regulatory alternatives. As noted in the discussion below, restricted use with appropriate institutional controls (accompanied by sufficient provisions for ensuring their effectiveness) can provide protection of public health and safety because the dose level will be reduced to the same 0.25 mSv/y (25 mrem/y) criterion as for unrestricted use. Thus, use of the guidelines in NUREG/BR–0058 is appropriate for determining whether restricted use should be permitted. Therefore, the Commission has modified the rule to incorporate an ALARA standard rather than prohibitive costs as the basis for selecting restricted use. To support a request for restricted use, a licensee would perform an ALARA analysis of the risks and benefits of all viable alternatives and include consideration of any detriments. This could include estimated fatalities from transportation accidents that might occur as the result of transport of wastes from cleanup activities, and societal and socioeconomic considerations such as the potential value to the community of unrestricted use of the land.

The proposed rule also noted that because the net public or environmental damage through removal, transport, and disposal of materials could be larger than the benefit in dose reduction at the site, it may be more reasonable for the material to remain onsite. The Final GEIS illustrates when it may be inappropriate, when considering such relative impacts, to completely remediate a site to an unrestricted level that assumes activities such as farming or residence, and then, as would be the case for a number of currently licensed sites, actually employ a commercial or industrial use that would eliminate significant pathways of exposure. Specific examples include reactors or other materials facilities where the dose is controlled by relatively short-lived nuclides (e.g., Co-60 and Cs-137 with half-lives of 5.3 and 30 years, respectively) that will decay to unrestricted dose levels in a finite time period of institutional control (e.g., about 10–60 years). For these facilities, there may be net public or environmental harm from removing and transporting soil to achieve unrestricted use compared to restricting use for a period of time associated with a reasonable decay period (see the Final GEIS, Chapter 6). Thus, the consideration of potential detriments from cleanup activities and the possibility of net harm have been retained in the final rule. Both terms, net public harm and net environmental harm, are retained in the final rule to indicate that a licensee's evaluation should consider the radiological and nonradiological impacts of decommissioning on persons who may be impacted, as well as the potential impact on ecological systems from decommissioning activities.

B.3.3 The durability of institutional controls. As described in Sections IV.B.3.1 and IV.B.3.2, use of restrictions that employ institutional controls appears appropriate in specific

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situations. However, an important question raised in the public comments relates to the durability of institutional controls, i.e., whether the controls provide reasonable assurance that the exposure will be limited to the dose criterion in the rule over the periods in question.

For many types of decommissioned sites released under restricted conditions where potential doses to an individual are caused by relatively short-lived nuclides, the radiation exposure that could potentially be received were controls to fail will gradually decrease to below the unrestricted dose criterion so the restrictions on use would no longer be necessary. Examples of facilities with nuclides of this type include reactors or materials facilities for which the principal dose contributing nuclides after decommissioning are Co-60 or Cs-137 (half-lives 5.3 and 30 years, respectively), or other similarly short-lived nuclides. The Commission has considered the effectiveness of institutional controls for up to 100 years in similar contexts such as low-level waste disposal sites. Because decommissioned facilities will have minimal contamination compared to large volumes buried at low-level disposal sites, the Commission believes that institutional controls using relatively simple deed restrictions can provide reasonable assurance that the TEDE will be below the 0.25 mSv/y (25 mrem/y) dose criterion with restrictions in place.

In a limited number of cases, in particular those involving large quantities of uranium and thorium contamination, the presence of long-lived nuclides at decommissioned sites will continue the potential for radiation exposure beyond the 100-year period. More stringent institutional controls will be required in these situations, such as legally enforceable deed restrictions and/or controls backed up by State and local government control or ownership, engineered barriers, and Federal ownership, as appropriate. Federal control is authorized under Section 151(b) of the National Waste Policy Act (NWPA). Requiring absolute proof that such controls would endure over long periods of time would be difficult, and the Commission does not intend to require this of licensees. Rather, institutional controls should be established by the licensee with the objective of lasting 1000 years to be consistent with the time-frame used for calculations (and discussed in Section IV.F.7). Having done this, the licensee would be expected to demonstrate that the institutional controls could reasonably be expected to be effective into the foreseeable future.

To provide added assurance that the public will be protected, the final rule incorporates provisions (§ 20.1405(c)) for financial assurance to ensure that the controls remain in place and are effective over the period needed. With these provisions, the Commission believes that the use of reliable institutional controls is appropriate and that these controls will provide a high level of assurance that doses will not exceed the dose criterion for unrestricted use.

Although the Commission believes that failure of active and passive institutional controls with the appropriate provisions in place will be rare, it recognizes that it is not possible to preclude the failure of controls. Therefore, in the proposed rule, the Commission included a requirement that remediation be conducted so that there would be a maximum value ("cap") on the TEDE from residual radioactivity if the institutional controls were no longer effective in limiting the possible scenarios or pathways of exposure. The cap included in the proposed rule was 1 mSv/y (100 mrem/y), which is the public dose limit codified in 10 CFR part 20. Public comments on the proposed rule suggested other values for the cap, both higher than and lower than the proposed value. The analysis of those comments, and their potential effect on the institutional controls used, is discussed in Section IV.B.3.4.

The Commission believes, based on the discussion in this section on the viability of controls and on the provisions for financial assurance and for a "cap," described in Sections IV.B.3.4 and IV.B.3.5, that the provision for restricted use and institutional controls will provide a high level of assurance that public health and safety will be protected. Licensees seeking restricted use will be required to demonstrate, to NRC's satisfaction, that the institutional controls they propose are comparable to those discussed above, are legally enforceable, and are backed by financial assurance. Licensees will also be required to demonstrate that the cap will be met. The Commission believes that the provision for restricted use should be retained in the final rule.

B.3.4 The 1 mSv/y (100 mrem/y) cap if institutional controls fail. A "cap" of 1 mSv/y (100 mrem/y), corresponding to the public dose limit, was proposed in § 20.1405(d) of the proposed rule. Various possible "cap" values were suggested by the commenters, both lower than (e.g., values such as 0.15, 0.3, or 0.85 Sv/y (15, 30, or 85 mrem/y)) or higher than the proposed cap.

The Commission has reviewed the comments suggesting that the specific cap value be set at levels other than 1 mSv/y (100 mrem/y). The rationale for setting the cap at 1 mSv/y (100 mrem/y) presented in the proposed rule (at 59 FR 43221) was that the value of the cap coincides with NRC's public dose limit of 10 CFR Part 20. This value was premised on the assumption that circumstances could develop in which the restrictions might no longer be effective in limiting the exposure scenarios or pathways. Although this occurrence need not be assumed for planning purposes, a safety net is needed to prevent exposures in excess of the public dose limits. A cap using the public dose limits would provide an additional level of protection in the unlikely event that restrictions were not effective. Although, as noted in Section IV.A.2, the Commission has used a fraction of the public dose limit in setting the 0.25 mSv/y (25 mrem/y) dose limit for decommissioning, it indicated in the proposed rule that, in the case of the "cap" or "safety net," it did not believe that fractionation, i.e., setting a cap value less than 1 mSv/y (100 mrem/y), would be necessary because:

(a) The 1 mSv/y (100 mrem/y) cap is less than values suggested in the proposed FRG for members of the public in unusual circumstances and less than values used for other types of facilities where some type of institutional control is used;

(b) The Commission believes that failure of all site restrictions at decommissioned sites is a highly unlikely event; and

(c) Radioactive decay for relatively short-lived nuclides (e.g., Co-60 and Cs-137), that are the principal dose contributing contaminants at the large majority of NRC licensed facilities, will actually reduce the dose level over a period of time for most sites that will provide an additional margin of safety equivalent to fractionation of the limit.

The rationale for setting a cap value at 1 mSv/y (100 mrem/y) continues to appear appropriate. In addition, setting a cap at a lower value does not appear warranted because: (1) It appears arbitrary to assume that the same person would be an average member of the critical group both near a facility where there was failure of controls and near another decommissioned facility; and (2) the failure of restrictions would be infrequent and therefore it is likely that the overall lifetime risk to the critical group would still be maintained at levels comparable to unrestricted use

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while providing a more cost-effective use of resources.

Although the Commission did not fractionate the cap, it did include in the proposed rule, and continues to include in the final rule, a provision that would require exposures to be below the cap to a degree that is ALARA. The purpose of this requirement is that licensees would not simply leave behind contamination corresponding to the value of the cap but would evaluate the level below the cap that is cost effective and reduce the contamination to that level. This will provide a requirement that will effectively fractionate the doses and result in doses not dissimilar from those suggested by the commenters if it is cost-effective to do so. This approach is consistent with the current requirements in 10 CFR part 20.

Based on its experience with sites with difficult contamination issues, in particular those sites treated in NRC's SDMP, and as described in the Final GEIS, the Commission anticipates that there may be sites where compliance with the 1 mSv/y (100 mrem/y) cap could cause impacts resulting from cleanup to that level (e.g., estimated industrial or traffic fatalities associated with removing or transporting waste) that exceed the benefits of averting radiation exposure (thus causing a net detriment to public health or the environment) or that diminish the net benefit to where costs of cleanup would be prohibitive compared to the net benefit. Although the NRC recognizes that it is always the licensee's responsibility to clean up the contamination that it has caused, the appropriate course of action should not result in net public or environmental harm from a cleanup, and it is not clear that it is beneficial if resources are spent in a manner prohibitive in relation to other benefits which could be achieved, or if a licensee is put into a financial position where it cannot continue to perform the cleanup safely.

Although a cap higher than 1 mSv/y (100 mrem/y) would result in using a value in excess of the public dose limit in § 20.1301(a), existing requirements in § 20.1301(c) permit levels up to values of 5 mSv/y (500 mrem/y), provided that a licensee would apply to the Commission for permission to operate at that level, submit reasons why it is necessary, and indicate procedures to maintain doses ALARA. The proposed FRG, Recommendation No. 4, states that the dose from all sources should not exceed 1 mSv/y (100 mrem/y) although it may be exceeded temporarily in unusual situations that are not expected to recur.

Based on this existing requirement, the Commission has incorporated a specific provision in the final rule under which a licensee could propose exceeding the 1 mSv/y (100 mrem/y) cap in unusual site-specific circumstances if, in addition to the normal provisions of restricted use, it also met the following additional stringent provisions:

(a) A licensee would have to demonstrate that it cannot meet the 1 mSv/y (100 mrem/y) cap because of net public or environmental harm or prohibitive costs by means of a site-specific evaluation of the issues associated with complying with the 1 mSv/y (100 mrem/y) cap. The NRC expects that only a very few facilities (e.g., sites with soil contaminated with naturally occurring radionuclides in small radioactivity levels but large volumes, certain SDMP sites) could provide sufficient rationale for seeking a higher cap. Although the proposed rule contained a reference to the use of prohibitive cost, it did not quantify or define these costs beyond noting that they would be excessive or unreasonable. The Commission believes it appropriate to consider a prohibitive cost to be one that would be an order of magnitude greater than that contained as part of the decisionmaking guidelines in NUREG/BR–0058, although a lower factor may be appropriate in specific situations when a licensee could become financially incapable of carrying out decommissioning safely;

(b) Under these circumstances, the licensee would be required to reduce contamination so doses would be no greater than the 5 mSv/y (500 mrem/y) value currently contained in § 20.1301(a). Also, the actual dose level to which the licensee would have to clean the site would be less than that value based on an ALARA evaluation of the site. This provision is consistent with existing requirements in § 20.1301(c) that permit levels up to values of 5 mSv/y (500 mrem/y) for specific cases;

(c) Durable institutional controls must be in place. These controls could include significant engineered barriers and/or State, local, or Federal Government control of sites or maintenance of site deed restrictions so that site access is controlled. Under Section 151(b) of the NWPA of 1982, the DOE has already been authorized to take possession of waste disposal sites in certain situations. A similar provision in Section 151(c) was used as the vehicle to transfer custody of the Amax site from Amax to DOE;

(d) A licensee would make provisions for a verification of the continued effectiveness of institutional controls at the site every 5 years after license termination to ensure that the institutional controls are in place and the restrictions are working, and that there is financial assurance to reestablish controls if the recheck indicates otherwise. This 5-year recheck is consistent with 10 CFR Part 20 and also with the FRG, Recommendation No. 4, that states that in some unusual situations the 1 mSv/y (100 mrem/y) may be exceeded temporarily in situations that are not anticipated to recur. It is also consistent with the approach for institutional controls used in CERCLA that allows for release of sites without a cap providing there is continuous checking on the status of the controls.

The NRC would retain the authority to take appropriate action in those unusual situations when both the 5 mSv/y (500 mrem/y) cap was in effect and the controls had failed. This action might include oversight of actions needed to reinstate the controls and any necessary cleanup and/or monitoring actions.

B.3.5 Financial assurance. As a second provision for ensuring that the institutional controls provide protection of public health and safety, financial assurance requirements were included to ensure that funds will be available to enable an independent third party, including a governmental custodian of a site, to implement and ensure continued effectiveness of institutional controls. Some commenters questioned whether these provisions were necessary while others questioned whether they went far enough. In response, the Commission continues to believe the proposed provisions are reasonable and adequate for their purpose. The provisions are consistent with financial assurance requirements currently in 10 CFR Parts 30, 40, 50, 61, 70, and 72 which call for financial assurance to provide funds for decommissioning in cases when licensees might otherwise be financially unable to remediate a site. Reference to an independent third party is necessary in the regulations because after the license is terminated, the licensee may no longer be the party ensuring the effectiveness of the controls. Because the purpose of this provision is to provide broad requirements for financial assurance necessary to ensure that the controls continue to limit the dose, more specific details are not included in the rule. The level of detail in the rule is similar to that in other similar NRC regulations on financial assurance. As requested by a commenter, the funding provisions include a trust fund (or similar funding mechanism) for

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surveillance and enforcement of the institutional controls. The financial assurance requirements must be in place before the license is terminated and be flexible enough to allow for the necessary site-specific details.

B.4 Summary of Rule Revisions on Restricted Use

Based on the discussions above, restricted use has been retained in the final rule. Based on its analyses in the Final GEIS and its experiences with actual decommissioned sites, the Commission recognizes that, although unrestricted use is generally preferred, restricted use (when properly designed in accordance with the rule's provisions discussed in Section IV.B.3) can provide a cost-effective alternative to unrestricted use for some facilities and maintain the dose to the average member of the pertinent critical group at the same level. Thus, the Commission has replaced the prohibitively expensive provision for justifying restricted use with a reasonable cost provision. The net harm provision remains the same. The general cap value has been retained at 1 mSv/y (100 mrem/y) as has the requirement that licensees reduce the actual level of contamination to levels as far below the cap as is ALARA, where appropriate. The rule has been modified to allow for exceeding the 1 mSv/y (100 mrem/y) cap in site-specific situations and under specific provisions. No change has been made to the financial assurance provisions of the rule.

A number of comments were also received on public participation aspects of restricting site use. The final rule will require that licensees proposing to decommission by restricting use of a site shall seek advice from individuals and institutions in the community who may be affected by the decommissioning and that, in seeking that advice, the licensee shall provide for: (1) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning; (2) an opportunity for a comprehensive, collective discussion on the issues by the participants represented; and (3) a publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues. The details of the comments received and the rationale for the public participation aspects of the final rule are discussed in Section IV.E.

C. Alternate Criteria for License Termination

C.1 Codifying Provisions for Certain Facilities That the Proposed Rule Suggested Exempting

C.1.1 Proposed rule content. The preamble to the proposed rule noted that there were several existing licensed sites where public health and the environment may best be protected by use of alternate criteria, although these situations were not codified in the proposed rule; rather, it was thought that these facilities might seek exemptions (under § 20.2301) from the criteria of this rule.

C.1.2 Comments. Some commenters recommended that the rule should not apply to any facility that possesses large volumes of low-level contaminated wastes (including SDMP sites) and should provide a specific exemption or exemption procedures for the "tens" of existing facilities for which application of the proposed criteria is inappropriate and too restrictive. Commenters suggested that guidance is needed on sites that should be turned over to the Federal Government after license termination and sites that should be kept under license. Commenters also recommended that NRC ask Congress to amend the NWPA of 1982 to allow Federal ownership of extensively contaminated sites. Other commenters objected to exempting facilities from the proposed radiological criteria and stated that the rule should cover all decommissioning cases.

C.1.3 Response. For the very large majority of NRC-licensed sites, the Commission believes that the 0.25 mSv/y (25 mrem/y) unrestricted and restricted use dose criterion in the rule is an appropriate and achievable criterion for decommissioning.

However the Commission is concerned about the possible presence of certain difficult sites presenting unique decommissioning problems. Licensees of these sites who would have sought exemptions to the proposed rule's criteria would have had to follow processes similar to the other facilities covered by the rule. In addition, licensing efficiency, consistency of application of requirements, and oversight of these facilities can best be achieved by codifying application of criteria to all facilities. Therefore, the Commission believes that it is preferable to codify provisions for these facilities under the aegis of the rule rather than requiring licensees to seek an exemption process outside the rule as was contemplated in the proposed rulemaking.

In addition, as discussed in Section IV.A, the Commission has concluded that for any site where the 0.25 mSv/y (25 mrem/y) dose criterion is met, there will be a very low likelihood that individuals who use the site will be exposed to multiple man-made sources combined, excluding medical, with cumulative doses approaching 1 mSv/y (100 mrem/y). Thus, the discussion in Section IV.A of this notice establishes this level as a sufficient and ample, but not necessary, margin of safety.

Based on these considerations, the Commission has included in the final rule a provision under which the Commission may terminate a license using alternate criteria in its final rule. The Commission expects the use of alternate criteria to be confined to rare situations. Therefore, for the reasons previously listed in Section A.2.3.4, the Commission has limited the conditions under which a licensee would apply to the NRC for, or be granted use of, alternate criteria to unusual site-specific circumstances subject to the following provisions:

(a) A licensee must provide assurance that, for the site under consideration, it is unlikely that the dose to an average member of the critical group for that site from all potential man-made sources combined, other than medical, would exceed the 1 mSv/y (100 mrem/y) public dose limit of 10 CFR Part 20. The Commission envisions that a licensee proposing to use alternate criteria will have to provide a complete and comprehensive analysis that would build upon generic considerations such as those discussed in Section IV.A.2, and also include site-specific considerations. To guide the Commission in its review of such analyses, the NRC is continuing to develop generic information on the potential for exposure to radioactivity from various sources, including decommissioned sources, to supplement currently available knowledge, and is planning to make this information publicly available through publication of a NUREG report. Site-specific factors that the Commission might review in such cases could include soil and aquifer characteristics, the nature of the critical groups likely to use the site, the detailed nature of the contamination patterns at the site, and the characteristics of residual radionuclides remaining at the site, including considerations related to whether the nuclides are long-lived or short-lived;

(b) A licensee will employ, to the extent practical, restrictions on site use for minimizing exposure at the site using the provisions for restricted use

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outlined in IV.B, above, and in § 20.1403;

(c) A licensee will indicate that a comprehensive analysis had been performed of the risks and benefits of all viable alternatives and consideration of any detriments, such as transportation fatalities that might occur as the result of cleanup activities, to reduce the residual radioactivity at the site to levels that are ALARA;

(d) A licensee will seek advice from affected parties regarding this approach. In seeking such advice, the licensee will provide for: (1) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning; (2) an opportunity for a comprehensive, collective discussion on the issues by the participants represented; and (3) a publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues (the rationale for these public participation aspects are discussed in more detail in Section IV.E); and

(e) A licensee will obtain the specific approval of the Commission for the use of alternate criteria. The Commission will make its decision after consideration of the NRC staff's recommendations that will address any comments provided by the Environmental Protection Agency and any public comments submitted regarding the decommissioning or license termination plan.

If the license termination conditions under alternate criteria cannot be met, it may be necessary for the site (or portion thereof) to be kept under license to ensure that exposures to the public are appropriately monitored. The evaluation of maintenance of a site or a portion of that site under continued license is outside the scope of this rulemaking because this rule contains provisions, including radiological criteria, that apply to termination of a license.

With regard to the comment on the NWPA, it should be noted that Section 151(b) of the NWPA already authorizes ownership by the U.S. Department of Energy, if NRC makes certain determinations. Therefore, no further legislation is needed to grant this authority. The rule language has been clarified to ensure that this authority may be implemented by NRC and DOE.

C.1.4 Summary of revisions to rule on codifying provisions for certain facilities. The rule has been modified to include the use of alternate criteria in specialized circumstances and under the provisions described above.

C.2 Exclusion of Uranium/Thorium Mills Proposed in § 20.1401(a)

C.2.1 Proposed rule content. The proposed rule stated that, for uranium mills, the criteria of the rule apply to the facility but do not apply to the disposal of uranium mill tailings or to soil cleanup. The proposed rule referred to 10 CFR Part 40, Appendix A, where criteria already exist (§ 20.1401(a)).

C.2.2 Comments. Comments on the proposed rule generally agreed with the exclusion for disposal of mill tailings and soil cleanup. Commenters also recommended that the rule exempt conventional thorium and uranium mill facilities and in situ leach (ISL) (specifically uranium solution extraction) facilities from the scope of coverage because they stated that the decommissioning of these sites is covered by Appendix A to 10 CFR part 40 and 40 CFR part 192.

C.2.3 Response. Currently, there are regulations applicable to remediation of both inactive tailings sites, including vicinity properties, and active uranium and thorium mills. Under the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, as amended, EPA has the authority to set cleanup standards for uranium mills and, based on that authority, issued regulations in 40 CFR part 192 which contain remediation criteria for these facilities. NRC's regulations in 10 CFR part 40, Appendix A, apply to the decommissioning of its licensed facilities and conform to EPA's standards for uranium mills. At ISLs, the decommissioning activities are similar to those at uranium mills and consist mainly of the cleanup of byproduct material as defined in Section 11e.(2) of the Atomic Energy Act of 1954, as amended.

Thus, applicable cleanup standards already exist for soil cleanup of radium in 10 CFR part 40, Appendix A, Criterion 6(6). Radium is the main contaminant at mills in the large areas (20–400 hectares (50 to 1000 acres) for uranium mills) where windblown contamination from the tailings pile has occurred, and at ISLs (in holding ponds). These standards require that the concentration of radium in those large areas not exceed the background level by more than 0.19 Bq/gm (5 pCi/gm) in the first 15 cm (6 inches) of soil, and 0.56 Bq/gm (15 pCi/gm) for every 15 cm (6 inches) below the first 15 cm (6 inches). Cleanup of radium to these concentrations would generally result in doses higher than the unrestricted use dose criterion of this rulemaking, although, in actual practice, cleanup of uranium mill tailings results in radium levels lower than the 10 CFR part 40 standards, and radium is usually removed to background levels during cleanup of uranium and thorium to the levels in existing NRC guidance documents.

However, in other mill and ISL site areas proximate to locations where radium contamination exists (e.g., under the mill building, in a yellow cake storage area, under/around an ore pad, and at ISLs in soils where spray irrigation has occurred as a means of disposal), uranium or thorium would be the radionuclide of concern. A difficulty in applying 10 CFR part 40, Appendix A, as a standard for uranium and thorium, is that it does not have any cleanup standards for soil contamination from radionuclides other than radium. Application of the decommissioning dose criterion of the final rule to these areas (while retaining the 10 CFR 40, Appendix A, standard for radium) would result in a situation where the cleanup standard of that small portion of the mill site would be lower than the standard for the large windblown tailings areas where radium is the nuclide of concern. This would result in situations of differing criteria being applied across essentially the same areas and would be a problem for contamination existing both in uranium mill soils and buildings.

The Commission has considered the most appropriate means to address requirements for cleanup at uranium and thorium mills and ISLs (collectively referred to as UR facilities) for unrestricted release of the site other than tailings disposal and reclamation subject to the requirements of 10 CFR part 40, Appendix A. One way would be to include criteria for UR facilities as part of this rulemaking. However, as noted above, there are complexities associated with decommissioning of these unique facilities which could cause practical problems in applying the standards of this rulemaking to UR facilities. Therefore, the Commission has decided to exclude UR facilities from the scope of this rulemaking.

To allow for full consideration by the Commission and affected parties of the issues associated with decommissioning UR facilities and of the regulatory options listed above, the Commission is publishing a separate notice in this **Federal Register** reopening the comment period to specifically request additional comment on the regulatory options for decommissioning criteria for UR facilities. The Commission is not reopening the comment period for any other issue discussed in this **Federal**

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Register notice. In the interim, the Commission will continue its current practices for decommissioning UR facilities.

C.2.4 Summary of rule revisions for uranium/thorium mills. The Commission is excluding uranium/thorium mills from the scope of this rulemaking and is publishing a separate notice requesting additional comment on the specific standard for license termination of UR facilities.

C.3 Other Exemptions

C.3.1 Comments. Commenters suggested certain other exemptions be specifically provided for in the rule including:

(1) Licensees that possess and hold only sealed sources or limited quantities; and

(2) Radioactive waste materials disposed of in accordance with NRC regulations in formerly used §§ 20.302 and 20.304 because ALARA was applied on a site-specific basis for these facilities.

Other commenters disagreed and stated that all such waste must be decommissioned. In addition, there were commenters who stated that exemption procedures should be spelled out.

C.3.2 Response. No exemption from the rule for sealed source or limited quantity users is necessary. Under provisions of 10 CFR Parts 30, 40, and 70, §§ 30.36(c)(1)(v), 40.42(c)(1)(v), and 70.38(c)(1)(v), the licensee could provide assurance that building or soil contamination has never occurred or demonstrate that the level of radioactive material contamination in the facility conforms with screening criteria.

With regard to burials, as discussed in the preamble to the proposed rule, the determination of whether the licensee meets the radiological criteria of the final rule includes consideration of all residual radioactivity at the site, including burials made in conformance with 10 CFR part 20 (both existing § 20.2002 and formerly used §§ 20.302 and 20.304). This is consistent with prior Commission statements made in the preamble to the 1988 rulemaking on general requirements for decommissioning (53 FR 24018; June 27, 1988) and in promulgation of the final rule on timeliness of decommissioning (59 FR 36026; July 15, 1994). More recent past burials (1981 to present) were frequently made in conformance with guidelines defined in "Onsite Disposal of Radioactive Waste," NUREG–1101, Volumes 1 through 3. This guidance was based on a maximum annual whole body or critical organ dose of 0.25 mSv (25 mrem). Although numerically similar to the existing low-level waste disposal criteria in 10 CFR part 61, the Commission believes that, as a whole, the regulations applicable to low-level waste disposal sites are much more restrictive than those applicable to onsite burials. The pathway parameters on which NUREG–1101 is based may not be comparable to those used to define the rule's unrestricted release criteria. Nevertheless, case-by-case analysis of the potential radiological impacts could indicate that leaving the burials in place could be consistent with unrestricted or restricted release of the affected site. For past burials that have involved long-lived nuclides, site-specific modeling may also justify leaving these burials in place. Thus, the Commission sees no reason to specifically exempt these burials from consideration under this final rule but would continue to require an analysis of site-specific overall impacts and costs in deciding whether or not exhumation of previous buried waste is necessary for specific sites. In addition, the general exemption provisions of 10 CFR part 20 are available to consider unique past burials on a case-by-case basis.

With regard to specific provisions in the rule for exemptions, the Commission is not convinced that a significant number of exemptions to the unrestricted or restricted use provisions of the final rule will be necessary. The Commission believes that the options in this rule for release under alternate criteria and the flexibility contained in the rule including the use of realistic site-specific screening and modeling provide licensees with sufficient latitude.

D. Groundwater Protection Criteria (Proposed Rule § 20.1403)

D.1 Proposed Rule Content

The proposed rule (§ 20.1403(d)) indicated that a licensee must demonstrate a reasonable expectation that residual radioactivity from the site will not cause the level of radioactivity in groundwater that is a current or potential source of drinking water to exceed the limits specified in 40 CFR part 141. This groundwater requirement would have been in addition to the proposed dose criterion for unrestricted use and was included as part of the proposed rule on EPA's recommendation. The preamble to the proposed rule solicited responses to three specific questions on this proposal, including whether a separate standard was appropriate as a supplement to an overall radiological dose criterion that applies to all exposure pathways.

D.2 Use of EPA Drinking Water Standards in NRC Rule

D.2.1 Comments. A number of commenters disagreed with the inclusion of a separate groundwater requirement. In response to the specific questions asked, many of these commenters stated that a separate requirement for groundwater was not necessary if the rule included an all-pathways standard. A commenter also noted that application of Maximum Contaminant Levels (MCLs) to groundwater was inappropriate because the MCLs of EPA's drinking water standards were based on outdated dosimetry (ICRP2) and were applicable to public water systems rather than to groundwater directly. Other commenters supported establishing a separate groundwater requirement as being consistent with the EPA standard.

D.2.2 Response. As noted in Section IV.D.1, the NRC's proposed rule included separate requirements for groundwater protection. The NRC staff has reviewed the public comments on its proposed rule, including the EPA comments supporting the separate requirement, has reviewed the bases and rationale for a separate groundwater standard, and has conducted further technical analyses of groundwater protection in the Final GEIS.

As described in some detail in Section IV.A.2.2, there were three broad considerations that provided the overall rationale for the proposed rule's contents. The first two considerations were related to the health and safety aspects, and the third was related to cost and practicality aspects. As was done in Section IV.A.2.2, regarding the establishment of unrestricted and restricted dose criteria, this section reexamines these three considerations in the context of determining appropriate groundwater cleanup requirements for decommissioning.

With regard to the first two considerations, as described in Section IV.A.2.2, above, this final rule contains acceptable criteria (including the dose criterion for unrestricted use, and provisions for ALARA, restricted use, and alternate site-specific criteria) to protect the public from radiation from all of the pathways that they could be exposed to from a decommissioned facility (e.g., direct exposure to radiation, ingestion of food, inhalation of dust, and drinking water). The bases used in selecting the dose criterion for this final rule are stated in Section IV.A.2.

The dose criterion codified in § 20.1402 of this final rule limits the amount of radiation that a person can

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potentially receive from all possible sources at a decommissioned facility. Therefore, it is an "all-pathways" standard. Examples of these pathways include:

(a) Direct exposure to radiation from material on the soil surface;

(b) Eating food grown in the soil and eating fish from surface waters;

(c) Inhalation of dust from soil surfaces; and

(d) Drinking water obtained from the groundwater.

Because equivalent doses received through any pathways of exposure would involve equivalent risks to the person exposed, NRC concludes the following with regard to the need to set a separate standard for groundwater:

(a) There is no reason from the standpoint of protection of public health and safety to have a separate, lower dose criterion for one of the pathways (e.g., drinking water) as long as, when combined, the dose from all the pathways doesn't exceed the total dose standard established in the rule;

(b) A standard imposed on a single pathway, such as drinking water, may have been appropriate in the past for site cleanups when a dose-based standard for decommissioning did not exist. It may also be appropriate for chemical contamination when no total limit on exposure exists. However, NRC's final rule on decommissioning would issue an overall TEDE criterion for all radionuclides combined and for all pathways of exposure combined, including drinking water, thus removing the need for a single-pathway standard for groundwater. This is a more uniform method for protecting public health and safety than was contained in NRC's proposed rule that set separate requirements using the MCLs contained in 40 CFR part 141. This is because the MCL requirements do not cover all radionuclides and do not provide a consistent risk standard for different radionuclides as will be provided by adoption of a single dose criterion in the final rule. In addition, the MCLs are based on a modeling approach that has not been updated to reflect current understandings of the uptake and doses resulting from ingestion of radionuclides through drinking water.

The Commission agrees with the commenters that exposures from drinking contaminated groundwater need to be controlled; with the EPA's groundwater protection principles contained in the document "Protecting the Nation's Groundwater: EPA Strategy for the 1990's," 212–1024 (July 1991); and with the EPA position that the environmental integrity of the nation's groundwater resources needs to be protected. Nonetheless, it is the Commission's position that protection of public health and safety is fully afforded by limiting exposure to persons from all potential sources of radioactive material by means of a TEDE at a decommissioned facility. There is, therefore, no compelling reason to impose a separate limit on dose from the drinking water pathway, and the rule has been modified to delete a separate groundwater standard. To make clear NRC's concern over the importance of protecting this resource as a source of potential public exposure, the rule has also been modified to include a direct reference to the groundwater pathway in the all-pathways unrestricted use dose criterion in § 20.1402.

In actual situations, based on typical operational practices of most nuclear facilities and on the behavior of radionuclides in the environment for the very large majority of sites, concentrations of radionuclides in the groundwater will be well below the dose criterion of this final rule and would be either below or only marginally above the MCLs codified in 40 CFR Part 141 as referenced in the proposed NRC rule. For example, because the large majority of NRC licensees either use sealed sources or have very short-lived radionuclides, it is highly unlikely that contamination from these facilities would reach the groundwater. Even for facilities like reactors or certain industrial facilities, whose major contaminants are relatively short-lived nuclides like Co-60 or Cs-137, the migration of these nuclides through soil is so slow that it precludes groundwater contamination of any significance. In addition, it is not anticipated that decommissioned nuclear facilities will be located near enough to public water treatment facilities so that treatment facilities would be affected by the potential groundwater contamination from decommissioned facilities.

As further described in Section IV.A.2, the Commission is basing its decision on analyses in the Final GEIS, that consider cost and practicality factors, to provide additional information regarding decisions on issues such as achieving ALARA levels below the dose criterion of § 20.1402 and allowing restricted use. These analyses also consider how these issues relate to groundwater cleanup, including how, and to what level, ALARA efforts should be made, and if, and in what manner, restrictions on use should be considered. The analysis of impacts to populations and the cost of remediating those impacts is particularly important for groundwater because this resource can be used in a variety of public uses away from the site being decommissioned. The Final GEIS draws from NRC's experience and the public comments regarding contaminated sites. In particular, considerations with regard to groundwater remediation include potential remediation methods such as removal of soil to preclude prospective contamination, pump and treat processes for the cleanup of existing groundwater contamination, and the supply of alternate sources of drinking water, as well as a consideration of administrative costs associated with predicting and measuring levels of contaminated groundwater.

Because of the range of possible parameters, scenarios, and site-specific situations, Section IV.A.2 notes that the analyses in the Final GEIS indicate that there is a wide range of cost-benefit results and there is no unique algorithm that is a decisive ALARA result for all facilities. This finding is especially true for groundwater contamination where the behavior of radionuclides in soil and in the aquifer is highly site-specific; much more so than in concrete. The results of the overall considerations of Section IV.A.2 for all pathways would be applicable to the groundwater component. As pointed out in Section IV.A.2.3.2, it is intended that the regulatory guidance to be developed to support the final rule will provide guidance on these considerations. Although preparation of this guidance is in a preliminary stage, it is anticipated that this guidance would likely indicate that reducing doses to values less than the dose criterion of 0.25 mSv (25 mrem/y) is generally not likely to be cost-effective when evaluated using NRC's regulatory analysis framework presented in NUREG/BR–0058 and NUREG–1530, although there may be ALARA considerations for sites with a relatively large population obtaining all their drinking water from the site plume.

D.2.3 Summary of rule revisions on groundwater and plans for implementation. Based on the above, the Commission concludes that application of a separate groundwater protection limit, in addition to the all pathways dose limit, is not necessary or justified and has deleted this requirement from its final rule.

As noted above, regulatory guidance to be prepared in support of the final rule will likely describe site-specific conditions under which an ALARA analysis could identify the need to consider reducing the dose below the unrestricted use dose criterion (e.g., large existing population deriving its

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drinking water from a downstream supply using a downstream plume).

E. Public Participation (Proposed Rule §§ 20.1406 and 20.1407)

E.1 Proposed Rule Content

The proposed rule included a general requirement in § 20.1406(a) that upon receipt of a decommissioning plan or proposal for restricted use from a licensee, the NRC must notify and solicit comments from local and State governments and Indian nations in the vicinity of the site and publish a notice in a forum that is readily accessible to persons in the site vicinity to solicit comments from affected parties.

The proposed rule also contained additional requirements, in §§ 20.1406(b) and 20.1407, for decommissionings when the licensee does not propose to achieve unrestricted release (i.e., instead restrict site use after license termination). In those cases, the licensee would be required to convene a site-specific advisory board (SSAB) for the purpose of obtaining advice from affected parties on the decommissioning. The Commission envisioned that the advice obtained would address issues as to whether:

(a) There are ways to achieve unrestricted release that would not be prohibitively expensive or cause net public or environmental harm;

(b) Institutional controls proposed by the licensee will provide reasonable assurance that the TEDE does not exceed the dose criterion, will be enforceable, and will not impose an undue burden on affected parties; and

(c) There is sufficient financial assurance to maintain the institutional controls.

Public comments received on the general requirements related to notification and solicitation are discussed in Section IV.E.2. Comments received on the additional requirements on public participation for restricted use are discussed in Section IV.E.3.

E.2 General Requirements on Notification and Solicitation of Comments (Proposed Rule § 20.1406(a))

E.2.1 Comments. Several commenters supported the public notification requirements in proposed § 20.1406(a). Other commenters stated that the proposed notification requirements exceeded requirements of the Administrative Procedures Act (APA) and that NRC has not demonstrated a health and safety need for these requirements. Suggestions for public participation offered by some commenters included that the public not only be informed but be able to participate effectively in all decommissioning cases, not just those related to SSABs. Other specific comments addressed the type and timing of the notification, meetings to be held, who should bear the cost of public participation, the availability of licensee documents, NRC's role, and the need for exemptions.

E.2.2 Response. A variety of comments have been provided on this issue during all phases of this rulemaking from the earliest workshops through comments on the NRC staff draft rule (February 2, 1994; 59 FR 4868) and the proposed rule, and in a workshop on public participation aspects of the rule held in December 1994. Comments provided in these forums have been similar to those noted above. A common theme of the December 1994 workshop was that there are many approaches for involving the public in the decommissioning process. Participants generally favored exploration of site-specific alternatives as opposed to generally mandated processes, like SSABs. Many commenters suggested that there was merit to having a public participation plan developed by the licensee in cooperation with interested parties so the public's participation could be tailored to the needs of the community and the licensee.

The Commission agrees that public participation can be an important component for informing and involving the public. The Commission recognizes the potential benefit for all decommissionings and site releases of significant community concern to keep the public informed and educated about the status of decommissioning at a particular site and to elicit public concerns about the decommissioning process at that site. Based on the comments received and on a consideration of current Commission practices, the general provisions in § 20.1405 that provide for notification of the public and government entities and solicitation of comment have not been modified although a specific reference to notifying and soliciting comments from the EPA has been added to § 20.1405. The reason that the general provisions of § 20.1405(a) have not been modified in response to the public comments received is because existing Commission policies and practices, coupled with the provisions of this rule and a recent rulemaking on power reactor decommissioning, appear reasonable by providing for public participation in the decommissioning and site release process. Specifically in the case of power reactors, as is noted in the preamble to the separate final rule entitled "Decommissioning of Nuclear Power Reactors" that was published on July 29, 1996 (61 FR 39278), the Commission has held public meetings and informal hearings for plants undergoing decommissioning, even though limited formal requirements exist for this type of involvement. To codify those activities, that rule requires a public meeting to be held at the time of submittal of a reactor licensee's Post-Shutdown Decommissioning Activities Report (PSDAR) and requires that this meeting be noticed in a local public forum and held in the vicinity of the facility. The PSDAR must also be made available for public review and comment. In addition, a licensee is required to hold a public meeting on the License Termination Plan (LTP), that for power reactors now replaces the decommissioning plan, in the vicinity of the facility following notice of the meeting in a local public forum. The LTP is also required to be made available for public comment with full hearing rights under Subpart G or L of 10 CFR 2.1201, depending on the disposition of the spent fuel.

Similarly, for materials facilities involving significant decommissioning efforts, the Commission has implemented efforts to inform and involve the public in the process. These efforts were intended to provide early and meaningful opportunities for public involvement in the decommissioning process. For example, the NRC staff has initiated public information meetings at the Parks Township shallow land disposal area and the Sequoyah Fuels Corporation facility and conducted public information roundtables at various sites. Stakeholder representatives are routinely invited to participate in roundtable discussions and information exchanges on the status and issues associated with the decommissioning project. These initiatives are consistent with the NRC staff's public responsiveness plan in NUREG/BR–0199. Where appropriate, the Commission plans to use these public involvement mechanisms and other public information meetings and involvement efforts, such as community information boards, at other facilities in the future on a site-specific basis to address specific needs that exist in affected communities.

Based on these considerations, current practices and procedures and existing rule provisions are appropriate to provide for public participation in the decommissioning and license termination process and to provide sufficient flexibility to accommodate different situations, and therefore the general requirements of § 20.1405 on

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notification and solicitation of comments have been retained. Sections 20.1405 (a) and (b) provide for the notification of specific government entities and the public in the vicinity of the site when a licensee submits a LTP or decommissioning plan for any of the license termination approaches described in Section IV.A.2.3 or specifically proposes to use restricted use (see Section IV.B) or alternate criteria (see Section IV.C). The NRC will review public comments gathered by the licensee prior to final NRC actions on the licensee's request for license termination. A specific reference has been added in § 20.1405(a) to provide for specific notification and solicitation of comment from EPA where the licensee proposes to use alternate criteria. To the extent that EPA has an interest in commenting on proposed decommissionings other than those under alternate criteria, EPA comments would be considered under the general notice and comment provisions of § 20.1405.

Specific additional requirements for public participation in cases where restricted use or alternate criteria are proposed by a licensee are discussed further in Section IV.E.3.

E.2.3 Summary of rule revisions on general requirements on public participation and notifications. No overall changes were made to the provisions for public notification in the final rule, except to include specific reference to notifying and soliciting comments from the EPA where the licensee proposes to use alternate criteria for license termination.

E.3 Additional Requirements on Public Participation (Including Those for Restricted Use, for Alternate Criteria, and for Use of SSABs) (Proposed Rule § 20.1406(b))

E.3.1 Comments. Comments were specifically submitted on the requirement in § 20.1406(b) for the use of SSABs. These comments were submitted both in response to the proposed rule, as well as in connection with the NRC workshop on SSABs held on December 6–8, 1994 (see NUREG/CR–6307 for a summary of the workshop).

Some commenters supported the proposed requirement in § 20.1406(b) that would require licensees to convene a SSAB for restricted release of a site. Other commenters objected to the use of a SSAB in each case involving a restricted release of a site. These commenters expressed concern that use of SSABs was inconsistent with the timeliness rule or that exemptions or other relief from the timeliness rule would be needed; that a need for SSABs has not been demonstrated; and that SSABs are inconsistent with Federal Advisory Committee Act, Administrative Procedures Act, and Atomic Energy Act requirements. Commenters suggested alternatives to mandatory SSABs, such as addressing the need for a board in a public participation plan or providing more flexibility in deciding when to use SSABs. Some commenters indicated that use of SSABs should be extended to the unrestricted use of sites.

E.3.2 Response. One of the major issues raised by the comments and in the workshop discussions on the SSAB was the advisability of mandating a specific public involvement mechanism such as a SSAB as opposed to establishing broad performance criteria that would allow the licensee flexibility in selecting the appropriate public involvement mechanism for a particular site. There was general agreement that flexibility was always desirable, in establishing meaningful performance criteria. However, it should be emphasized that some of those who supported the use of performance criteria did so only in the context of the expansion of the scope of licensee public involvement requirements, including an SSAB, to cover facilities beyond the restricted use category. An additional issue of concern to commenters was whether it was more appropriate for the licensee to establish the SSAB, as contemplated by the proposed rule, or whether the Commission should establish the SSAB. The resolution of this issue depends not only on the objectives that the Commission believes will be served by an SSAB, but also on what the Commission's broader responsibilities are in the public involvement area. This, in turn, relates to another issue raised by the commenters: the scope and duration of a SSAB's responsibilities.

In proposing a requirement for obtaining advice from affected parties on restricted use, the Commission's objective is to involve diverse community interests directly with the licensee in the development of the LTP or decommissioning plan for a proposed restricted use decommissioning. Community concerns, as well as community-based knowledge on the appropriate selection of institutional controls, risk issues, and economic development, can be potentially useful in the development of the LTP or decommissioning plan. For Commission and licensee resources to be used efficiently, the Commission believes that this type of information should be considered and incorporated as appropriate into the LTP or decommissioning plan before the plan is submitted to the NRC for review. The licensee is the appropriate entity to accomplish this.

In considering a requirement to convene a SSAB or similar group, the Commission has considered alternatives regarding the most effective way to ensure that the licensee considers the diversity of views in the community. Small group discussions can be a more effective mechanism than written comments or large public meetings for articulating the exact nature of community concerns, determining how much agreement or disagreement there is on a particular issue, and facilitating the development of acceptable solutions to issues. Also, the type of close interaction resulting from a small group discussion could serve the licensee well in developing a credible relationship with the community in which it is operating.

Use of public participation methods is consistent with a variety of initiatives being undertaken both within NRC and at other Federal agencies regarding stakeholder involvement in the decommissioning process. Examples of community involvement at NRC-licensed sites being decommissioned under the SDMP are described above in Section IV.E.2.2. Similarly, several Federal agencies (including EPA, DOE, the Department of Defense (DOD)) that make up the Federal Facilities Environmental Restoration Dialogue Committee, in their evaluation of the cleanup of Federal facilities, have prepared a set of "Principles for Environmental Cleanup of Federal Facilities," dated August 2, 1995. Principle No. 14 notes the need for agencies to provide for involvement of public stakeholders from affected communities in facility cleanup decisionmaking. It also notes that rather than being an impediment, meaningful stakeholder involvement has, in many instances, resulted in significant cleanup cost reductions.

The Commission envisions that a process for obtaining advice from affected interests would provide the opportunity for public involvement in the important issues related to restricted use of a site similar to those described in Section IV.E.2.2. In particular, one of the important issues would likely be the unavailability of the site for full unrestricted public use. In its deliberations on the rule, the Commission has envisioned that the following should occur:

(1) The licensee would present information to, and seek advice from, affected parties on the provisions for

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limiting the dose to meet the criteria in the rule (e.g., limiting use to commercial/industrial use with elimination of the resident pathway), how the restrictions would be enforced (e.g., use of deed restrictions, engineered barriers, State or Federal control or ownership), the effect on the community, and the adequacy of the level of financial assurance (e.g., sufficient funds for maintenance of the deed or of fencing). In seeking such advice, a broad cross section of the affected parties in the community would be involved and there would be opportunity for a comprehensive discussion of the issues by those parties. The information presented would be similar to that which the rule would require the licensee to prepare and submit to NRC to demonstrate the appropriateness and safety aspects of the restrictions on site use.

As an example, in the specific case where the nuclides involved are relatively short-lived (e.g., Co-60 and Cs-137), as discussed in Section IV.B.3, calculations could demonstrate that it is preferable to restrict use of the site for a finite time period to allow for radioactive decay than it is to ship large quantities of soil. These calculations would also show the length of time that the restrictions would need to remain in force to allow for radioactive decay to reduce residual levels below the unrestricted dose criterion. In addition, these calculations could show that restricting the site to industrial use through deed restrictions during this time period would eliminate or decrease certain pathways and limit the dose to less than the 0.25 mSv/y (25 mrem/y) dose criteria in the rule. Finally, such an analysis could indicate that continued use of the site for an industrial purpose similar to its currently existing use should not adversely impact the community. Consideration of community advice on appropriate institutional controls for controlling access to the site during this decay period would provide the licensee with useful information in developing the necessary institutional controls. As part of the process of public participation, the licensee would make public a summary of the advice received and the results of the discussions on that advice.

For more complex cases where large volumes of uranium/thorium contamination would remain under a form of restricted use, the long-lived nature of these nuclides would result in the restrictions having to remain in force in the community for a long period of time. The information presented by the licensee would be similar to that for shorter-lived nuclides, including the rationale for how use of restrictions can eliminate exposure pathways (e.g., for uranium, elimination of the resident farmer pathway greatly reduces the dose because most of the dose received from uranium is through the agricultural pathway); the nature of the institutional controls expected to restrict use over extended time periods (e.g., deed restrictions, engineered barriers such as fencing, restricted cells, etc., and/or government control of the restricted area); and other special provisions such as periodic rechecks of the restricted area and the continued effectiveness of institutional controls (see Section IV.B.3). As discussed previously in Section IV.E.2.2, because community involvement already exists either formally or informally at a number of complex sites, this provision would not change the situation at these sites significantly.

(2) Following solicitation of advice from affected parties, the licensee will include the recommendations from these parties in the LTP or decommissioning plan and indicate how those recommendations were addressed along with the technical basis for addressing them. The technical basis for dealing with the recommendations would presumably derive from the presentation made to the affected parties described above and is the type of analysis that would be necessary to demonstrate to the NRC the acceptability of restricted use provisions.

Based on the above, it appears reasonable to retain the requirement for sites to seek advice from individuals and institutions in the community who may be affected by the decommissioning where restricted use is proposed. In retaining this requirement, the Commission has decided to modify the rule to include general provisions that require that such advice be sought on the fundamental performance objective of institutional controls, namely that they function to provide reasonable assurance that the TEDE does not exceed the dose criteria of the rule, that they are enforceable, and that they will not impose undue burdens on the local community. This general provision replaces the specific reference contained in the proposed rule (§ 20.1406(b)) that advice must be obtained by convening a SSAB. The rationale for this modification derives from the discussion above on site flexibility, protecting public health and safety, and ensuring community involvement. Specifically, it is anticipated that these requirements will contain the beneficial provisions of ensuring timely and meaningful opportunity for advice from affected parties to be considered and will allow licensees additional flexibility in determining the best methods for obtaining that advice based on site-specific considerations. For example, there may be situations where the creation of a SSAB may not be appropriate as in cases where an existing organization is already in place to assume this role, or where it is clear that the community is willing to rely on local government institutions to interact with the licensee. Appropriate mechanisms for seeking advice from affected parties could include a public meeting or series of meetings, a specific process for obtaining written or computerized public comment by internet or web-site means, or by convening small groups such as a SSAB. Any of these processes would result in an opportunity for a comprehensive, collective discussion of the issues by the affected parties. All of these approaches have been used in prior decommissionings.

To ensure that there will continue to be significant opportunity for public involvement in the decommissioning process, the modified final rule has retained the principal objectives of an SSAB from § 20.1407 of the proposed rule, namely that a licensee seeking community advice on the proposed restricted use will provide for: (1) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning; (2) an opportunity for a comprehensive, collective discussion on the issues by the participants represented; and (3) a publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues.

Advice sought from affected parties in the manner noted above would be considered in development of the LTP or decommissioning plan, and the NRC will review public comments gathered by the licensee prior to final NRC action on the licensee's request for license termination.

As discussed in Section IV.C, the Commission included requirements for consideration of alternate criteria for certain difficult sites because inclusion of such requirements is preferable to having these facilities apply for exemptions. To ensure that there is full public participation in any decision regarding such sites, licensees will be required to seek advice regarding this approach from affected parties in the same manner as described above for restricted use and described in detail in

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Section IV.C.3. In addition, use of alternate criteria will only be considered by the Commission after review of the NRC staff's recommendations that fully address any comments provided by the public and EPA regarding the decommissioning or license termination plan.

E.3.3 Summary of rule revisions on SSABs. Specific text referring to SSABs has been replaced with a requirement that licensees seek community involvement and advice on any plans for restricted use or alternate criteria for decommissioning through a variety of methods. This requirement includes provisions for specifically how that advice is to be sought and documented in the LTP or decommissioning plan. Regulatory guidance is planned which will include criteria for establishing and using the processes for seeking such advice, including establishing SSABs, and for delineating those situations in which an SSAB may not be appropriate. The guidance will discuss that the expected starting point in providing an opportunity for public involvement is the establishment of an SSAB; however, the provisions of the rule provide licensees the flexibility to use other approaches where appropriate.

E.4 Specific Questions on Functioning of SSABs

E.4.1 Comments. A number of comments were received on the functioning of SSABs including their responsibilities, membership, independence and support, meetings, and results.

(1) Some commenters recommended that SSABs should be given responsibilities beyond those specified in proposed § 20.1407(a). Other commenters stated that the rule should restrict SSAB activities to a specific mission which is advisory only and nontechnical.

(2) With regard to membership in SSABs, a number of comments recommended specifically how the SSAB and its membership should be constituted. Some commenters stated that many of the proposed SSAB issues that are listed appear to require specialized expertise that members of the general public might not have. Some commenters questioned whether NRC and other Government agencies should be prohibited from participating in SSABs because of conflict of interest questions. Other commenters stated that the NRC should be officially represented on the SSAB.

(3) With regard to independence of and support for SSABs, some comments received stated that an SSAB should be selected and operated independently of the licensee. One commenter stated that the SSAB would be unique as presently proposed because it does not appear to be accountable to its employer. Comments were received regarding how SSAB costs would be contained and how they would be paid, including costs of technical consultants to the SSAB or independent SSAB labs and experts.

(4) With regard to SSAB meetings and records, comments were provided concerning frequency, advertisement and openness of meetings, and access to licensee official documents, both those that are part of the public docket and those that contain proprietary or other confidential information;

(5) With regard to use of SSAB results, comments were received concerning the actions expected to be taken by the licensee and the NRC on the advice or comments of the SSAB. These actions include a licensee's analysis of SSAB recommendations, the need to obtain the SSAB's consensus on aspects of the decommissioning plan, and the effect on time restraints of submitting a decommissioning plan reconciling SSAB advice.

E.4.2 Response. Based on the discussion in Section IV.E.3.2 regarding the need to explore site-specific alternatives as opposed to generally mandated SSABs, the rule contains broad provisions for obtaining community advice and recommendations through such bodies. The purpose of the requirements on public involvement is to obtain meaningful public input into preparation of the plan for decommissioning the site when restrictions on future use or proposals for alternate criteria are planned. To allow for flexibility, Section IV.E.3.2 indicates that the final rule has been modified to establish general requirements for obtaining such advice while retaining the principal objectives of an SSAB from § 20.1407(b)–(f) of the proposed rule. The details, such as specific issues of size, membership, responsibilities, administration, meetings, and records requested in these comments are more appropriately contained in regulatory guidance. With regard to issues of funding public involvement, reasonable efforts towards obtaining advice from affected parties should be undertaken by the licensee, such as sponsoring and holding community meetings and distributing information at those meetings regarding the rationale for and nature of the restricted use. Examples of these meetings are those held for reactor facilities and those held for several SDMP sites, for example the Cushing site.

E.4.3 Summary of rule revisions on functioning of SSABs. As noted in Sections E.3.2 and E.4.2 above, the principal objectives of SSABs have been retained in § 20.1403(d) which replaces the detailed provisions in proposed § 20.1407 (b) through (f) of the proposed rule. The guidance that the NRC develops to implement the final rule will include additional guidance on seeking advice from affected parties, including establishing and using SSABs.

F. Other Procedural and Technical Issues

F.1 State and NRC Compatibility

F.1.1 Comments. Some commenters stated that States should have the authority to demand stricter radiation protection standards than the Federal Government. Some commenters recommended that States not be allowed to set less strict conditions. Other commenters stated that radiological criteria should be an area of strict compatibility and States should not be permitted to impose more stringent standards. Specific comments raised included questions as to which standard would apply if there was a conflict, whether a State would need NRC approval to require more strict standards, application of ALARA provisions, who should pay for costs if more strict State standards are applied, exemptions, and grandfathering provisions similar to those in Section IV.F.2.

F.1.2 Response. The proposed rule did not propose a compatibility determination because the Commission was in the process of developing a compatibility policy. Instead, comments were requested on compatibility and the comments received were divided on this issue.

The current compatibility policy categorizes rules into four "divisions." Division 1 rules are those that Agreement States must adopt, essentially verbatim, into their regulations. These rules include provisions that form the basic language of radiation protection and include technical definitions and basic radiation protection standards such as public dose limits, occupational exposure limits and effluent release limits. Division 2 rules address basic principles of radiation safety and regulatory functions. Although Agreement States must address these principles in their regulations, the use of language identical to that in NRC rules is not necessary if the underlying principles are the same. Also, the Agreement States

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may adopt requirements more stringent than NRC rules.

Because the dose criterion in the rule is not a "standard" in the sense of the public dose limits of 10 CFR part 20 but is a constraint within the public dose limit that provides a sufficient and ample margin of safety below the limit, it is reasonable that the rule would be a Division 2 level of compatibility under the current policy. This means the Agreement States would be required to adopt the regulation but would have significant flexibility in language, and would be allowed to adopt more stringent requirements.

The Commission has not yet approved a new final policy on compatibility that revises the current policy, although it is currently considering the implementing procedures for this policy (SECY–96–213 dated October 3, 1996). Until the new policy becomes effective, NRC will continue to apply the current Agreement State compatibility policy.

F.2. Grandfathering Sites With Previously Approved Plans (Proposed Rule 20.1401(b))

F.2.1 Proposed rule contents. Section 20.1401(b) of the proposed rule indicated that the criteria do not apply to sites already covered by a decommissioning plan approved by the Commission before the effective date of the final rule and in accordance with the criteria identified in the SDMP Action Plan of April 16, 1992 (57 FR 13389).

F.2.2 Comments. Some commenters supported the provision of grandfathering sites covered by a decommissioning plan approved by the Commission (and suggested extending it to plans under review) because it is consistent with previous NRC statements in the SDMP Action Plan. Some commenters suggested that criteria other than those in the SDMP Action Plan should also be used for grandfathering. Other commenters opposed grandfathering because criteria used in those cases would be different than those in the rule.

Commenters recommended that the rule address how the criteria would apply to portions of sites. Some commenters recommended that the grandfathering provision cover an NRC-approved decommissioning plan even if it is for a portion of a site.

F.2.3 Response. The Commission continues to believe that sites being decommissioned under previously approved decommissioning plans should be grandfathered from the provisions of the final rule. Similarly provisions should apply to licensees whose decommissioning plans are in the final stages of preparation or of NRC review. From a health and safety perspective, the NRC believes the criteria identified in the SDMP Action Plan are reasonably consistent with the final rule's dose criteria. The contamination levels defined in the SDMP Action Plan are within the range of measurable values that could be derived through the site-specific screening and modeling approaches defined in guidance supporting this final rule. The Commission believes the grandfathering approach will facilitate the timeliness of decommissioning and ensure licensees that resources spent to develop and implement a decommissioning plan are justified.

With regard to criteria other than the SDMP Action Plan, the grandfathering provision in the proposed rule was conditioned on the license being terminated in accordance with the criteria identified in the SDMP Action Plan, because those criteria are consistent with the final rule. However, the grandfathering provision does not extend to any former decommissioning actions in general because that would not provide assurance that such actions were adequate to protect the public. As part of its overall upgrading of its oversight of decommissioning actions, NRC has conducted a systematic review of a large number of license terminations to identify sites with significant contamination and has identified a number of sites warranting additional NRC attention. Broadening the grandfathering exclusion in the rule would not be consistent with the objectives of this comprehensive agency review and is not supported by existing information and experience.

The NRC staff anticipates that grandfathering would occur as follows:

(1) Licensees would have up to 12 months after the effective date of the rule to submit sufficient LTPs or decommissioning plans (if required) in accordance with the SDMP Action Plan criteria;

(2) The NRC staff would have up to 24 months after the effective date of the rule to approve those plans;

(3) Any plan submitted after 12 months or approved after 24 months of the effective date would have to be consistent with the new rule; and

(4) There would be provisions for day-for-day extension if an EIS is required in the submittal; i.e., if development of an EIS is required before NRC can reach a decision regarding the decommissioning, then the 12-month window for submitting an LTP or decommissioning plan would be extended by the same number of days required for the Commission to issue a record of decision.

In submitting the decommissioning plan for the licensed activities that are to cease on portions of sites, the licensee must identify the areas associated with the ceased operations. These areas must be remediated to achieve acceptable radiological criteria for release, either those in the final rule or previous acceptance criteria that would achieve comparable protection as the criteria in the final rule. The area for continuing licensed operations could continue to contain radioactivity above the radiological criteria. When the continuing operations cease, the radiological criteria of the final rule would then be required to be met for the portion of the site for which operations had most recently ceased. The decision on grandfathering previously released portions of the site depends on whether the criteria previously used are still acceptable (e.g., part of the SDMP Action Plan) and whether it can be demonstrated that these areas have not been affected by the continued operations. NRC intends to develop comprehensive guidance on how licensees should address previously released portions of licensed sites in demonstrating compliance with the dose criteria.

Not all licensees are required to submit decommissioning plans, and instead, may submit appropriate documentation including a report of the results of the radiation survey of the premises (see for example, 10 CFR 30.36). Because the rationale discussed above applies in general to all facilities, these grandfathering provisions apply to all licensees, independent of the type of documentation for license termination that has received NRC approval.

An aspect of grandfathering is those sites that were not previously licensed but are discovered to have radioactivity levels that are licensable or are in excess of the levels presented here as appropriate for unrestricted site use. These cases have arisen as part of the SDMP and are described in NUREG–1444. It is intended that the criteria of this rule will also apply, as appropriate, to residual radioactivity at sites that were not previously licensed.

F.2.4 Summary of rule revisions on grandfathering. The final rule has retained the grandfathering provision. However, it has been modified to include facilities whose plans are in the final stages of decommissioning plan preparation and decision.

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F.3 Finality of Decommissioning and Future Site Reopening (Proposed Rule § 20.1401(c))

F.3.1 Proposed rule contents. Proposed § 20.1401(c) stated that after a site has been decommissioned and the license terminated in accord with the criteria of the proposed rule, the Commission will require additional cleanup only if, based on new information, it determined that residual radioactivity remaining at the site could result in significant public risk.

F.3.2 Comments. Some commenters stated that decommissioning a nuclear facility and releasing a site should be accomplished as a final regulatory action unless new information indicates there is a significant health and safety risk and net benefit to future cleanup. These commenters cited financial reasonableness, the low risk associated with the criteria, and the incentive to complete decommissioning. Other commenters stated that they did not agree that these actions should be final and that the site should be cleaned up to account for mistakes, discovery of contamination, or new health findings. It was noted that the terms "significant public risk" and "new information" used in proposed § 20.1401(c) needed to be explained and appropriately defined.

F.3.3 Response. The wording of final § 20.1401(c) states that the Commission will require additional cleanup only if, based on new information, it determines that residual radioactivity remaining at the site could result in significant public risk. The low level of estimated risk associated with the final rule's dose criteria, coupled with the conservatisms in the methodologies that convert these dose criteria to levels of measurable contamination in the environment, should minimize the likelihood that new information, including errors during the decommissioning processes, would significantly impact the protection of public health and safety or the environment.

The Commission believes the fundamental reason for requiring additional cleanup would hinge on the public risk associated with the remaining radioactivity at the site. The existence of additional contamination or noncompliance with the decommissioning plan at a level in excess of the dose criteria but less than the public dose limits in 10 CFR Part 20 would not, by themselves, be sufficient to invalidate the finality provision. Therefore, the wording of § 20.1401(c) captures the fundamental issue.

The Commission believes the terms "significant public risk" and "new information," as used in § 20.1401(c), do not require specific definition or clarification. The reason lies in the fact that under the provisions of the rule, a licensee is allowed to demonstrate compliance with the dose criteria through use of several screening and modeling approaches. Each approach has a degree of conservatism associated with the relationship of the measurable level of a contaminant in the environment to the final rule's dose criterion. Because of the surveys required of the licensee and confirmatory surveys routinely performed by NRC, the chances of previously unidentified contamination being discovered would be expected to be small. Also, contamination that would pose a significant public risk above the levels implied by the dose criterion is expected to be smaller still.

Another possibility is that ongoing studies will lead to the conclusion that an increased risk associated with a given exposure to radiation exists. Although such an increase can occur as indicated by the continuing studies of Japanese atomic bomb survivors, the Commission believes that demographic studies of populations exposed to differing background exposure levels provide a defensible bound on the magnitude of any increase in the dose to risk conversion factor. Taken alone, any such increase would not be expected to affect finality decisions.

Thus, because any challenge to finality is likely to involve some unexpected combination of factors, the Commission believes that attempting to specifically define what constitutes "new information" or "significant public risk" is ill-advised because the determination would be made on a case-by-case basis.

As noted in Sections IV.A and IV.D, there are issues that have been raised by EPA regarding the acceptability of the unrestricted dose criterion as well as the inclusion of a separate groundwater standard. These issues were raised during the public comment period as well as during a public meeting held April 21, 1997 to explore differences between NRC and EPA on certain issues in the final rule. As noted in those sections, EPA has indicated that it preferred a 0.15 mSv/y (15 mrem/y) TEDE dose criterion for unrestricted use and inclusion of a separate groundwater standard as were proposed in NRC's proposed rule. At the April 21, 1997 meeting, EPA also indicated that it had concerns with inclusion of alternate criteria and with certain public participation aspects of the rule. For the reasons described in some detail in Sections IV.A, IV.C, IV.D, and IV.E, the Commission has included in the final rule a 0.25 mSv/y (25 mrem/y) dose criterion which would apply to all exposure pathways including groundwater, an alternate criteria provision for certain difficult cases to reduce the need for requests for exemptions, and provisions for substantive participation by the public, including EPA.

As described in some detail in Sections IV.A–IV.E, the Commission believes that the overall approach to license termination in this final rule (that includes unrestricted and restricted use dose criteria, alternate criteria, and ALARA considerations) protects public health and safety, and that the approach to drinking water protection in the final rule provides an appropriate and more consistent level of protection of public health and safety than use of MCLs. In addition, as is further described in those sections, it is anticipated that in the large majority of situations the combination of ALARA considerations, the nature of the concrete and soil removal processes, the use of restrictions on site use where appropriate, and the effects of radionuclide decay and transport mechanisms in the environment will result in the large majority of NRC licensees meeting the criteria preferred by EPA. Those sections also clearly indicate that alternate criteria will be confined to rare situations and require specific Commission approval of the license termination in those cases. In addition, the Commission believes that the provisions of the final rule as described in Section IV.E provide for a substantive level of public involvement in the decommissioning process.

Thus the Commission believes that the criteria of this final rule provides protection comparable to that preferred by EPA and that therefore it would be reasonable for EPA to find NRC's rule sufficiently protective.

Licensees should be aware that if they terminate a license using the criteria of this rule, there is some potential that the license termination may be revisited as part of an EPA proceeding, although such an action would not seem reasonable for the same reasons that site cleanups noted above would not be revisited, i.e., it is not believed that significant public risk would be determined to exist.

F.3.4 Summary of rule revisions on finality. Based on this discussion, the rule has not been changed with regard to the finality issue.

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F.4 Minimization of Contamination (Proposed Rule §§ 20.1401(d) and 20.1408)

F.4.1 Proposed rule contents. Proposed § 20.1401(d) indicated that applicants for licenses, other than renewals, would be required to describe in the application process how facility design and procedures for operation will minimize contamination of the facility and the environment, facilitate eventual decommissioning, and minimize the generation of radioactive waste.

F.4.2 Comments. Some commenters recommended that the requirements for describing facility design and procedures for waste minimization should apply to all license applicants and not only to applicants for new licenses. One commenter recommended that the rule remain as proposed and not apply to renewal licenses.

F.4.3 Response. The intent of this provision is to emphasize to a license applicant the importance, in an early stage of planning, for facilities to be designed and operated in a way that would minimize the amount of radioactive contamination generated at the site during its operating lifetime and would minimize the generation of radioactive waste during decontamination. Applicants and existing licensees, including those making license renewals, are already required by 10 CFR part 20 to have radiation protection programs aimed towards reducing exposure and minimizing waste. In particular, § 20.1101(a) requires development and implementation of a radiation protection plan commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of 10 CFR part 20. Section 20.1101(b) requires licensees to use, to the extent practicable, procedures and engineered controls to achieve public doses that are ALARA. In addition, lessons learned and documented in reports such as NUREG–1444 have focused attention on the need to minimize and control waste generation during operations as part of development of the required radiation protection plans. Furthermore, the financial assurance requirements issued in the January 27, 1988 (53 FR 24018), rule on planning for decommissioning require licensees to provide adequate funding for decommissioning. These funding requirements create great incentive to minimize contamination and the amount of funds set aside and expended on cleanup.

Thus, current requirements require both applicants and existing licensees, including renewals, to minimize contamination. Specific minimization requirements contained in the proposed rule are directed towards those making application for a new license because it is more likely that consideration of design and operational aspects that would reduce dose and minimize waste can be cost-effective at that time compared to such considerations during the license renewal stage where the existing design and previous operations may be major constraints. The Commission continues to believe that the emphasis should continue to be directed at such new designs and, therefore, the requirement for minimization has been retained as proposed.

F.4.4 Summary of rule revisions on minimization of contamination. The requirement in the proposed rule for imposition of the requirement on applicants for new licenses has been retained in the final rule in § 20.1406 but has not been further extended.

F.5 Provisions for Readily Removable Residual Radioactivity

F.5.1 Proposed rule contents. Proposed § 20.1403(c) indicated that licensees are to take reasonable steps to remove all readily removable residual radioactivity from the site.

F.5.2 Comments. Some commenters recommended either deletion, modification, or clarification of the provision for readily removable residual radioactivity.

F.5.3 Response. The provision for removal of "readily removable" residual radioactivity was intended to provide guidance on what materials should be removed even if the removal would have little effect on dose. The intent of this provision is to define the basic remedies that are a matter of "good practice" such as common housekeeping techniques (e.g., washing with moderate amounts of detergent and water) that do not generate large volumes of radioactive waste requiring subsequent disposal. As noted in the preamble to the proposed rule, removal of this material is considered a necessary and reasonable step toward ensuring that doses to the public from residual radioactivity are ALARA. These considerations should be considered as part of an ALARA evaluation for planning decommissioning activities in a licensee's radiation protection program as required by § 20.1101(b).

F.5.4 Summary of rule revisions for readily removable radioactivity. Because there is no purpose in duplicating an already existing requirement for ALARA, the specific provision regarding "readily removable" has been deleted from the final rule.

F.6 Separate Standard for Radon

F.6.1 Proposed rule contents. Proposed § 20.1404(a) did not contain a separate standard for radon.

F.6.2 Comments. Some commenters indicated that the rule should specifically include reference to radon whereas other commenters stated that the rule should not include standards for radon or expressed concerns about the complications introduced by these considerations and the fact that background radon levels are so high.

F.6.3 Response. Radon is a radioactive gas formed by the radioactive decay of radium. Radium is a member of the naturally-occurring uranium-238 radioactive decay chain. Radionuclides from this decay chain are found in natural background in various concentrations in most soils and rocks. Estimation of radon dose is a consideration for this rulemaking only at those very few facilities which have been contaminated with radium as a result of licensed activities.

Following the approach taken in the proposed rule, this final rule includes radiological criteria for residual radioactivity that is distinguishable from background. Because of natural transport of radon gas in outdoor areas due to diffusion and air currents, doses from exposure to radon in outside areas due to radium in the soil are negligible. Within buildings, wide variation in local concentrations of naturally occurring indoor radon, well in excess of the 0.25 mSv/y (25 mrem/y) dose criterion discussed in Section IV.A, have been observed in all regions of the United States. The dominant factor in determining indoor radon levels are the design features of any structures at a site where radium is present in the soil. Certain structural features, including energy saving measures that reduce air exchange with the outside, can have the effect of trapping radon gas within a building, thus allowing buildup of radon to elevated levels. In addition, indoor radon levels can vary significantly over time due to seasonal changes and the rate of air flow in rooms.

Another variable in radon levels is introduced by the use of radon mitigation techniques in buildings which can have the effect of reducing radon levels by deliberate venting of the gas to outside areas. In many parts of the country, local building codes have been enacted for the purpose of reducing radon levels in homes, in particular in areas where there are high levels of naturally occurring radium and radon.

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The variations in radon levels described above make it very difficult to distinguish between naturally occurring radon and radon resulting from licensed material. In addition, it is impractical to predict prospective doses from exposure to indoor radon due to problems in predicting the design features of future building construction. Because of these variations and the limitation of measurement techniques, the Commission believes that it is not practical for licensees to distinguish between radon from licensed activities at a dose comparable to a 0.25 mSv/y (25 mrem/y) dose criterion and radon which occurs naturally. Therefore, in implementing the final rule, licensees will not be expected to demonstrate that radon from licensed activities is indistinguishable from background on a site-specific basis. Instead this may be considered to have been demonstrated on a generic basis when radium, the principal precursor to radon, meets the requirements for unrestricted release, without including doses from the radon pathway.

In some instances it may not be reasonable to achieve levels of residual concentrations of radon precursors within the limit for unrestricted use. As discussed in Section IV.B for cases such as these, restricting site use by use of institutional controls could be considered by a licensee as a means to limit the doses from precursors by limiting access to the site. Under the restricted use provisions of the rule, these doses are required to be further reduced based on ALARA principles. In developing guidance on the application of ALARA in such cases, the Commission will also consider the practicality of requiring as part of controls the use of radon mitigation techniques in existing or future structures.

F.6.4 Summary of rule revisions. No change to the final rule has been made.

F.7 Calculation of TEDE Over 1000 Years to Demonstrate Compliance With Dose Standard (Proposed Rule § 20.1403(a))

F.7.1 Proposed rule contents. Proposed § 20.1403(a) stated that when calculating the TEDE, the licensee shall base estimates on the TEDE expected within the first 1000 years after decommissioning.

F.7.2 Comments. Some commenters objected to the proposed 1000-year time frame for calculating dose and wanted it lengthened to better predict health effects over the hazardous life of each isotope. Other commenters wanted the proposed 1000-year time frame shortened because it is inconsistent with 10 CFR part 40, Appendix A, and 10 CFR part 61 that use times of 200–500 years.

F.7.3 Response. As previously discussed in the preamble to the proposed rule, the Commission believes use of 1000 years in its calculation of maximum dose is reasonable based on the nature of the levels of radioactivity at decommissioned sites and the potential for changes in the physical characteristics at the site over long periods of time. Unlike analyses of situations where large quantities of long-lived radioactive material may be involved (e.g., a high-level waste repository) and where distant future calculations may provide some insight into consequences, in the analysis for decommissioning, where the consequences of exposure to residual radioactivity at levels near background are small and peak doses for radionuclides of interest in decommissioning occur within 1000 years, long term modeling thousands of years into the future of doses that are near background may be virtually meaningless. In 10 CFR part 40, Appendix A makes reference to both a 200-year and 1000-year time frame. 10 CFR part 61 references the design of a physical barrier rather than a calculation of exposure.

F.7.4 Summary of rule revisions. This provision has been retained in § 20.1401(d) of the final rule.

G. Other Comments

G.1 Definitions (Proposed Rule § 20.1003)

G.1.1 Comments. There were comments on several definitions in § 20.1003 of the proposed rule including the following:

(1) With regard to the definition of background radiation, several commenters opposed defining "background radiation" in terms of currently existing levels and proposed defining it at the level existing when human beings and other organisms evolved; i.e., man-made sources of radiation should not be considered to be a part of "background radiation." One commenter suggested that the term "naturally occurring radioactive material," that is used in the definition of "background radiation," should also be defined. This commenter also suggested that the word "like," that precedes "Chernobyl," should be replaced with the words "such as" to clearly indicate that an example is being provided.

(2) With regard to the definition of decommissioning, several commenters recommended that license termination not be specified in the definition of decommissioning because it is a separate issue from decommissioning. Some commenters stated that licenses should be terminated only when sites are given unrestricted release and that restricted use should not be permitted or included in the definition.

(3) Other comments were also received requesting clarification of other definitions contained in the rule, including inclusion of radon in the definition of background and the definitions of critical group, restricted use, release of portions of sites, indistinguishable from background, readily removable radioactivity, and SSABs.

G.1.2 Response. The only modification that the proposed rule made to the existing definition of background in 10 CFR part 20 was the inclusion of the phrase "or from past nuclear accidents like Chernobyl that contribute to background radiation and are not under the control of the licensee." The reason for this modification was to further clarify the existing requirement regarding sources of radiation and radionuclides that can be excluded from licensee evaluation. After review of the comments, the Commission continues to believe that the inclusion in background of global fallout from weapons testing and accidents such as Chernobyl is appropriate. No compelling reason was presented that would indicate that remediation should include material over that the licensee has no control and that is present at comparable levels in the environment both on and offsite.

The existing definition of decommissioning in 10 CFR parts 30, 40, 50, 70, and 72 was incorporated into the regulations on June 27, 1988 (53 FR 24018). The Commission continues to believe that "decommissioning" is a term for a process which ultimately leads to termination of an NRC license for unrestricted use. The only change to the existing definition made by the proposed rule would be adding "release of property under restricted conditions" to the process of termination of the license. In response to commenters who disagreed with permitting restricted use, Section IV.B contains a detailed review of issues on acceptability of restricted use. Based on that review, the final rule continues to permit restricted use. Therefore, the definition in the proposed rule is not changed.

The remaining comments on definitions reflect specific technical concerns regarding use of the terms rather than the definition itself. These concerns are discussed in detail in the responses to the technical issues

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addressed in Sections IV.A through IV.F.

G.1.3 Summary of rule revisions. The only change to § 20.1003 is a change in the wording of the definition of background to replace the word "like" with the words "such as" before "Chernobyl" as suggested by a commenter.

G.2 Need for Regulatory Guidance

G.2.1 Comments. Commenters requested that additional regulatory guidance be provided on a number of subjects including decommissioning planning for sites and portions of sites, methods for demonstrating compliance with the dose criteria and with ALARA, means for complying with restricted use provisions (including SSAB operations), and contents of a public participation plan. Specific comments were received regarding need for guidance on modeling (including methods for translating contamination levels to dose) and surveys (including measurement of contamination at low levels), and clarification of several terms.

G.2.2 Response. Regulatory guidance is being developed in the areas requested. Regulatory guidance being prepared on dose calculations and surveys for radiological criteria for decommissioning describes acceptable survey methods that licensees can use. This guidance describes methods that licensees can use to convert site contamination to dose for the purpose of compliance with the rule criteria and for estimating ALARA. The guidance is the further development of NUREG–1500 issued with the proposed rule and presents an approach for assessing dose coupled with the ability to incorporate site-specific parameters. Further guidance on public participation and restricted use is also being considered to support this rule.

G.3 Need for Flexibility

G.3.1 Comments. Commenters indicated that it is important to provide flexibility in compliance with rule requirements by use of site-specific conditions, ALARA, and exemptions in implementation of the criteria.

G.3.2 Response. Use of site-specific conditions, especially in calculation of acceptable contamination levels based on site-specific parameters, contamination levels and volumes, and usage of the site, is permitted in complying with the regulations. This will be discussed more fully in the regulatory guidance. Furthermore, the final rule provides for establishing alternate license termination criteria based on site-specific considerations.

G.4 Consistency With NRC's Timeliness Rule

G.4.1 Comments. Some commenters indicated that the rule is inconsistent with NRC's timeliness rule (59 FR 36026; July 15, 1994).

G.4.2 Response. The timeliness rule requires licensees to notify the Commission promptly when a decision is made to permanently cease principal activities or whenever principal activities have ceased for 24 months. Further, it requires licensees to complete decommissioning within 24 months. The Commission may approve an alternate schedule to complete decommissioning provided sufficient justification is provided by the licensee.

Although this rule includes options for license termination or transfer to another entity, licensees will still be expected to initiate and complete decommissioning in a timely manner. If a licensee intends to use the restricted release option, the licensee is expected to promptly assess its site characteristics, submit a decommissioning plan if required, provide financial assurance, and include appropriate public participation in its decisionmaking. Because the requirements allow licensees 12 months to submit this information to the Commission, sufficient time should be available. The Commission may grant additional time if the licensee demonstrates that the relief is not detrimental to the public health and safety and is in the public interest. If a licensee is unable to demonstrate that release of a site would not prevent a member of the public from receiving a dose in excess of the public dose limit, the site would not be released but would be transferred to a Government entity or maintained under license. These cases are expected to be rare and will be handled on a case-by-case basis.

G.5 Comments From Power Reactor Decommissioning Rulemaking

G.5.1 Comments. Comments were received on the power reactor decommissioning rule that was recently finalized and published on July 29, 1996 (61 FR 39278), requesting that the Commission consider the elimination of the environmental review requirement at the license termination stage (§ 50.82(a)(9)(ii)(G) and § 51.53(b)) for decommissioning to unrestricted release conditions. In response, the Commission indicated that it would consider these comments in the rulemaking on radiological criteria for decommissioning.

G.5.2 Response. The Commission has considered the elimination of the supplemental environmental review requirement for a licensee that intends to decommission to unrestricted release conditions as required in this final rule and has decided to continue to retain this requirement. The Commission considers this necessary for any particular site to determine if the generic analysis encompasses the range of environmental impacts at that particular site. The rationale for retaining this requirement was explained in the preamble to the proposed rule and has not changed.

G.6 Mixed Waste, Hazardous Waste, and Naturally Occurring and Accelerator-Produced Radioactive Material

G.6.1 Comments. Some commenters stated that the rule should address the cleanup of sites with mixed wastes. Other commenters recommended that NRC should not regulate any nonradioactive hazardous material beyond its authority. There was disagreement over whether NRC's approval of a licensee's decommissioning activities should be dependent on the licensee fulfilling other agencies' obligations, especially where accelerator produced materials may exist. Some commenters stated that the rule criteria are incompatible with naturally occurring and accelerator-produced radioactive material (NARM).

G.6.2 Response. The final rule on radiological criteria for decommissioning applies to residual radioactivity from all licensed and unlicensed sources used by the licensee but excludes background radiation. As such, the NRC or Agreement State, whether acting as the lead or cooperating agency in working with the licensee to ensure appropriate remediation of a contaminated site, would not release a site from its license unless the rule's radiological criteria were met.

NRC responsibility for license termination at a site with hazardous or mixed waste onsite is principally to determine that the radiological component of the mixed waste (e.g., contaminated soil) complies with the rule's radiological criteria. Other regulatory agencies are responsible for control of the hazardous constituents and must be notified and accept responsibility for appropriate management of the released site. The same approach would be followed in potentially releasing a site with groundwater contamination exceeding applicable maximum contaminant levels of nonradiological substances. Note that under the Uranium and Mill Tailings Recovery and Control Act

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(UMTRCA), NRC is responsible for the regulation of certain nonradioactive hazardous materials.

With regard to NARM, NRC's legislative and regulatory authority extends to those materials and facilities under the Atomic Energy Act of 1954, as amended, and not to accelerator produced materials or naturally occurring radioactive material, except as it is defined as source material in 10 CFR part 40.4. Section IV.A, notes that, although some commenters questioned the relationship of this rule to NARM, the criteria of this rule apply to residual radioactivity from activities under a licensee's control and not to background radiation (that includes radiation from naturally occurring radioactive material (NORM)). There are a wide variety of sites containing NORM subject to EPA jurisdiction and not licensed by the NRC. The extent to which the criteria in this rule would apply to these sites would be based on a separate evaluation. However, the considerations and analyses done for this rulemaking in the Final GEIS and regulatory analysis regarding large fuel cycle and non-fuel-cycle facilities containing large quantities of naturally occurring nuclides such as uranium and thorium are appropriate for certain NORM sites, and the broad provisions of the rule (such as control of sites with restrictions imposed, use of alternate cap values, use of alternate criteria, and public participation aspects) may be useful in considerations regarding NORM sites.

G.7 Recycle

G.7.1 Comments. Commenters recommended that recycling of equipment or materials be addressed in more depth in the final rule. Several commenters stated that recycling of contaminated materials that results in increased exposures to members of the public is unacceptable. Other commenters favored establishment of criteria for recycled materials.

G.7.2 Response. The proposed rule did not specifically address the recycle of material or equipment decontaminated as a result of the decommissioning process. The Commission has a separate consideration underway of the issues related to cases when the licensee proposes to intentionally release material containing residual radioactivity that could become available for reuse or recycle.

Because current NRC regulations do not contain explicit radiological criteria for release of equipment and materials, release from licensed facilities is currently determined by NRC on a case-by-case basis using existing guidance and practices. Current practices include radiation surveys to document the absence of licensed radioactive material, general guidance for reactors contained in Regulatory Guide 1.86 or similar guidance issued for materials facilities, and site-specific technical specifications and license conditions. Although these criteria were not originally derived for the case of recycle, they have been applied for many years in a wide variety of contexts.

Continuation of the case-by-case procedure in the future may not be practical because of increased quantities of material expected from larger facility decommissionings. Also, interest in recycling slightly contaminated material is growing both in the United States and in other countries as a means of conserving resources by limiting the amount of new raw materials that are necessary to produce new products and equipment and by reducing the costs of disposing of large volumes of slightly contaminated material that may pose very small risks to the general public. Codifying criteria would allow NRC to more effectively deal with these issues. Regulatory action separate from this decommissioning action by NRC, that would provide clear, consistent criteria in this area, is being considered. Specifically, the NRC is cooperating with the EPA in developing the technical basis for a recycle rulemaking. At present, the EPA is developing its plans for such a rulemaking. The NRC will determine what course of action it will take regarding rulemaking related to recycle after consideration of EPA plans. Full opportunity for early public involvement and comment regarding that regulatory action is anticipated. Because of this background, no revision to this decommissioning rule to consider recycling is being made.

G.8 The Rulemaking Process

G.8.1 Comments. Several commenters expressed satisfaction with the enhanced rulemaking process undertaken by the NRC for the decommissioning rule. Of those commenters who opposed the proposed decommissioning standards for not being sufficiently restrictive, some were critical of the rulemaking process and suggested that the NRC had ignored their earlier participation. Other commenters expressed dissatisfaction with the proposed standards because they are overly restrictive. The DOE stated that it supported the NRC effort to issue the rule and the joint efforts of the EPA and the NRC to coordinate their respective rulemaking proceedings.

G.8.2 Response. The NRC has conducted what it considers to be an extensive effort at enhancing participation in the early stages of this rulemaking process through a series of workshops and environmental impact statement scoping meetings for affected interests that solicited public comment with regard to radiological criteria for decommissioning. The extent of these meetings was discussed in the preamble to the proposed rule.

The workshops and the scoping meetings were not designed to seek "consensus" in the sense that there is agreement on how each issue should be resolved, but rather to ensure that, with informed discussion, relevant issues have been identified and information exchanged on these issues.

Subsequent to the workshops and scoping meetings, the Commission developed the policies and requirements that were deemed appropriate for a rule on radiological criteria for decommissioning. Information and concepts developed in the workshops were factored into this process. For example, a number of themes from the workshops, such as consideration of restricted use options, increased public participation in the site decommissioning process, and a desire to return sites to levels indistinguishable from background, were considered during the rulemaking. The Commission also considered the approaches of scientific bodies such as the ICRP and NCRP, precedents of its other rulemakings with regard to radiation protection such as 10 CFR part 20, input from EPA regarding appropriate risk levels, technical input from NRC contractors regarding capability to measure at low radiation levels, and the costs and impacts of achieving alternate levels.

Preliminary conclusions regarding this effort were contained in the NRC staff's draft rule (59 FR 4868, February 2, 1994) that was sent to Agreement States, workshop participants, and other interested parties. The intent of this informal comment period in advance of a proposed rule was to provide an opportunity for interested parties to comment on the adequacy of the draft criteria.

Resolution of comments from the workshops and from circulation of the NRC staff draft was discussed in the preamble of the proposed rule published on August 22, 1994 (59 FR 43200). The preamble indicates the evolution of the NRC's approach to this rulemaking as a result of the workshops and the other activities noted above.

Clearly, there are a number of specific areas which remain difficult to resolve or on which to reach a "consensus." These areas include the precise level of

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permissible radiological criteria for decommissioning, restricted use as a means for terminating a license, and the extent of public participation. It is the NRC's consideration that the rulemaking process has allowed an airing of differing opinions with regard to these as well as other issues.

V. Agreement State Compatibility

The Commission has determined that this rule will be a Division 2 matter of compatibility. For the discussion on the basis for this determination, see Section IV.F.1.

VI. Relationship Between the Generic Environmental Impact Statement and Site-Specific Decommissioning Actions

The Generic Environmental Impact Statement (GEIS) prepared by the Commission on this rulemaking evaluates the environmental impacts associated with the remediation of several types of NRC-licensed facilities to a range of residual radioactivity levels. The Commission believes that the generic analysis will encompass the impacts that will occur in most Commission decisions to decommission an individual site where the licensee proposes to release the site for unrestricted use. Therefore, the Commission plans to rely on the GEIS to satisfy its obligations under the National Environmental Policy Act regarding individual decommissioning decisions that meet the 0.25 mSv/y (25 mrem/y) criterion for unrestricted use. However, the Commission will still initiate an environmental assessment regarding any particular site, for which a categorical exclusion is not applicable, to determine if the generic analysis encompasses the range of environmental impacts at that particular site.

The rule also provides for the termination of the license and the release of a site under restricted use conditions if the licensee can demonstrate that land use restrictions or other types of institutional controls will provide reasonable assurance that the 0.25 mSv/y (25 mrem/y) limit can be met. The types of controls and their contribution to providing reasonable assurance that the 0.25 mSv/y (25 mrem/y) limit can be met for a particular site will differ for each site in this category. Similarly, the rule also provides that termination of the license under alternate criteria will be considered by the Commission in certain site-specific situations that would also differ for each site in this category. Therefore, the environmental impacts for these cases cannot be analyzed on a generic basis and the Commission will conduct an independent environmental review for each site-specific decommissioning decision where land use restrictions or institutional controls are relied on by the licensee or where alternate criteria are proposed.

The GEIS indicates that the decommissioning for certain classes of licensees (e.g., licensees using only sealed sources) will not individually or cumulatively have a significant effect on the human environment. Therefore, the Commission is amending § 51.22 of the Commission's regulations to specify that the decommissioning of these types of licenses are actions eligible for categorical exclusion from the Commission's environmental review process.

VII. Final Generic Environmental Impact Statement: Availability

As required by the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR part 51, the NRC has prepared a final generic environmental impact statement (NUREG–1496) on this proposed rule.

The final generic environmental impact statement is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the final generic environmental impact statement (NUREG–1496) may be obtained by written request or telefax (301–415–2260) from: Office of Administration, Attention: Distribution and Services Section, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001.

Background documents on the rulemaking, including the text of the final rule, the final GEIS, and the regulatory analysis, are also available for downloading and viewing on the NRC Enhanced Participatory Rulemaking on Radiological Criteria for Decommissioning Electronic Bulletin Board, 1–800–880–6091 (see 58 FR 37760 (July 13, 1993)). The bulletin board may be accessed using a personal computer, a modem, and most commonly available communications software packages. The communications software should have parity set to none, data bits to 8, and stop bits to 1 (N,8,1) and use ANSI or VT–100 terminal emulation. For more information call Ms. Christine Daily, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Phone (301) 415–6026; FAX (301) 415–5385.

VIII. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget, approval number 3150–0014.

The public reporting burden for this collection of information is estimated to average 31.6 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments on any aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T–6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, or by Internet electronic mail to BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB–10202, (3150–0011 and 3150–0093), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

IX. Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained by written request from the Radiation Protection and Health Effects Branch (RPHEB) Secretary, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

Background documents on the rulemaking, including the text of the final rule, the final GEIS, and the regulatory analysis are also available for downloading and viewing on the NRC Enhanced Participatory Rulemaking on Radiological Criteria for Decommissioning Electronic Bulletin Board (see Section VII, above).

X. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule, if adopted, will not have a significant economic impact upon a substantial number of small entities. Although the final rule would cover all 22,000

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licensees regulated by the NRC and Agreement States, small entities covered by this rule are primarily licensees that possess and use only materials with short half-lives or materials only in sealed sources. Decommissioning efforts for these licensees are simple and require only that sealed sources are properly disposed of or that short-lived materials are allowed to decay. Complete details of the cost analysis are contained in the regulatory analysis.

XI. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and therefore, a backfit analysis is not required for this final rule because these amendments do not involve reactor operations and therefore do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

XII. Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a "major" rule and has verified this determination with the Office of Information and Regulatory Affairs, Office of Management and Budget.

List of Subjects

10 CFR Part 20

Byproduct material, Criminal penalties, Licensed material, Nuclear materials, Nuclear power plants and reactors, Occupational and public dose limits, Occupational safety and health, Packaging and containers, Permissible doses, Radiation protection, Reporting and recordkeeping requirements, Respiratory protection, Special nuclear material, Source material, Surveys and monitoring, Waste treatment and disposal.

10 CFR Part 30

Byproduct material, Criminal penalties, Government contracts, Intergovernmental relations, Isotopes, Nuclear materials, Radiation protection, Reporting and recordkeeping requirements.

10 CFR Part 40

Criminal penalties, Government contracts, Hazardous materials transportation, Nuclear materials, Reporting and recordkeeping requirements, Source material, Uranium.

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 51

Administrative practice and procedure, Environmental impact statements, Environmental regulations, assessments and reports, NEPA procedures, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 70

Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR parts 20, 30, 40, 50, 51, 70, and 72.

PART 20—STANDARDS FOR PROTECTION AGAINST RADIATION

1. The authority citation for part 20 continues to read as follows:

Authority: Secs. 53, 63, 65, 81, 103, 104, 161, 182, 186, 68 stat. 930, 933, 935, 936, 937, 948, 953, 955, as amended (2 U.S.C. 2073, 2093, 2095, 2111, 2133, 2134, 2201, 2232, 2236), secs. 201, as amended, 202, 206, 88 stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

2. In § 20.1003, the definition of *Background radiation* is revised and new definitions *Critical Group, Decommission, Distinguishable from background,* and *Residual radioactivity* are added in alphabetical order to read as follows:

§ 20.1003 Definitions.

* * * * *

Background radiation means radiation from cosmic sources; naturally occurring radioactive material, including radon (except as a decay product of source or special nuclear material); and global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee. "*Background radiation*" does not include radiation from source, byproduct, or special nuclear materials regulated by the Commission.

* * * * *

Critical Group means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

* * * * *

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

* * * * *

Distinguishable from background means that the detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement technology, survey, and statistical techniques.

* * * * *

Residual radioactivity means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 CFR part 20.

* * * * *

3. In § 20.1009, paragraph (b) is revised to read as follows:

§ 20.1009 Information collection requirements: OMB approval.

* * * * *

(b) The approved information collection requirements contained in this part appear in §§ 20.1003, 20.1101, 20.1202, 20.1203, 20.1204, 20.1206, 20.1208, 20.1301, 20.1302, 20.1403, 20.1404, 20.1406, 20.1501, 20.1601, 20.1703, 20.1901, 20.1902, 20.1904, 20.1905, 20.1906, 20.2002, 20.2004, 20.2006, 20.2102, 20.2103, 20.2104, 20.2105, 20.2106, 20.2107, 20.2108,

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20.2110, 20.2201, 20.2202, 20.2203, 20.2204, 20.2205, 20.2206, 20.2301, and Appendices F and G to 10 CFR Part 20.

* * * * *

4. A new subpart E entitled "Radiological Criteria for License Termination," is added to 10 CFR part 20 to read as follows:

Subpart E—Radiological Criteria for License Termination

Sec.

20.1401 General provisions and scope.
20.1402 Radiological criteria for unrestricted use.
20.1403 Criteria for license termination under restricted conditions.
20.1404 Alternate criteria for license termination.
20.1405 Public notification and public participation.
20.1406 Minimization of contamination.

§ 20.1401 General provisions and scope.

(a) The criteria in this subpart apply to the decommissioning of facilities licensed under parts 30, 40, 50, 60, 61, 70, and 72 of this chapter, as well as other facilities subject to the Commission's jurisdiction under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended. For high-level and low-level waste disposal facilities (10 CFR parts 60 and 61), the criteria apply only to ancillary surface facilities that support radioactive waste disposal activities. The criteria do not apply to uranium and thorium recovery facilities already subject to appendix A to 10 CFR part 40 or to uranium solution extraction facilities.

(b) The criteria in this subpart do not apply to sites which:

(1) Have been decommissioned prior to the effective date of the rule in accordance with criteria identified in the Site Decommissioning Management Plan (SDMP) Action Plan of April 16, 1992 (57 FR 13389);

(2) Have previously submitted and received Commission approval on a license termination plan (LTP) or decommissioning plan that is compatible with the SDMP Action Plan criteria; or

(3) Submit a sufficient LTP or decommissioning plan before August 20, 1998 and such LTP or decommissioning plan is approved by the Commission before August 20, 1999 and in accordance with the criteria identified in the SDMP Action Plan, except that if an EIS is required in the submittal, there will be a provision for day-for-day extension.

(c) After a site has been decommissioned and the license terminated in accordance with the criteria in this subpart, the Commission will require additional cleanup only if, based on new information, it determines that the criteria of this subpart were not met and residual radioactivity remaining at the site could result in significant threat to public health and safety.

(d) When calculating TEDE to the average member of the critical group the licensee shall determine the peak annual TEDE dose expected within the first 1000 years after decommissioning.

§ 20.1402 Radiological criteria for unrestricted use.

A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA). Determination of the levels which are ALARA must take into account consideration of any detriments, such as deaths from transportation accidents, expected to potentially result from decontamination and waste disposal.

§ 20.1403 Criteria for license termination under restricted conditions.

A site will be considered acceptable for license termination under restricted conditions if:

(a) The licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA. Determination of the levels which are ALARA must take into account consideration of any detriments, such as traffic accidents, expected to potentially result from decontamination and waste disposal;

(b) The licensee has made provisions for legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year;

(c) The licensee has provided sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site. Acceptable financial assurance mechanisms are—

(1) Funds placed into an account segregated from the licensee's assets and outside the licensee's administrative control as described in § 30.35(f)(1) of this chapter;

(2) Surety method, insurance, or other guarantee method as described in § 30.35(f)(2) of this chapter;

(3) A statement of intent in the case of Federal, State, or local Government licensees, as described in § 30.35(f)(4) of this chapter; or

(4) When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

(d) The licensee has submitted a decommissioning plan or License Termination Plan (LTP) to the Commission indicating the licensee's intent to decommission in accordance with §§ 30.36(d), 40.42(d), 50.82 (a) and (b), 70.38(d), or 72.54 of this chapter, and specifying that the licensee intends to decommission by restricting use of the site. The licensee shall document in the LTP or decommissioning plan how the advice of individuals and institutions in the community who may be affected by the decommissioning has been sought and incorporated, as appropriate, following analysis of that advice.

(1) Licensees proposing to decommission by restricting use of the site shall seek advice from such affected parties regarding the following matters concerning the proposed decommissioning—

(i) Whether provisions for institutional controls proposed by the licensee;

(A) Will provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) TEDE per year;

(B) Will be enforceable; and

(C) Will not impose undue burdens on the local community or other affected parties.

(ii) Whether the licensee has provided sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site;

(2) In seeking advice on the issues identified in § 20.1403(d)(1), the licensee shall provide for:

(i) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning;

(ii) An opportunity for a comprehensive, collective discussion on

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the issues by the participants represented; and

(iii) A publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues; and

(e) Residual radioactivity at the site has been reduced so that if the institutional controls were no longer in effect, there is reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group is as low as reasonably achievable and would not exceed either—

(1) 100 mrem (1 mSv) per year; or

(2) 500 mrem (5 mSv) per year provided the licensee—

(i) Demonstrates that further reductions in residual radioactivity necessary to comply with the 100 mrem/y (1 mSv/y) value of paragraph (e)(1) of this section are not technically achievable, would be prohibitively expensive, or would result in net public or environmental harm;

(ii) Makes provisions for durable institutional controls;

(iii) Provides sufficient financial assurance to enable a responsible government entity or independent third party, including a governmental custodian of a site, both to carry out periodic rechecks of the site no less frequently than every 5 years to assure that the institutional controls remain in place as necessary to meet the criteria of § 20.1403(b) and to assume and carry out responsibilities for any necessary control and maintenance of those controls. Acceptable financial assurance mechanisms are those in paragraph (c) of this section.

§ 20.1404 Alternate criteria for license termination.

(a) The Commission may terminate a license using alternate criteria greater than the dose criterion of §§ 20.1402, 20.1403(b), and 20.1403(d)(1)(i)(A), if the licensee—

(1) Provides assurance that public health and safety would continue to be protected, and that it is unlikely that the dose from all man-made sources combined, other than medical, would be more than the 1 mSv/y (100 mrem/y) limit of subpart D, by submitting an analysis of possible sources of exposure;

(2) Has employed to the extent practical restrictions on site use according to the provisions of § 20.1403 in minimizing exposures at the site; and

(3) Reduces doses to ALARA levels, taking into consideration any detriments such as traffic accidents expected to potentially result from decontamination and waste disposal.

(4) Has submitted a decommissioning plan or License Termination Plan (LTP) to the Commission indicating the licensee's intent to decommission in accordance with §§ 30.36(d), 40.42(d), 50.82 (a) and (b), 70.38(d), or 72.54 of this chapter, and specifying that the licensee proposes to decommission by use of alternate criteria. The licensee shall document in the decommissioning plan or LTP how the advice of individuals and institutions in the community who may be affected by the decommissioning has been sought and addressed, as appropriate, following analysis of that advice. In seeking such advice, the licensee shall provide for:

(i) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning;

(ii) An opportunity for a comprehensive, collective discussion on the issues by the participants represented; and

(iii) A publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues.

(b) The use of alternate criteria to terminate a license requires the approval of the Commission after consideration of the NRC staff's recommendations that will address any comments provided by the Environmental Protection Agency and any public comments submitted pursuant to § 20.1405.

§ 20.1405 Public notification and public participation.

Upon the receipt of an LTP or decommissioning plan from the licensee, or a proposal by the licensee for release of a site pursuant to §§ 20.1403 or 20.1404, or whenever the Commission deems such notice to be in the public interest, the Commission shall:

(a) Notify and solicit comments from:

(1) local and State governments in the vicinity of the site and any Indian Nation or other indigenous people that have treaty or statutory rights that could be affected by the decommissioning; and

(2) the Environmental Protection Agency for cases where the licensee proposes to release a site pursuant to § 20.1404.

(b) Publish a notice in the **Federal Register** and in a forum, such as local newspapers, letters to State or local organizations, or other appropriate forum, that is readily accessible to individuals in the vicinity of the site, and solicit comments from affected parties.

§ 20.1406 Minimization of contamination.

Applicants for licenses, other than renewals, after August 20, 1997, shall describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

5. In § 20.2402, paragraph (b) is revised to read as follows:

§ 20.2402 Criminal penalties.

* * * * *

(b) The regulations in §§ 20.1001 through 20.2402 that are not issued under Sections 161b, 161i, or 161o for the purposes of Section 223 are as follows: §§ 20.1001, 20.1002, 20.1003, 20.1004, 20.1005, 20.1006, 20.1007, 20.1008, 20.1009, 20.1405, 20.1704, 20.1903, 20.1905, 20.2002, 20.2007, 20.2301, 20.2302, 20.2401, and 20.2402.

PART 30—RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

6. The authority citation for part 30 continues to read as follows:

Authority: Secs. 81, 82, 161, 182, 183, 186, 68 Stat. 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat 444, as amended (42 U.S.C. 2111, 2112, 2201, 2232, 2233, 2236, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 30.7 also issued under Pub. L. 95–601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102–486, sec. 2902, 106 Stat 3123 (2 U.S.C. 5851). Section 30.34(b) also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 30.61 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

7. In § 30.4, the definition of *Decommission* is revised to read as follows:

§ 30.4 Definitions.

* * * * *

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

* * * * *

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8. In § 30.35, paragraph (f)(5) is added and paragraph (g)(3)(iv) is revised to read as follows:

§ 30.35 Financial assurance and recordkeeping for decommissioning.

* * * * *

(f) * * *

(5) When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

(g) * * *

(3) * * *

(iv) All areas outside of restricted areas that contain material such that, if the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning in 10 CFR part 20, subpart E, or apply for approval for disposal under 10 CFR 20.2002.

* * * * *

9. In § 30.36, the introductory text of paragraph (j)(2) and paragraph (k)(3) are revised to read as follows:

§ 30.36 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(j) * * *

(2) Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates in some other manner that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E. The licensee shall, as appropriate—

* * * * *

(k) * * *

(3)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

* * * * *

PART 40—DOMESTIC LICENSING OF SOURCE MATERIAL

10. The authority citation for part 40 continues to read as follows:

Authority: Secs. 62, 63, 64, 65, 81, 161, 182, 183, 186, 68 Stat. 932, 933, 935, 948, 953, 954, 955, as amended, secs. 11e(2), 83, 84, Pub. L. 95–604, 92 Stat. 3033, as amended, 3039, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2014(e)(2), 2092, 2093, 2094, 2095, 2111, 2113, 2114, 2201, 2232, 2233, 2236, 2282); sec. 274, Pub. L. 86–373, 73 Stat. 688 (42 U.S.C. 2021); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); sec. 275, 92 Stat. 3021, as amended by Pub. L. 97–415, 96 Stat. 2067 (42 U.S.C. 2022).

Section 40.7 also issued under Pub. L. 95–601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102–486, sec. 2902, 106 Stat. 3123, (42 U.S.C. 5851). Section 40.31(g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 40.46 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 40.71 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

11. In § 40.4, the definition of *Decommission* is revised to read as follows:

§ 40.4 Definitions.

* * * * *

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

* * * * *

12. In § 40.36, paragraph (e)(5) is added and paragraph (f)(3)(iv) is revised to read as follows:

§ 40.36 Financial assurance and recordkeeping for decommissioning.

* * * * *

(e) * * *

(5) When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

(f) * * *

(3) * * *

(iv) All areas outside of restricted areas that contain material such that, if the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning in 10 CFR part 20, subpart E, or apply for approval for disposal under 10 CFR 20.2002.

* * * * *

13. In § 40.42, the introductory text of paragraph (j)(2) and paragraph (k)(3) are revised to read as follows:

§ 40.42 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(j) * * *

(2) Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates in some other manner that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E. The licensee shall, as appropriate—

* * * * *

(k) * * *

(3)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

* * * * *

PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

14. The authority citation for part 50 continues to read as follows:

Authority: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 1244, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 50.7 is also issued under Pub. L. 95–601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102–486, sec. 2902, 106 Stat. 3123 (42 U.S.C. 5851). Section 50.10 also issued under secs. 101, 185, 68 Stat. 936, 955, as amended (42 U.S.C. 2131, 2235); sec. 102, Pub. L. 91–190, 82 Stat. 853 (42 U.S.C. 4332). Sections 50.13, 50.54(dd), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138).

Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91–190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97–415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80–50–81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

15. In § 50.2, the definition of *Decommission* is revised to read as follows:

§ 50.2 Definitions.

* * * * *

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

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(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

* * * * *

16. In § 50.82, paragraphs (a)(11)(ii) and (b)(6)(ii) are revised to read as follows:

§ 50.82 Termination of license.

* * * * *

(a) * * *

(11) * * *

(ii) The terminal radiation survey and associated documentation demonstrates that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

(b) * * *

(6) * * *

(ii) The terminal radiation survey and associated documentation demonstrate that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

* * * * *

PART 51—ENVIRONMENTAL PROTECTION REGULATIONS FOR DOMESTIC LICENSING AND RELATED REGULATORY FUNCTIONS

17. The authority citation for part 51 continues to read as follows:

Authority: Sec. 161, 68 Stat. 948, as amended (42 U.S.C. 2201); secs. 201, as amended, 202, 88 Stat. 1242, as amended, 1244 (42 U.S.C. 5841, 5842).

Subpart A also issued under National Environmental Policy Act of 1969, secs. 102, 104, 105, 83 Stat. 853–854, as amended (42 U.S.C. 4332, 4334, 4335); and Pub. L. 95–604, Title II, 92 Stat. 3033–3041; and sec. 193, Pub. L. 101–575, 104 Stat. 2835 (42 U.S.C. 2243). Sections 51.20, 51.30, 51.60, 51.61, 51.80, and 51.97 also issued under secs. 135, 141, Pub. L. 97–425, 96 Stat. 2232, 2241, and sec. 148, Pub. L. 100–203, 101 Stat. 1330–223 (42 U.S.C. 10155, 10161, 10168). Section 51.22 also issued under sec. 274, 73 Stat. 688, as amended by 92 Stat. 3036–3038 (42 U.S.C. 2021) and under Nuclear Waste Policy Act of 1982, sec. 121, 96 Stat. 2228 (42 U.S.C. 10141). Sections 51.43, 51.67, and 51.109 also issued under Nuclear Waste Policy Act of 1982, sec. 114(f), 96 Stat. 2216, as amended (42 U.S.C. 10134(f)).

18. In § 51.22, paragraph (c)(20) is added to read as follows:

§ 51.22 Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review.

* * * * *

(c) * * *

(20) Decommissioning of sites where licensed operations have been limited to the use of—

(i) Small quantities of short-lived radioactive materials; or

(ii) Radioactive materials in sealed sources, provided there is no evidence of leakage of radioactive material from these sealed sources.

* * * * *

PART 70—DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

19. The authority citation for part 70 continues to read as follows:

Authority: Secs. 51, 53, 161, 182, 183, 68 Stat. 929, 930, 948, 953, 954, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2201, 2232, 2233, 2282); secs. 201, as amended, 202, 204, 206, 88 Stat. 1242, as amended, 1244, 1245, 1246 (42 U.S.C. 5841, 5842, 5845, 5846).

Sections 70.1(c) and 70.20a(b) also issued under secs. 135, 141, Pub. L. 97–425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 70.7 also issued under Pub. L. 95–601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102–486 sec. 2902, 106 Stat. 3123 (42 U.S.C. 5851). Section 70.21(g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 70.31 also issued under sec. 57d, Pub. L. 93–377, 88 Stat. 475 (42 U.S.C. 2077). Sections 70.36 and 70.44 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 70.61 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237). Section 70.62 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138).

20. In § 70.4, the definition of *Decommission* is revised to read as follows:

§ 70.4 Definitions.

* * * * *

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

* * * * *

21. In § 70.25, paragraph (f)(5) is added and paragraph (g)(3)(iv) is revised to read as follows:

§ 70.25 Financial assurance and recordkeeping for decommissioning.

* * * * *

(f) * * *

(5) When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

(g) * * *

(3) * * *

(iv) All areas outside of restricted areas that contain material such that, if the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning in 10 CFR part 20, subpart E, or apply for approval for disposal under 10 CFR 20.2002.

* * * * *

22. In § 70.38, the introductory text of paragraph (j)(2) and paragraph (k)(3) are revised to read as follows:

§ 70.38 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(j) * * *

(2) Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates in some other manner that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E. The licensee shall, as appropriate—

* * * * *

(k) * * *

(3)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

* * * * *

PART 72—LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

23. The authority citation for part 72 continues to read as follows:

Authority: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236, 2237, 2238, 2282); sec. 274, Pub. L. 86–373, 73 Stat. 688, as amended (42 U.S.C. 2021); sec. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); Pub. L. 95–601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102–486, sec. 2902, 106 Stat. 3123 (42 U.S.C. 5851); sec. 102, Pub. L. 91–190, 83 Stat. 853 (42 U.S.C. 4332). Secs. 131, 132, 133, 135, 137, 141, Pub. L. 97–425, 96 Stat. 2229, 2230, 2232, 2241, sec. 148, Pub. L. 100–203, 101 Stat. 1330–235 (42 U.S.C. 10151, 10152, 10153, 10155, 10157, 10161, 10168).

Section 72.44(g) also issued under secs. 142(b) and 148 (c), (d), Pub. L. 100–203, 101

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Stat. 1330–232, 1330–236 (42 U.S.C. 10162(b), 10168 (c), (d)). Section 72.46 also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97–425, 96 Stat. 2230 (42 U.S.C. 10154). Section 72.96(d) also issued under sec. 145(g), Pub. L. 100–203, 101 Stat. 1330–235 (42 U.S.C. 10165(g)). Subpart J also issued under secs. 2(2), 2(15), 2(19), 117(a), 141(h), Pub. L. 97–425, 96 Stat. 2202, 2203, 2204, 2222, 2244, (42 U.S.C. 10101, 10137(a), 10161(h)). Subparts K and L are also issued under sec. 133, 98 Stat. 2230 (42 U.S.C. 10153) and Sec. 218(a) 96 Stat. 2252 (42 U.S.C. 10198).

24. In § 72.3, the definition of *Decommission* is revised to read as follows:

§ 72.3 Definitions.

* * * * *

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

* * * * *

25. In § 72.30, paragraph (c)(6) is added to read as follows:

§ 72.30 Financial assurance and recordkeeping for decommissioning.

* * * * *

(c) * * *

(6) When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

* * * * *

26. In § 72.54, the introductory text of paragraph (l)(2) and paragraph (m)(2) are revised to read as follows:

§ 72.54 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(l) * * *

(2) Conduct a radiation survey of the premises where the licensed activities were conducted and submit a report of the results of this survey, unless the licensee demonstrates in some other manner that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E. The licensee shall, as appropriate—

(m) * * *

(2)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

* * * * *

Dated at Rockville, Maryland, this 1st day of July 1997.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Secretary of the Commission.

[FR Doc. 97–17752 Filed 7–18–97; 8:45 am]

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sample will be drawn from organizations filing a 990 tax return. An initial sample of roughly, 4,460 potential NPO R&D performers will be selected and sent a short screening questionnaire to establish eligibility for the main study. NPOs in this initial sample will be drawn from four strata:

1. NPOs which received Federal Funds for Science and Engineering (S&E) R&D between 1974 and 1994 based on NSF's Federal Support to Universities, Colleges, and Nonprofit Institutions (FS) survey and which were found in the 990 database.
2. NPOs in the 990 database which have National Taxonomy of Exempt Entities (NTEE) codes with a high likelihood of containing S&E R&D performers.
3. NPOs in the 990 database which are not in the FS or in the high likelihood NTEE codes.
4. NPOs in NSF's 1973 survey, all nonprofit-administered Federally Funded Research and Development Centers, and others to be included with certainty.

Depending on stratum, unweighted response rates of 80 to 90 percent are anticipated. Also depending on stratum, from 60 to 90 percent of the participating organizations are expected to be eligible. These approximately 2,360 organizations will be sent a main questionnaire that is expected to yield a final working sample size of about 2,100.

The R&D funders sample will be drawn from both 990PF tax returns for private foundations and 990 returns for public charities. As with the performers, a sample of potential NPO R&D funders will be selected to receive a short screening questionnaire to establish eligibility (N=700). Of these, 90 percent are expected to participate and 90 percent of these are expected to be eligible to participate. The roughly 560 eligible organizations will be sent a main questionnaire that is expected to yield a total working sample of 500.

To minimize burden on small entities and to make sure that a high proportion of the nonprofit sector's R&D funding and performance is captured, the sample will be designed with probabilities proportional to size. Thus, a large NPO has a higher probability of being selected than a small NPO has. This method is justified because large NPOs are more likely to perform R&D than small NPOs are. Size will be determined by budgets, assets, or awards.

The main questionnaires will be distributed in hardcopy and via the World Wide Web. To minimize burden, the world Wide Web questionnaires will be computer-assisted to ease user input, provide automatic totals of numerical information and aid users in error correction. Security procedures will minimize the risk of unwanted disclosure over the Internet. Definitions of key survey terms have been made consistent with OMB Circulars A–122 and A–133 to minimize potential confusion and unnecessary effort by survey respondents.

Information being collected is not considered to be sensitive. In general, assurances of data confidentiality will not be provided to respondents to the NSF Survey of Research and Development Funding and Performance by Nonprofit Organizations. The utility of the data will be increased by allowing access to collected data. Results of pretesting and discussions with possible respondents have suggested this approach for handling confidentiality.

Use of the Information. The purpose of this study is to collect data about R&D funding and performance by nonprofit organizations. The NSF will publish a separate report of the findings and also include them in other NSF compilations such as National Patterns of R&D Resources and Science and Engineering Indicators. A public release file of collected data will be made available to researchers on the World Wide Web. The results of the survey will help policy makers in decisions on R&D funding, regulations, and reporting guidelines.

Burden on the Public. The Foundation estimates that a total annual reporting and recordkeeping burden of 27,056 hours will result from the collection of information. The calculation is:

	Hours
4,460 performers × 1 screening questionnaire × 12.5 minutes =	930
2,360 performers × 1 survey questionnaire × 10.5 hours =	24,780
700 funders × 1 screening questionnaire × 12.5 minutes =	146
560 funders × 1 shorter questionnaire × 2 hours =	1,120
Total	27,056

Dated: August 27, 1997.

Gail A. McHenry,

Reports Clearance Officer.

[FR Doc. 97–23365 Filed 8–27–97; 8:45 am]

BILLING CODE 7555–01–M

NUCLEAR REGULATORY COMMISSION

Statement of Principles and Policy for the Agreement State Program; Policy Statement on Adequacy and Compatibility of Agreement State Programs

AGENCY: Nuclear Regulatory Commission.

ACTION: Final policy statements.

SUMMARY: The Nuclear Regulatory Commission (NRC) is publishing two final policy statements: the "Statement of Principles and Policy for the Agreement State Program," and "Policy Statement on Adequacy and Compatibility of Agreement State Programs."

EFFECTIVE DATE: September 3, 1997.

ADDRESSES: Documents referenced in this notice are available for inspection in the Public Document Room, 2120 L Street, NW (Lower Level), Washington, DC, between 7:45 am and 4:15 pm.

FOR FURTHER INFORMATION CONTACT: Ms. Cardelia Maupin, Sr. Project Manager, Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415–2312.

SUPPLEMENTARY INFORMATION:

I. Background

A. Statement of Principles and Policy for the Agreement State Program

On August 25, 1993, the Commission requested the NRC staff to recommend improvements to the NRC's Agreement State Program to assure adequate protection of public health and safety. The draft Policy Statement was published in the **Federal Register** on August 5, 1994 (59 FR 40058). At the Commission's request, the public comment period scheduled to end on October 4, 1994, was extended to December 19, 1994 (59 FR 52316).

A final Policy Statement was prepared based on the public comments, other activities and issues before the Commission, e.g., the "Policy Statement on Adequacy and Compatibility of Agreement State Programs," issues discussed at public briefings of the Commission by the Organization of Agreement States (OAS), and the Commission's deliberations on the Integrated Materials Performance Evaluation Program. On May 5, 1995, the NRC staff submitted to the Commission the "Final Statement of Principles and Policy for the Agreement State Program" and "Procedures for Suspension and Termination of an Agreement State Program" (SECY 95–115) that contained the full analysis of

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comments. By Staff Requirements Memorandum dated June 29, 1995, the Commission provided comments on the Statement of Principles and Policy for the Agreement State Program and directed staff to develop procedures for placing an Agreement State in probationary status and for implementing the phase-in of a new Agreement State program.

On October 3, 1996, the NRC staff submitted to the Commission the Statement of Principles and Policy for the Agreement State Program that had been modified as directed by the Commission (SECY 96–213). Further revisions were made to ensure consistency with the revised Policy Statement on Adequacy and Compatibility of Agreement State Programs. The procedures for suspension, emergency suspension and termination of agreements were finalized on April 25, 1996, and the procedure for placing an Agreement State in probationary status was finalized on July 3, 1996.

B. Statement on Adequacy and Compatibility of Agreement State Programs.

On July 21, 1994 (59 FR 37269), the Commission published in the **Federal Register**, for public comment, a draft Policy Statement regarding the adequacy of Agreement State programs to protect public health and safety and compatibility with NRC regulatory programs. The comment period for the draft Policy Statement was scheduled to expire on October 19, 1994, but was extended to December 19, 1994 (59 FR 52317). In addition, a public workshop was held on November 15, 1994 (59 FR 52321) to provide an opportunity for Agreement States and interested members of the public to provide comments on the draft Policy Statement.

A final "Policy Statement on Adequacy and Compatibility of Agreement State Program" was prepared based on the public comments and other activities and issues before the Commission. On May 3, 1995, the NRC staff submitted to the Commission the "Final Policy Statement on Adequacy and Compatibility of Agreement State Programs" (SECY 95–112) that contained the full analysis of comments.

C. Status of the Policy Statements

The Commission approved both policy statements in principle with a Staff Requirements Memorandum dated June 29, 1995, but deferred their implementation until all implementing procedures were completed and approved by the Commission. On August 2, 1995 (60 FR 39463), the Commission published in the **Federal Register** the status of these two policy statements and a notice of their availability.

NRC staff also prepared draft implementing procedures for phased implementation of a new Agreement State program that contained language for a standard agreement (Management Directive 5.8 and its associated handbook). Comments on the draft implementing procedures for phased implementation of new agreements and the standard agreement were requested from the Agreement States on November 15, 1996. The complete analysis of these comments is included in "Final Recommendations on Policy Statements and Implementing Procedures for: Statement of Principles and Policy for the Agreement State Program and Policy Statement on Adequacy and Compatibility of Agreement State Programs" (SECY 97–054, dated March 3, 1997) that is available for inspection at the NRC Public Document Room. A summary of the comments appears with the text of the final policy statement in this notice.

In October 1995, a Working Group consisting of representatives of Agreement States and the NRC was formed to develop implementing procedures for the "Policy Statement on Adequacy and Compatibility of Agreement State Programs." The formation of this Working Group was announced in the **Federal Register** on December 1, 1995 (60 FR 61716). A notice announcing availability of the initial Working Group report (August 21, 1996) and implementing procedures was published in the **Federal Register** on September 19, 1996 (61 FR 49357). Comments also were requested specifically from Agreement States and panelists who participated in the November 15, 1994, public workshop. The analysis of State and public comments is part of the supplemental report of the Working Group dated January 27, 1997, that is available for inspection at the NRC Public Document Room. A summary of the comments appears with the text of the final policy statement in this notice.

II. Statement of Principles and Policy for the Agreement State Program

A. Comment Summary

Comment letters were received from twelve Agreement States on the implementing procedures for phased agreements (Management Directive 5.8). There was strong opposition from the Agreement States on the inclusion of mandatory phased agreements for states seeking Agreement State status. Staff analyzed the comments and agreed with the concerns associated with the use of phased agreements. Changes were made to the Policy Statement to remove the phased agreement concept and to include revisions offered by the Agreement States, as appropriate. The Policy Statement was also edited to conform it to the position that Agreement States have flexibility to impose legally binding requirements on its licensees through mechanisms other than rules.

The text of the final policy statement follows.

B. The Commission Policy

Statement of Principles and Policy for the Agreement State Program

1. *Purpose:* The purpose of this Statement of Principles and Policy for the Agreement State Program is to clearly describe the respective roles and responsibilities of the U.S. Nuclear Regulatory Commission (NRC) and States in the administration of programs carried out under Section 274 of the Atomic Energy Act of 1954, as amended. Section 274 provides broad authority for the NRC to establish Federal and State cooperation in the administration of regulatory programs for the protection of public health and safety in the industrial, medical, and research uses of nuclear materials.

This Policy Statement addresses the Federal-State interaction under the Atomic Energy Act to: (1) Establish and maintain agreements with States under Section 274(b) that provide for discontinuance by the NRC, and the assumption by the State, of responsibility for administration of a regulatory program for the use of byproduct, source, and small quantities of special nuclear material; and (2) ensure that post-agreement interactions among the NRC and Agreement State radiation control programs are coordinated and compatible and that Agreement State programs continue to provide adequate protection of public health and safety.

This Policy Statement establishes principles, objectives, and goals that the Commission expects will be reflected in the implementing guidance and programs of the NRC and Agreement States to meet their respective program responsibilities and that should be achieved in the administration of these programs.

This Policy Statement is intended solely as guidance for the Commission and the Agreement States in the implementation of the Agreement State program. This Policy Statement does not itself impose legally binding

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requirements on the Agreement States. In addition, nothing in this Policy Statement expands the legal authority of Agreement States beyond that already granted to them by Section 274 of the AEA and other relevant legal authority. Implementation procedures adopted pursuant to this Policy Statement shall be consistent with the legal authorities of the Commission and the Agreement States.

2. Statement of Legislative Intent: The Atomic Energy Act of 1954 did not specify a role for the States in regulating the use of nuclear materials. Many States were concerned as to what their responsibilities in this area might be and expressed interest in seeing that the boundaries of Federal and State authority were clearly defined. This need for clarification was particularly important in view of the fact that although the Federal government retained sole responsibility for protecting public health and safety from the radiation hazards of byproduct, source, and special nuclear material, the responsibility for protecting the public from the radiation hazards of other sources such as x-ray machines and radium had been borne for many years by the States.

Consequently, in 1959 Congress enacted Section 274 of the Atomic Energy Act to establish a statutory framework under which States could assume certain regulatory jurisdiction over byproduct, source, and special nuclear material in quantities less than a critical mass. The primary purpose of the legislation was to authorize the Commission to discontinue its regulatory authority over the use of these materials and for assumption of this authority by the States. The Commission retained regulatory authority over the licensing of certain facilities and activities such as nuclear reactors, larger quantities of special nuclear material, and the export and import of nuclear materials.

In considering the legislation, Congress recognized that the Federal government would need to assist the States to ensure that they developed the capability to exercise their regulatory authority in a competent and effective manner. Accordingly, the legislation authorized the Commission to provide training and other services to State officials and employees. However, in rendering this assistance, Congress did not intend that the Commission would provide any grants to a State for the administration of a State regulatory program. This was fully consistent with the objectives of Section 274 to qualify States to assume independent regulatory authority over certain defined areas of regulatory jurisdiction and to permit the Commission to discontinue its regulatory responsibilities in those areas.

In order to relinquish its authority to a particular State, the Commission must find that the program is compatible with the Commission's program for the regulation of radioactive materials and that the State program is adequate to protect public health and safety. In addition, the Commission has an obligation, pursuant to Section 274(j) of the Act, to review existing Agreement State programs to ensure continued adequacy and compatibility. Section 274(j) of the Act provides that the NRC may terminate or suspend all or part of its agreement with a State if the Commission finds that such termination is necessary to protect public health and safety or that the State has not complied with the provisions of Section 274(j). In these cases, the Commission must offer the State reasonable notice and opportunity for a hearing. In addition, the Commission may temporarily suspend all or part of an agreement in the case of an emergency situation.

C. Principles of Program Implementation

1. Good Regulation Principles

In 1991, the Commission adopted "Principles of Good Regulation" to serve as a guide to both agency decision making and to individual behavior as NRC employees. Adherence to these principles has helped to ensure that NRC's regulatory activities have been of the highest quality, appropriate, and consistent. The "Principles of Good Regulation" recognize that strong, vigilant management and a desire to improve performance are prerequisites for success, for both regulators and the regulated industry. The Commission believes that NRC's implementation of these principles has served the public, the Agreement States, and the regulated community well. The Commission further believes that such principles may be useful as a part of a common culture that NRC and the Agreement States share as co-regulators. Accordingly, the Commission encourages each Agreement State to adopt a similar set of principles for use in its own regulatory program.

Regulatory decisions and actions should be developed and implemented in an open and publicly credible manner and should be able to withstand scrutiny. Such scrutiny should be welcomed by the regulator. The regulator should be independent and impartial in its actions, and this should be clearly evident. Regulations and regulatory decisions should be based on assessments of the best available information from affected and interested individuals and organizations, as well as on the best available knowledge from research and operational experience. Significant decisions, for example, a change in enforcement policy, should be documented explaining the rationale for such decisions. The public should have an opportunity for early involvement in significant regulatory program decisions. Where several effective alternatives are available, the alternative that best assures safety while considering differing views should be adopted, considering the resources needed to implement that alternative. Regulations should be necessary, and appropriate, to assure safety, and should be clear, coherent, logical, and practical. Regulatory actions should be fully consistent with regulations or other legally binding requirements and good public policy and should lead to stability and predictability in the planning and implementation of radiation control programs.

Failure to adhere to these principles of good regulation in the conduct of operations should be a sufficient reason for a regulatory program to self-initiate program changes that will result in needed improvements. All involved should welcome expressions of concern that indicate a program may not be operating in accordance with these principles and revise their program to more completely reflect these principles.

It is not intended that these principles of good regulation be established as formal criteria against which NRC and Agreement State programs would be assessed. Rather, the expectation is that these principles will be incorporated into the day-to-day operational fabric of NRC and Agreement State materials programs. These principles should be used in the formulation of policies and programs, implementation of those policies and programs, and assessments of program effectiveness. Application of these principles will ensure that complacency will be minimized, that adequate levels of protection of public health and safety are being provided, and that government employees tasked with the responsibility for these Federal and State regulatory programs serve the public in an effective, efficient, and responsive manner. These principles are primarily for the use of NRC and Agreement State materials program managers and staff in the self assessment of their respective programs and to use in the establishment of goals and objectives for the continual improvement of their respective

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programs. Deficiencies identified during the conduct of NRC Region and Agreement State formal program performance reviews may indicate that the program is not adhering to these principles of good regulation. The organization being assessed should factor the need for these principles into its actions to address identified deficiencies.

2. Coherent Nationwide Effort

The mission of the NRC is to assure that civilian use of nuclear materials in the United States is carried out with adequate protection of public health and safety. NRC acknowledges its responsibility, shared with the Agreement States, to ensure that the regulatory programs of the NRC and the Agreement States collectively establish a coherent nationwide effort for the control of AEA materials. The basic elements of such regulatory programs include ability to ensure adequate protection of public health and safety, compatibility in areas of national interest, sufficient flexibility to accommodate local needs and conditions, ability to assess program performance on a consistent and systematic basis, and principles of good regulation in program administration.

Each of these elements is reflected and addressed in specific sections of this Policy Statement.

3. Adequate to Protect Public Health and Safety

NRC and the Agreement States have the responsibility to ensure adequate protection of public health and safety in the administration of their respective regulatory programs controlling the uses of AEA materials. Accordingly, NRC and Agreement State programs shall possess the requisite supporting legislative authority, implementing organization structure and procedures, and financial and human resources to effectively administer a radiation control program that ensures adequate protection of public health and safety.

4. Compatible in Areas of National Interest

NRC and the Agreement States have the responsibility to ensure that consistent and compatible radiation control programs are administered. Such radiation control programs should be based on a common regulatory philosophy including the common use of definitions and standards. They should be not only effective and cooperatively implemented by NRC and the Agreement States, but also should provide uniformity and consistency in program areas having national significance.

Such areas include those affecting interstate commerce, movement of goods and provision of services, and safety reviews for sealed source devices sold nationwide. Also necessary is the ability to communicate using a nationally accepted set of terms with common understanding, the ability to ensure an adequate level of protection of public health and safety that is consistent and stable across the nation, and the ability of NRC and each Agreement State to evaluate the effectiveness of the NRC and Agreement State programs for the regulation of agreement material with respect to protection of public health and safety.

5. Flexibility

With the exception of those compatibility areas where all programs should be essentially identical, to the extent possible, Agreement State radiation control programs for AEA materials should be provided with flexibility in program implementation to accommodate individual State preferences, State legislative direction, and local needs and conditions. However, the exercise of such flexibility should not preclude, or effectively preclude, a practice authorized by the Atomic Energy Act, and in the national interest. That is, a State would have the flexibility to design its own program, including incorporating more stringent, or similar, requirements provided that the requirements for adequacy are still met and compatibility is maintained, and the more stringent requirements do not preclude or effectively preclude a practice in the national interest without an adequate public health and safety or environmental basis related to radiation protection.

D. New Agreements

Section 274 of the Atomic Energy Act requires that once a decision to seek Agreement State status is made by the State, the Governor of that State must certify to the NRC that the State desires to assume regulatory responsibility and has a program for the control of radiation hazards adequate to protect public health and safety with respect to the materials within the State covered by the proposed agreement. This certification will be provided in a letter to the NRC that includes a number of documents in support of the certification. These documents include the State's enabling legislation, the radiation control regulations, a narrative description of the State program's policies, practices and procedures, and a proposed agreement.

The NRC has published criteria describing the necessary content these documents are required to cover. The NRC reviews the request and publishes notice of the proposed agreement in the **Federal Register** to provide an opportunity for public comment. After consideration of public comments, if the Commission determines that the State program is adequate and compatible, and approves the agreement, a formal agreement document is signed by the Governor and the Chairman of the NRC.

E. Program Assistance

NRC will offer training and other assistance to States, such as assistance in developing regulations and program descriptions to help individual States prepare for entrance into agreements and to help them prior to the assumption of regulatory authority. Following assumption of regulatory authority by a new Agreement State, to the extent permitted by resources, NRC can provide training and other assistance such as review of proposed regulatory changes to help States administer their regulatory responsibilities. NRC would also use its best efforts to provide specialized technical assistance to Agreement States to address unique or complex licensing, inspection, and enforcement issues. In areas where Agreement States have particular expertise or are in the best position to provide immediate assistance to the NRC, the Agreement States are encouraged to do so. In addition, NRC and Agreement States will keep each other informed about relevant aspects of their programs. NRC will provide an opportunity for Agreement States to have early and substantive involvement in rulemaking, policy, and guidance development activities. Agreement States should provide a similar opportunity to the NRC to make it aware of, and to provide the opportunity to review and comment on, proposed changes in regulations and significant changes to Agreement State programs, policies, and regulatory guidance.

If an Agreement State experiences difficulty in program administration, the Commission would use its best efforts to assist the State in maintaining the effectiveness of its radiation control program. Such assistance could address an immediate difficulty or a chronic difficulty affecting the State's ability to discharge its responsibility to continue to ensure adequate protection of public health and safety.

F. Performance Evaluation

Under Section 274 of the Atomic Energy Act of 1954, as amended, the

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Commission retains authority for ensuring that Agreement State programs continue to provide adequate protection of public health and safety. In fulfilling this statutory responsibility, NRC will provide oversight of Agreement State radiation control programs to ensure that they are adequate and compatible prior to entrance into a Section 274(b) agreement and that they continue to be adequate and compatible after an agreement is effective. The Commission, in cooperation with the Agreement States, will establish and implement a performance evaluation program to provide NRC and Agreement State management with systematic, integrated, and reliable evaluations of the strengths and weaknesses of their respective radiation control programs and identification of areas needing improvement.

As a part of this performance evaluation process, the Commission will take any necessary actions to help ensure that Agreement State radiation control programs remain adequate and compatible. These actions include: (1) Periodic assessments of Agreement State radiation control programs against established review criteria; (2) provision of assistance to help address weaknesses or areas within an Agreement State radiation control program requiring improvement, to the extent permitted by NRC resources; (3) placing a State on a probationary status for serious program deficiencies that require heightened oversight; (4) temporary suspension of an agreement and reassertion of NRC regulatory authority in an emergency if an Agreement State program experiences any immediate program difficulties preventing the State from continuing to ensure adequate protection of public health and safety; and (5) suspension or termination of an agreement and reassertion of NRC regulatory authority if the Agreement State program experiences difficulties that jeopardize the State's ability to continue to ensure adequate protection of public health and safety or to continue to maintain a compatible program. The basis for NRC's actions will be based on a well defined and predictable process and a performance evaluation program that will be consistently and fairly applied.

G. Levels of Agreement State Program Review Findings

The following discussion outlines the nature of NRC findings regarding the NRC's Agreement State review process.

Finding 1—Adequate To Protect Public Health and Safety and (or not) Compatible

If the NRC finds that a State program has met all of the Agreement State program review criteria or that only minor deficiencies exist, the Commission would find that the State's program is adequate to protect public health and safety. If the NRC determines that a State program contains all required NRC program elements for compatibility, or only minor discrepancies exist, the program would be found compatible. If the NRC determines that a State has a program that disrupts the orderly pattern of regulation among the collective regulatory efforts of the NRC and other Agreement States, i.e., creates conflicts, gaps, or duplication in regulation, the program would be found not compatible.

Finding 2—Adequate, but Needs Improvement and (or not) Compatible

If the NRC finds that a State program protects public health and safety, but is deficient in meeting some of the review criteria, the NRC may find that the State's program is adequate, but needs improvement. The NRC would consider in its determination plans that the State has to address any of the deficiencies noted during the review. In cases where less significant Agreement State deficiencies previously identified have been uncorrected for a significant period of time, NRC may also find that the program is adequate but in need of improvement. If the NRC determines that a State program contains all required NRC program elements for compatibility, or only minor discrepancies exist, the program would be found compatible. If the NRC determines that a State has a program that disrupts the orderly pattern of regulation among the collective regulatory efforts of the NRC and other Agreement States, i.e., creates conflicts, gaps, or duplication in regulation, the program would be found not compatible.

Finding 3—Inadequate to Protect Public Health and Safety and (or not) Compatible

If the NRC finds that a State program is significantly deficient in some or all of the review criteria, the NRC would find that the State's program is not adequate to protect public health and safety. If the NRC determines that a State program contains all required NRC program elements for compatibility, or only minor discrepancies exist, the program would be found compatible. If the NRC determines that a State has a program that disrupts the orderly pattern of regulation among the collective regulatory efforts of the NRC and other Agreement States, i.e., creates conflicts, gaps, or duplication in regulation, the program would be found not compatible.

H. NRC Actions as a Result of These Findings

The following discussion outlines the options available to the NRC as a result of making any of the above findings. The appropriate action will be determined on a case-by-case basis by NRC management.

Letters

In all cases, subsequent to an Agreement State program review, the findings would be recounted in a letter to senior level State management. In the event that the NRC finds that a State program is adequate and compatible, no further action would be required, except a response by the State to any suggestions or recommendations. In the case where minor deficiencies are noted or areas for improvement are identified, the State would be requested to describe their proposed corrective action. If the corrective action appears appropriate, no further NRC action is required. If additional clarification of the corrective actions is needed, additional correspondence may be necessary.

Follow-up Reviews

In the event that deficiencies are noted during the program review, NRC may increase the frequency of contacts with the State to keep abreast of developments and conduct onsite follow-up reviews to assure that progress is being made on correcting program deficiencies. If, during follow-up reviews, it is shown that the State has taken corrective actions, a letter finding the State adequate and compatible would be provided.

Probationary Status

There are three circumstances that can lead to an adequate but needs improvement or incompatible State program being placed in a probationary status: (1) There are cases in which program deficiencies may be serious enough to require immediate heightened oversight; (2) in other cases, Agreement State program deficiencies previously identified may have been uncorrected for a significant period of time; and (3) if the NRC determines that a State program has been late in adopting required compatibility program elements and significant disruption in the collective nationwide efforts to

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regulate AEA materials has occurred. If the NRC was not confident that the State would address the program deficiencies in an expeditious and effective manner, the Commission would place the State program on probation.

As a result of placing a State program on probation, the NRC would communicate its findings to a higher level of State management. Notice of such probationary status would normally be addressed to the Governor of the State. Notice would also be published in the **Federal Register**. A copy of the letter to the Governor would be placed in the Public Document Room and a press release would be issued.

Once a State program is placed on probation, the NRC would heighten its oversight of the program. This would include obtaining commitments from the State in the form of a management plan to describe actions to be taken by the State to address the program deficiencies, including specific goals and milestones. The NRC would increase observation of State program activities under the agreement to assure adequate protection of public health and safety. If requested and in accordance with terms agreed to by the parties, the NRC would consider providing technical support for the maintenance of the regulatory program. The probationary period would last for a specified period of time. This period would not normally be more than one year, but could be extended based on extenuating circumstances. At the end of that time, if the State has not addressed the deficiencies, the NRC would institute suspension or termination proceedings.

Suspension

Section 274j of the Atomic Energy Act gives the Commission authority to suspend all or part of its agreement with a State if the suspension is required to protect public health and safety, or if the State has not complied with one or more of the requirements of Section 274 of the Act. In cases where the Commission finds that program deficiencies related to either adequacy or compatibility are such that the Commission must take action to protect public health and safety, or if the program has not complied with one or more of the requirements of Section 274 of the Act, the Commission would suspend all or part of its agreement with the State. In cases where a State has failed to respond in an acceptable manner during the probationary period, suspension would be considered. If the situation is not resolved, termination will be considered.

Before reaching a final decision on suspension, the Commission will notify the State and provide the State an opportunity for a hearing on the proposed suspension. Notice of the proposed suspension will also be published in the **Federal Register**. Suspension, rather than termination, would be the preferred option in those cases where the State provides evidence that the program deficiencies are temporary and that the State is committed to correcting the deficiencies that led to the suspension.

In addition to the normal suspension authority, Section 274j(2) of the Act also addresses emergency situations and gives the Commission authority to temporarily suspend all or part of its agreement with a State without notice or hearing if an emergency situation exists requiring immediate action to protect public health and safety, and the State has failed to take necessary action within a reasonable time.

Termination

Section 274j of the Atomic Energy Act gives the Commission authority to terminate its agreement with a State if such termination is required to protect public health and safety, or if the State program has not complied with one or more of the requirements of Section 274 of the Act (e.g., is found to be not compatible with the Commission's program). When the Commission finds such significant program deficiencies, the Commission would institute proceedings to terminate its agreement with the State.

In cases where a State has failed to respond in an acceptable manner during the probationary period and there is no prospect for improvement, termination will be considered. Before reaching a final decision on termination, the Commission will notify the State and provide the State an opportunity for a hearing on the proposed termination.

Also, notice of the proposed termination will be published in the **Federal Register**. There may be cases where termination will be considered even though the State program has not been placed on probation.

I. Program Funding

Currently, Section 274 does not allow federal funding for the administration of Agreement State radiation control programs. Section 274 permits the NRC to offer training and other assistance to a State in anticipation of entering into an Agreement with NRC, however, it is NRC policy not to fund the establishment of new Agreement State programs. Regarding training, given the importance in terms of public health and safety of having well trained radiation control program personnel, the NRC offers certain relevant training courses and notifies Agreement State personnel of their availability.

J. Regulatory Development

NRC and Agreement States will cooperate in the development of new regulations and policy. Agreement States will have early and substantive involvement in the development of new regulations affecting protection of public health and safety and of new policy affecting administration of the Agreement State program. Likewise, the NRC expects to have the States provide it with early and substantive involvement in the development of new Suggested State Regulations. NRC and Agreement States will keep each other informed about their individual regulatory requirements (e.g., regulations or license conditions) and the effectiveness of those regulatory requirements so that each has the opportunity to make use of proven regulatory approaches to further the effective and efficient use of resources.

K. Program Evolution

The NRC-Agreement State program is dynamic and the NRC and Agreement States will continue to jointly assess the NRC and Agreement State programs for the regulation of AEA materials to identify specific changes that should be considered based on experience or to further improve overall performance and effectiveness. The changes considered may include possible legislative changes. The program should also include the formal sharing of information and views such as briefings of the Commission by the Agreement States.

III. Policy Statement on Adequacy and Compatibility of Agreement State Programs

A. Comment Summary

Ten comment letters were received, one from the Organization of Agreement States, six Agreement State program directors, two industry organizations and one environmental group. The Joint NRC-Agreement State Working Group for Development of Implementing Procedures for the Final Policy Statement on Adequacy and Compatibility of Agreement State Programs analyzed the comments and changes were made to the Policy Statement (1) to add additional clarifying language for the terms "adequacy" and "compatibility" and the cooperative nature of the NRC—Agreement State relationship; (2) to

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conform it to the position that Agreement States have flexibility with respect to the legally binding mechanism by which regulatory requirements needed for adequacy or compatibility are adopted; and (3) to simplify the language describing compatibility categories. Changes also were made in response to the June 30, 1997 Staff Requirements Memorandum. These changes (1) reflect that program elements for compatibility also impact public health and safety and may also be considered program elements for adequacy; (2) clarify the definition of basic radiation protection standard; and (3) clarify that States may not adopt program elements reserved exclusively to NRC. The implementing procedures were changed to reflect the final Policy Statement.

One Agreement State specifically commented that it did not believe that Section 274 of the AEA required compatibility of programs or program elements after an agreement is effective except for requirements pertaining to the Uranium Mill Tailings Radiation Control Act in section 274(o). This position also was reflected in the recommended changes to the Policy Statement submitted by the Organization of Agreement States.

The Commission does not agree with this interpretation of the AEA. Both Sections 274d.(2) and 274g. indicate that the Commission must find a State program to be compatible with that of NRC in order to enter into a Section 274b. agreement with the State. It is the Commission's view that, pursuant to Section 274, an Agreement State's program should be compatible with NRC's program for the duration of the Agreement for the following reasons:

Subsection 274g. authorizes and directs the Commission to cooperate with the States in the formulation of radiation protection standards "to assure that the State and Commission programs for the protection against hazards of radiation will be coordinated and compatible." This provision demonstrates Congress' intention that the compatibility between the NRC and Agreement State programs should be maintained on a continuing basis.

Section 274j.(1) calls on the Commission to suspend or terminate an Agreement State's program if "the State has not complied with one or more of the requirements" of the Section 274. The Commission believes that this phrase "one or more of the requirements," encompasses all requirements of Section 274, including the requirement for compatibility.

Under subsection 274d.(2), the Commission is authorized to enter into an agreement with a State if the Commission makes both requisite findings that the State program is compatible with the NRC's program and adequate to protect public health and safety. Absent a continuing compatibility requirement, an Agreement State could divert from having a compatible program the day after any agreement is signed with NRC. This would render the Commission's initial compatibility finding required by Section 274d.(2) meaningless.

Therefore, the Commission does not believe that Congress intended such meaning for the compatibility requirement and no changes were made to the Policy Statement in response to this comment.

The text of the final policy statement follows.

B. The Commission Policy

Policy Statement on Adequacy and Compatibility of Agreement State Programs

Purpose: Section 274 of the Atomic Energy Act (AEA) of 1954, as amended, provides for a special Federal-State regulatory framework for the control of radioactive materials under which the NRC, by agreement with a State, relinquishes its authority in certain areas to the State government as long as the State program is adequate to protect public health and safety and compatible with the Commission's program. Section 274 further directs the Commission to periodically review State programs to ensure compliance with provisions of Section 274. This Policy Statement presents the Nuclear Regulatory Commission's policy for determining the adequacy and compatibility of Agreement State programs established pursuant to Section 274. This Policy Statement clarifies the meaning and use of the terms "adequate to protect public health and safety" and "compatible with the Commission's regulatory program" as applied to the Agreement State program. The Policy Statement also describes the general framework that will be used to identify those program elements [1] that Agreement State programs should implement to be adequate to protect public health and safety and to be compatible with the Commission's regulatory program. Finally, the Policy Statement reflects principles discussed in the Commission's Statement of Principles and Policy for the Agreement State Program which should be considered in conjunction with this Policy Statement.

This Policy Statement is solely guidance for the Commission and the Agreement States in the implementation of the Agreement State program. This Policy Statement does not itself impose legally binding requirements on the Agreement States. In addition, nothing in this Policy Statement expands the legal authority of Agreement States beyond that already granted to them by Section 274 of the Atomic Energy Act and other relevant legal authority. Implementation procedures adopted pursuant to this Policy Statement shall be consistent with the legal authorities of the Commission and the Agreement States.

Background: The terms "adequate" and "compatible" represent fundamental concepts in the Agreement State program authorized in 1959 by Section 274 of the Atomic Energy Act of 1954, as amended (AEA). Subsection 274d. states that the Commission shall enter into an Agreement under subsection b., discontinuing NRC's regulatory authority over certain materials in a State, provided that the State's program is adequate to protect public health and safety and compatible, in all other respects, with the Commission's regulatory program. Subsection 274g. authorizes and directs the Commission to cooperate with States in the formulation of standards to assure that State and Commission standards will be coordinated and compatible. Subsection 274j.(1) requires the Commission to review periodically the Agreements and actions taken by States under the Agreements to ensure compliance with provisions of Section 274. In other words, the Commission must review the actions taken by States under the Agreements to ensure that the programs continue to be adequate to protect public health and safety and compatible with the Commission's program.

Section 274 of the AEA requires that Agreement State programs be both "adequate to protect the public health and safety" and "compatible with the Commission's program." These separate findings are based on consideration of two different objectives. First, an Agreement State program should provide for an acceptable level of protection of public health and safety in an Agreement State (the "adequacy" component). Second, the Agreement State should ensure that its program serves an overall nationwide interest in radiation protection (the "compatibility" component). As discussed in more detail below, an "adequate" program should consist of those program elements necessary to maintain an acceptable level of protection of public health and safety within an Agreement State. A "compatible" program should consist of those program elements necessary to

[1] For the purposes of this Policy Statement, "program element" means any component or function of a radiation control regulatory program, including regulations and/or other legally binding requirements imposed on regulated persons, that contributes to implementation of that program.

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meet a larger nationwide interest in radiation protection generally limited to areas of regulation involving radiation protection standards and activities with significant transboundary implications. Program elements for adequacy focus on the protection of public health and safety within a particular State, whereas program elements for compatibility focus on the impacts of an Agreement State's regulation of agreement material on a nationwide basis or its potential effects on other jurisdictions. Many program elements for compatibility also impact public health and safety; therefore, they may also be considered program elements for adequacy.

In identifying those program elements for adequate and compatible programs, or any changes thereto, the Commission will seek the advice of the Agreement States and will consider such advice in its final decision.

Adequacy: An Agreement State's radiation control program is adequate to protect public health and safety if administration of the program provides reasonable assurance of protection of public health and safety in regulating the use of source, byproduct, and small quantities of special nuclear material (hereinafter termed "agreement material") as identified by Section 274b. of the AEA. The level of protection afforded by the program elements of NRC's materials regulatory program is presumed to be that which is adequate to provide a reasonable assurance of protection of public health and safety. The overall level of protection of public health and safety provided by a State program should be equivalent to, or greater than, the level provided by the NRC program. To provide reasonable assurance of protection of public health and safety, an Agreement State program should contain five essential program elements, identified below, that the Commission will use to define the scope of its review of the program. The Commission also will consider, when appropriate, other program elements of an Agreement State which appear to affect the program's ability to provide reasonable assurance of public health and safety protection. Such consideration will occur only if concerns arise.

A. Legislation and Legal Authority

State statutes should:

Authorize the State to establish a program for the regulation of agreement material and provide authority for the assumption of regulatory responsibility under an Agreement with the Commission;

Authorize the State to promulgate regulatory requirements necessary to provide reasonable assurance of protection of public health and safety;

Authorize the State to license, inspect, and enforce legally binding requirements such as regulations and licenses; and

Be otherwise consistent with Federal statutes, as appropriate, such as Pub. L. 95–604, The Uranium Mill Tailings Radiation Control Act (UMTRCA).

In addition, the State should have existing legally enforceable measures such as generally applicable rules, license provisions, or other appropriate measures, necessary to allow the State to ensure adequate protection of public health and safety in the regulation of agreement material in the State. Specifically, Agreement States should adopt a limited number of legally binding requirements based on those of NRC because of their particular health and safety significance. In adopting such requirements, Agreement States should adopt the essential objectives of those of the Commission.

B. Licensing

The State should conduct appropriate evaluations of proposed uses of agreement material, before issuing a license, to assure that the proposed licensee's operations can be conducted safely. Licenses should provide for reasonable assurance of public health and safety protection in relation to the licensed activities.

C. Inspection and Enforcement

The State should periodically conduct inspections of licensed activities involving agreement material to provide reasonable assurance of safe licensee operations and to determine compliance with its regulatory requirements. When determined to be necessary by the State, the State should take timely enforcement action against licensees through legal sanctions authorized by State statutes and regulations.

D. Personnel

The State should be staffed with a sufficient number of qualified personnel to implement its regulatory program for the control of agreement material.

E. Response to Events and Allegations

The State should respond to and conduct timely inspections or investigations of incidents, reported events, and allegations involving agreement material within the State's jurisdiction to provide reasonable assurance of protection of public health and safety.

Compatibility

An Agreement State radiation control program is compatible with the Commission's regulatory program when its program does not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis. For purposes of compatibility, the State should address categories A, B, and C identified below:

A. Basic Radiation Protection Standards

For purposes of this Policy Statement, this category includes "basic radiation protection standards" meaning dose limits, concentration and release limits related to radiation protection in 10 CFR part 20 that are generally applicable, and the dose limits in 10 CFR 61.41.[2] Also included in this category are a limited number of definitions, signs, labels and scientific terms that are necessary for a common understanding of radiation protection principles among licensees, regulatory agencies, and members of the public. Such State standards should be essentially identical to those of the Commission, unless Federal statutes provide the State authority to adopt different standards. Basic radiation protection standards do not include constraints or other limits below the level associated with "adequate protection" that take into account permissible balancing considerations such as economic cost and other factors.

B. Program Elements with Significant Transboundary Implications

The Commission will limit this category to a small number of program elements (e.g., transportation regulations and sealed source and device registration certificates) that have significant transboundary implications. Agreement State program elements should be essentially identical to those of the Commission.

C. Other Commission Program Elements

These are other Commission program elements (e.g., reciprocity procedures) that are important for an Agreement State to have in order to avoid conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis. Such Agreement State program elements should embody the essential objective of the corresponding Commission program elements.

[2] The Commission will implement this category consistent with its earlier decision in the LLW area to allow Agreement States flexibility to establish pre-closure operational release limit objectives, ALARA goals or design objectives at such levels as the State may deem necessary or appropriate, as long as the level of protection of public health and safety is at least equivalent to that afforded by Commission requirements.

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D. Program Elements not Required for Compatibility

An Agreement State has the flexibility to adopt and implement program elements based on those of the Commission (other than those identified in A, B, and C above) or other program elements within the State's jurisdiction that are not addressed by NRC.

All program elements of an Agreement State relating to agreement material should:

Be compatible with those of the Commission (i.e., should not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis);

Not preclude, or effectively preclude, a practice [3] in the national interest without an adequate public health and safety or environmental basis related to radiation protection; or

Not preclude, or effectively preclude, the ability of the Commission to evaluate the effectiveness of the NRC and Agreement State programs for agreement material with respect to protection of public health and safety.

E. Areas of Exclusive NRC Regulatory Authority

These are program elements that address areas of regulation that cannot be relinquished to Agreement States pursuant to the AEA or provisions of Title 10 of the Code of Federal Regulations. However, an Agreement State may inform its licensees of certain of these NRC provisions through a mechanism that is appropriate under the State's administrative procedure laws as long as the State adopts these provisions solely for the purposes of notification, and does not exercise any regulatory authority pursuant to them.

Summary and Conclusions

To foster and enhance a coherent and consistent nationwide program for the regulation of agreement material, the Commission encourages Agreement States to adopt and implement program elements that are patterned after those adopted and implemented by the Commission. However, the fact that an Agreement State's program is compatible with that of the Commission does not affect that State's obligation to maintain an adequate program as described in this Policy Statement.

[3] "Practice" means a use, procedure, or activity associated with the application, possession, use, storage, or disposal of agreement material. The term "practice" is used in a broad and encompassing manner in this Policy Statement. The term encompasses both general activities involving use of radioactive materials such as industrial and medical uses and specific activities within a practice such as industrial radiography and brachytherapy.

By adopting the criteria for adequacy and compatibility as discussed in this Policy Statement the Commission will provide Agreement States a broad range of flexibility in the administration of individual programs. In doing so, the Commission allows Agreement States to fashion their programs so as to reflect specific State needs and preferences, recognizing the fact that Agreement States have responsibilities for radiation sources in addition to agreement material.

The Commission will minimize the number of NRC regulatory requirements that the Agreement States will be requested to adopt in an identical manner to maintain compatibility. At the same time, requirements in these compatibility categories will allow the Commission to ensure that an orderly pattern for the regulation of agreement material exists nationwide. The Commission believes that this approach achieves a proper balance between the need for Agreement State flexibility and the need for coordinated and compatible regulation of agreement material across the country.

* * * * *

Paperwork Reduction Act Statement

These final policy statements do not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150–0183.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

Dated at Rockville, Md., this 27th day of August, 1997.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Secretary of the Commission.

[FR Doc. 97–23330 Filed 9–2–97; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Chemical Process Safety at Fuel Cycle Facilities; Availability of NUREG

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of availability.

SUMMARY: The Nuclear Regulatory Commission is announcing the completion and availability of NUREG–1601, "Chemical Process Safety at Fuel Cycle Facilities," dated July 1997.

ADDRESSES: Copies of NUREG–1601 may be obtained by writing to the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402–9328. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161. A copy of the document is also available for inspection and/or copying, for a fee, in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC 20555–0001.

FOR FURTHER INFORMATION CONTACT: Dr. Lidia Roché, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001. Telephone: 301–415–7830.

SUPPLEMENTARY INFORMATION: NRC is announcing the availability of NUREG–1601, "Chemical Process Safety at Fuel Cycle Facilities." NUREG–1601 is the first report to address chemical safety issues affecting fuel cycle facilities as they relate to the performance of an integrated safety analysis (Integrated Safety Analysis Guidance Document (Draft NUREG–1513)). NUREG–1601 was developed in conformance with the Memorandum of Understanding, between NRC and the Occupational Safety and Health Administration, which gives NRC regulatory authority over chemicals hazards that may impact NRC-licensed nuclear material, including: (a) Chemical risks posed by radioactive materials; (b) interactions of chemicals with NRC-licensed nuclear material; and (c) plant conditions that may directly or indirectly affect the licensed nuclear material in an adverse manner.

NUREG–1601 provides broad guidance on chemical safety issues relevant to fuel cycle facilities. It addresses chemical safety issues, relevant to fuel cycle facilities, as they pertain to the performance of an integrated safety analysis. It explains to license holders and applicants a general

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SHIELDALLOY METALLURGICAL CORPORATION

WEST BOULEVARD
P.O. BOX 768
NEWFIELD, NJ 08344
TELEPHONE (609) 692-4200

DAVID R. SMITH
ENVIRONMENTAL MANAGER

August 27, 2001

Mr. Theodore S. Sherr, Chief
Licensing and International Safeguards Branch
Division of Fuel Cycle Safety and Safeguards, NMSS
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: Intent to Terminate Source Material License No. SMB-743

Dear Mr. Sherr:

Shieldalloy Metallurgical Corporation (SMC) has been issued License No. SMB-743 for the possession, use, storage, and disposal of source material at our Newfield, New Jersey facility. Condition 18 of that license states, in part, that if principle activities authorized by the license are not performed by July 1, 2001, SMC must notify the USNRC that it intends to begin the decommissioning process. Because principle activities have not been performed, and because SMC has been unable to identify viable alternative uses for the license, the purpose of this letter is to relay our intent to decontaminate and decommission all restricted areas, perform and document a final status survey demonstrating the release status of the site, and terminate License No. SMB-743 in compliance with License Condition 18.

As required in License Condition 18, as well as in Title 10, Code of Federal Regulations, Section 40.42(d), SMC will prepare and submit a site-wide decommissioning plan to the USNRC on or before September 1, 2002. Once USNRC concurrence with that plan is received, SMC will then limit all actions involving source material to those described therein. However, we will continue to control access to restricted areas until such time as License No. SMB-743 is terminated.

Prior to USNRC approval of the decommissioning plan, SMC will continue to implement all of the terms and conditions of License No. SMB-743. This includes the performance of routine surveillance and maintenance activities in restricted and unrestricted areas, as well as our on-going efforts to reduce the number and size of existing restricted areas. However, as required in 10 CFR §40.42(g)(4)(i), the pending decommissioning plan will include a description of the radiological conditions of the site that are current as of the date of submittal.

NMSS/Public

Please call me at (856) 692-4200, extension 226, if I can answer any questions, or provide you with additional information on this or other matters. We look forward to working with the USNRC and other stakeholders as we proceed toward a technically-sound, legally-defensible, timely and efficient end to our operations involving licensable radioactive materials.

Sincerely,

David R. Smith
Radiation Safety Officer

cc: Nigel C. Morrison - SMC
Fran Gilmartin - SMC
Eric Jackson, Metallurg
Ellen Harmon, Esq.- Metallurg
Jay Silberg, Esq. - Shaw Pittman
Carol D. Berger - IEM
Julie Olivier - USNRC Licensing Section 2
Michael Raddatz – USNRC Licensing Section 2
Marie Miller - USNRC Region 1

SHIELDALLOY METALLURGICAL CORPORATION
WEST BOULEVARD · P.O. BOX 768
NEWFIELD, NJ 08344

Mr. Theodore S. Sherr, Chief
Licensing and International Safeguards Branch
Division of Fuel Cycle Safety and Safeguards, NMSS
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

February 28, 2003

Docket No. 04007102 License No. SMB-743
Control No. 132074

David R. Smith
Environmental Manager
Shieldalloy Metallurgical Corporation
Aluminum Products & Powders Division
12 West Boulevard
P.O. Box 768
Newfield, NJ 08344-0768

SUBJECT: REJECTION OF DECOMMISSIONING PLAN FOR THE NEWFIELD FACILITY AND DENIAL OF THE EXEMPTION REQUEST TO POSTPONE INITIATION OF DECOMMISSIONING PROCESS, CONTROL NO. 132074

Dear Mr. Smith:

On August 30, 2002, Shieldalloy Metallurgical Corporation (SMC) submitted its Decommissioning Plan (DP) for the Newfield Facility. SMC then submitted a letter dated November 15, 2002, which requested an exemption that NRC staff defer taking action on SMC's DP, while the NRC is reviewing its regulations and related guidance for restricted use license termination. These two documents were discussed during the January 9, 2003 telephone conference with you, Carol Berger (your consultant), Marie Miller (of my staff) and me along with the need to resubmit your application for the timely renewal of your NRC license.

Results of our review of the aforementioned documents and of our telephone conversation are provided below:

Decommissioning Plan Acceptance Review

The NRC staff conducted an acceptance review of your DP using the guidance contained in NUREG-1757, Vol.1, Consolidated NMSS Decommissioning Guidance, and NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs. Based on this initial acceptance review, we determined that the DP does not contain sufficient information for us to continue a more detailed technical review. Additional information is required regarding such aspects of decommissioning as: your site-specific dose modeling, a quantitative site specific cost-benefit analysis to demonstrate that the proposed alternative is As Low As Reasonably Achievable (ALARA), specific institutional controls for restricted release, an agreement by a competent party to assume control of and responsibility for maintenance of the site, financial assurance, and advice from affected parties. This information is also needed to evaluate the adequacy of your Decommissioning Funding Plan as it relates to your DP.

We recommend that you develop a revised DP using the NRC staff's phased approach that would have you first focusing on resolving the deficiencies regarding institutional controls, financial assurance, engineering cell design concepts, and advice from affected parties with

D. Smith
Shieldalloy Metallurgical Corporation

respect to these issues, before revising the other portions of your DP. To facilitate your revision of the DP, we are enclosing the staff's preliminary comments on specific topics of your DP as identified in Enclosure 1. As a first step in this process, we suggest that you plan on meeting with us in March 2003, to discuss these deficiencies of your DP as submitted, as well as the phased approach. Based on this meeting, you should provide a schedule for submitting a revised DP.

Exemption Request

Regarding your exemption request, we find that you have not provided a sufficient basis for approval of your request. Although the NRC is reviewing its regulations and related guidance for restricted use, the 10 CFR Part 20 Subpart E, Radiological Criteria for License Termination and associated guidance documents remain applicable. While there could be changes, as with any regulation, the review process for a restricted release termination plan is lengthy and also dynamic. We need to balance the impact of possible changes against the need to prevent further delays to the decommissioning of the SMC Newfield site. We therefore are denying your exemption request. However, as discussed above, as you evaluate and develop your revised DP, we would be agreeable to having a technical meeting on issues associated with meeting the restricted release criteria or an alternative criteria and dose modeling.

Timely Renewal

The remaining licensing issue we discussed was our consideration of your submittal of the DP to be a renewal request. We require a license renewal application for the ongoing remediation activities being conducted under your extended license. Your application for renewal should address the current remediation activities, storage of license source material, and include your Final Status Survey Plan for the areas that you intend to request NRC to amend your license. We request that your application for timely renewal be submitted by April 30, 2003.

If you have any question regarding this matter, please contact Marie Miller of my staff at (610) 337-5205 or by e-mail at mtm1@nrc.gov. In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR) and will be accessible from the NRC Web site at http://www.nrc.gov/reading-rm.html.

Sincerely,

Original signed by Ronald R. Bellamy

Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

Enclosure:
1. NRC Staff Preliminary Comments on SMC Decommissioning Plan

D. Smith
Shieldalloy Metallurgical Corporation

cc w/enc.:
Jill Lipoti, Ph.D., Assistant Director, Radiation Protection Programs
Mark Winslow, Coordinator, RH&SP, U.S. EPA, Region 2
Loretta Williams, Resident, Newfield, NJ

D. Smith
Shieldalloy Metallurgical Corporation

Distribution w/enclosure:
K. Kalman, NMSS
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ENCLOSURE ONE

NRC STAFF PRELIMINARY COMMENTS
ON SHIELDALLOY DECOMMISSIONING PLAN

DOSE MODELING

Section 5.2.2 Assessment Methodology assumes that the "agricultural farm family" scenario is applicable. It also states that RESRAD Version 6.2 was used, and that it takes into account the potential uses of the site and potential migration of radioactive materials through the environment over time through both natural processes and human activities. Section 5.2.3 describes the input parameters, which were listed in Tables 17.6 -17.13. The following information is needed to assess the adequacy of the exposure scenario and the dose modeling:

1. The exposure scenario includes a situation in which the deed restrictions and prohibition of building a residence near the storage pile fail, yet the cover and shape of the capped pile remain intact. Please provide a justification for how the cell has been designed to withstand erosion and other activities or an exposure scenario should also be included that erodes the cap through natural and human activities if the institutional controls and site maintenance were to fail.

2. The exposure scenario as stated eliminated the direct exposure pathway by placing the house 20 feet away from the contaminated area, and estimated an exposure of less than 10 microrem per hour above background. Please provide the basis for selecting a distance of 20 feet. In addition, provide a basis as to why exposure to direct gamma radiation from other plausible scenarios should not be considered For example, the average member of the critical group could be the family farm member engaging in outdoor activities, such as tending to crops and livestock or recreational activities such as fishing in the on-site pond.

Please consider other exposure scenarios where there could be land activities on top of the engineered cell. For example, an exposure scenario to a worker providing maintenance on and near the cell, or an intruder scenario because of loss of institutional controls, resulting in an occupational re-use of the land over the cell. Comparison of the results for modeling these scenarios to the residential farming scenario should be included to demonstrate the reason for selecting the residential farming scenario as the bounding scenario.

3. An exposure scenario for other areas of the site where licensed materials were used is not addressed in the DP. The DP should address the dose contribution for the other portions of the site to meet the overall dose limits for the site.

4. The input parameters used in Shieldalloy's analysis are primarily the RESRAD default parameters. There was no sensitivity analysis to identify key parameters. Please provide the justification for the values used for key parameters for the Newfield site. Note that information determined based on past groundwater studies may be acceptable. NRC staff are available to discuss appropriate methods for performing sensitivity analyses.

5. The input parameters model an impermeable cover remaining intact and not affected by erosion or water runoff (water runoff coefficient to 100%). Yet, input parameters erode the contaminated slag pile over time. Provide or reference the basis for why the engineering cover

D. Smith
Shieldalloy Metallurgical Corporation

would remain in place. Also justify how the slag pile erodes with time, although the impermeable cover is not eroded.

6. The partition coefficients were changed based on a referenced source. Compare these K_d values to calculations of estimated travel times based on the uranium and thorium found in ground-water samples from wells near the existing slag piles. Also, explain the basis for inputting the ground water concentration as zero under the initial conditions.

DECOMMISSIONING ALTERNATIVES AND RATIONALE AND ALARA ANALYSIS

Section 6.2 states, in part, that the regulatory decision on the preferred decommissioning alternative for another facility with similar radioactive slag is equally applicable to the SMC's Newfield facility. However, site-specific factors and a thorough examination of other alternatives were not presented. Section 7 states that the estimated cost of off-site disposal was calculated to be approximately $102-112 million versus about $3.0 million for the on-site disposal options. Please elaborate on the other alternatives and explain the cost differences.

1. See 10 CFR 51.60 for the general requirements for a licensee's Environmental Report and NUREG-1748 for developing a site specific Environmental Report. SMC's report can reference other reports, as applicable, but must also describe site specific features that are different from the other referenced site where onsite disposal was considered an acceptable alternative. In particular, alternatives considered should address the summary of the impacts to the community, such as land use, property values, and environmental justice within a 4 mile radius of the center of the facility. Also, identify the potential impacts of the alternatives for the contaminated slag, soils and groundwater on the areas that are already impacted by the past hazardous chemical contamination, such as the ongoing groundwater treatment and offsite restricted well area.

2. Examine other conservative alternatives, such as offsite disposal to other facilities (compare cost factors per ton or cubic feet), and offsite disposal of the soils and bag-house dust and its impact of reduction on the source term. For example, leaching of thorium and uranium from the bag-house dust in comparison to the slag, and the cost-benefit of the action.

3. Develop and submit a site specific quantitative cost-benefit analysis to support the in-situ stabilization option as ALARA, since the chosen alternative is not the environmentally preferable alternative. The ALARA demonstration should be performed pursuant to Section 7 of NUREG-1727, NMSS Decommissioning Standard Review Plan.

RADIOACTIVE WASTE MANAGEMENT PROGRAM

Section 12.3 sates that no solid or liquid mixed wastes are expected to be generated during the decommissioning process. However, a soil remediation plan is under review by EPA. Please state whether any mixed waste could be generated from remediation of these soils in areas impacted or potentially impacted by NRC regulated source material.

D. Smith
Shieldalloy Metallurgical Corporation

FINANCIAL ASSURANCE

Section 15.1 states that costs of implementing this plan is $2,731,161 as shown in Table 17.14.

1. Please separate the cost of long term surveillance from the cost of site stabilization and cell construction.

2. The cost for site-stabilization and long term surveillance and maintenance of the cap, wildlife area and nature trails for 1000 years was estimated at $781,300. Please show the cost for long-term care on a yearly basis and the method used to determine the total estimate (refer to NRC guidance to calculate this amount) assuming a duration of 1000 years. Also explain the assumptions used regarding the potential for requiring major repair of the cell (see comments regarding maintenance of the site).

3. Describe the financial assurance mechanism provided by the licensee or responsible party for an independent third party to carry out the necessary control and maintenance activities.

4. Address whether costs for additional remediation/recovery actions related to being an EPA National Priorities List site are assumed to be secured with the existing irrevocable stand-by letter of credit.

INSTITUTIONAL CONTROLS (IC)

Section 16.2 provides a summary of the variety of institutional controls that will be implemented.

1. Explain how the proposal for the institutional controls are legally enforceable, such as the authority to enforce and manner in which controls will be enforced. In its DP, SMC proposed the use of a deed notice after license termination while it remains the owner of the site. NRC staff is concerned because a deed notice is not a legally enforceable type of institutional control. Furthermore, SMC did not address enforceability of the institutional controls after transfer of ownership to some other government entity. Such institutional control plans must be agreed to and documented in the revised DP.

2. Identify whether there is an agreement by an independent third party to assume control of and responsibility for the maintenance of the site. Residual contamination at the SMC site will consist of uranium and thorium, both long-lived radionuclides requiring “more stringent” IC according to the LTR SOC. Although SMC proposed eventually transferring their site ownership to some local or state government entity, the DP did not discuss the capability or willingness by any government entity to accept this responsibility in perpetuity. SMC must also address the willingness of entities to accept the funds to be provided and that they are sufficient for control and maintenance as well as resolving concerns over long-term liability due to potential engineered cell/cap repair after transfer of ownership. Therefore, SMC has not demonstrated that its proposal is feasible.

D. Smith
Shieldalloy Metallurgical Corporation

ENGINEERED BARRIERS

Section 8.3 of the DP describes a design concept for the engineered cell and cap, with steep slopes and small top to preclude the potential for building a residence on top of the cell in the future and therefore, precluding the resident farmer scenario. The cell design concept also includes the use of a geotextile layer to limit infiltration.

1. The DP states that the cell has been designed to meet New Jersey (see executive summary) and NRC (see Section 8.3.3) requirements, that it is designed to last 1000 years, and will prevent future erosion. However, specific guidance documents are not referenced. Please do so.

2. No basis is provided for the cell lasting 1000 years or preventing future erosion, especially with steep 3/1 slopes. Furthermore, no basis is provided that the geotextile layer will last 1000 years or the affect on performance if it fails.

3. There is no discussion that the cell and cap have been designed not to rely on maintenance or to preclude major cell failure and major repair or partial replacement over the 1000 year time period. Reference to NRC's Part 40 Appendix A engineered cell cap design guidance for designing disposal cells within the objectives to last 1000 years with no reliance on maintenance may be useful to consider.

The above deficiencies are key concepts for the dose modeling scenario assumptions as well as key assumptions underlying the financial assurance/funding estimate and potential long-term financial liability concerns related to potential engineered cell failure and repair costs.

MAINTENANCE OF SITE

Section 16.3 describes maintenance of the perimeter of the property and the entire Storage Yard. It also states that when all plant operations cease, SMC intends the area would convert to a wildlife sanctuary.

1. Describe any detriments associated with the maintenance of the institutional controls. For example, discuss the potential for vegetation growth or presence of hazardous wildlife that could prevent the completion of quarterly maintenance inspections or impact the engineered cell, i.e., burrowing by animals.

2. Describe maintenance expected for the engineered cap and nature trails after SMC transfers title of the property. Include a discussion of the potential for and the cost of major repair or partial replacement of the engineered cell cap should the cap fail. Note the relationship to the degree of design robustness. For example, more robust design would result in lower reliance on maintenance and greater certainty that the cell cap will not fail and need periodic major and costly repair. A less robust design may need greater funds set aside for periodic major repairs.

D. Smith
Shieldalloy Metallurgical Corporation

OBTAINING PUBLIC ADVICE

Section 16.4 states what public advice will be solicited and that it will establish a Restoration Advisory Board (RAB). It also stated that meetings of the RAB will be held each quarter during the planning and implementation phase.

1. Because SMC with its RAB most likely will develop the mechanisms for soliciting public advice from the local parties, please outline in more detail what actions are planned or will be taken to establish an RAB. As stated in Section 4, the RAB should be meeting during the planning phase to provide valuable input. NRC recommends that a site specific advisory board (SSAB) or other effective methods be selected as soon as practical after the licensee notifies NRC of its intention to decommission and terminate the license. See NUREG-1757, Vol 1, Section 17.8 for additional guidance.

2. Describe the administrative support and access to licensee studies and analysis pertinent to the proposed decommissioning for the SSAB. Describe how the summary of the results of all collective discussions and reports by the SSAB will be made publicly available.

3. Although SMC indicated general plans for future interactions to seek advice from affected parties, the DP did not include the results of interactions as required. The advice from affected parties should have been part of the input that SMC used to prepare its DP.

POLICY ISSUE
(Notation Vote)

May 2, 2003 SECY-03-0069

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations /RA/

SUBJECT: RESULTS OF THE LICENSE TERMINATION RULE ANALYSIS

PURPOSE:

To provide the Commission with the results of the staff's analysis of issues associated with implementing the U.S. Nuclear Regulatory Commission's (NRC's) License Termination Rule (LTR). These results include evaluations of relevant information, recommended options to resolve each issue, recommended regulatory actions, and a schedule and resource estimate for completing the actions.

SUMMARY:

This paper provides the results of the Commission-directed analysis of LTR issues, with particular emphasis on resolving the restricted release and alternate criteria issue. The staff also evaluated other issues dealing with the relationship of the LTR release limits to other release limits, realistic exposure scenarios, measures to prevent future legacy sites, and intentional mixing. The staff proposes a variety of actions to address these issues including: 1) a rulemaking for measures to prevent future legacy sites; 2) revised guidance to support the rulemaking and to clarify restricted release, on-site burials, and realistic exposure scenarios; 3) revised inspection procedures and enforcement policy to enhance monitoring, reporting, and remediation to prevent future legacy sites; and 4) a Regulatory Issue Summary (RIS) to inform a wide range of stakeholders about the LTR analysis of each issue, Commission direction, and

CONTACT: Robert L. Johnson, NMSS/DWM
(301) 415-7282

actions planned to resolve each issue. Finally, during the staff's briefing to the Commission on March 3, 2003, the Commissioners expressed an interest in the reactor decommissioning process and lessons learned implementing this process. The staff will provide this information to the Commission in the annual status report on the decommissioning program.

BACKGROUND:

The staff experience with the LTR has revealed some important implementation issues impacting the decommissioning of sites. The Commission directed the staff, in a June 18, 2002, Staff Requirements Memorandum, SECY-01-0194, to conduct an analysis of LTR issues, with particular emphasis on resolving the restricted release and institutional control issues and thus making the LTR provisions for restricted release and alternate criteria more available for licensee use. On October 1, 2002, the staff provided the Commission with an initial analysis that described the scope of each issue and the staff's plans for evaluation (SECY-02-0177).

DISCUSSION:

1. Evaluation Process

The staff conducted the planned evaluations for the eight issues identified in SECY-02-0177 and identified one new issue and associated plans for future evaluations. The issues evaluated in the nine attachments are:

- Restricted release/alternate criteria and institutional controls (Attachment 1)
- Relationship between LTR release limits and other release limits
  - Unimportant quantities under 10 CFR 40.13(a) (Attachment 2)
  - Appropriateness of developing a separate uranium/thorium unrestricted release standard (Attachment 3)
  - On-site disposal under 10 CFR 20.2002 (Attachment 4)
  - Controlling the disposition of solid materials (Attachment 5)
- Realistic exposure scenarios (Attachment 6)
- Measures to prevent future legacy sites
  - Changes to financial assurance (Attachment 7)
  - Changes to licensee operations (Attachment 8)
- Appropriateness of allowing intentional mixing (new issue) (Attachment 9)

The staff's evaluations considered a wide range of relevant information and experience from other NRC programs and regulations, as well as external sources, such as the U.S. Environmental Protection Agency (EPA); U.S. Department of Energy (DOE); Agreement States; and National Research Council reports. Similarly, extensive coordination among NRC staff was conducted to gain further information and perspective, as well as to identify interrelationships among the individual issues.

The staff's evaluations also identified options to resolve the issues, evaluated their pros and cons, and used these results to recommend specific options. The full range of regulatory tools to implement the options was considered, including: rulemaking; guidance; inspection procedures; enforcement guidance; and informational tools such as a RIS.

2. Summary of Evaluation Results

Results for three of the nine issues are summarized below. These three issues are summarized in view of recent heightened Commission interest on these important topics. Detailed results for each of the nine issues are given in Attachments 1-9, and a combined set of recommendations for all the issues is provided in Attachment 10. The potential applicability of these recommendations to the existing and future decommissioning sites is shown in Attachment 11. Attachment 11 indicates that the recommendations for realistic scenarios, financial assurance, and to some extent restricted release, have the potential to provide significant benefit to the implementation of the LTR issues.

a. Restricted Release/Alternate Criteria and Institutional Controls

Institutional control requirements that are necessary for the viability of both the restricted release and alternate criteria provisions of the LTR (i.e., 10 CFR 20.1403 and 1404, respectively) have been difficult for licensees to implement, particularly for those sites contaminated with long-lived radionuclides such as uranium and thorium. Although only a few sites are considering restricted release at this time, resolving this issue, so that the restricted release provision is more viable, may allow decommissioning progress at these few sites. At this time no sites are considering license termination using alternate criteria.

The staff evaluated information and experience from other NRC regulations, EPA, DOE, Agreement States, National Research Council reports, and an American Society for Testing Materials (ASTM) standard, to gain insights about how others are addressing this issue. Key insights from these evaluations include: 1) many organizations recognize the potential for eventual failure of institutional controls, particularly over the long term; 2) appropriately selecting, implementing, monitoring, and enforcing institutional controls will help minimize or mitigate the potential for failure of institutional controls; 3) in some cases, an ongoing Federal role is critical to assure long-term effectiveness of institutional controls; and 4) flexibility is needed to implement institutional controls that address site-specific characteristics.

The staff evaluated several options, including those directed by the Commission, and offer several recommendations. Recommendations are made to clarify the LTR's risk-informed and graded approach for institutional controls and clarify how existing options can be used more effectively over long time periods. In addition, new options are recommended to involve NRC in long-term oversight, either with a monitoring and, if necessary, an enforcing role after license

termination, or with a possession-only specific license for the time period restrictions are needed. However, it should be noted that at the time the LTR was promulgated, license termination was expected to have finality and that absent significant threats to public health and safety, NRC would no longer have an oversight role at a terminated site. The staff believes the recommended options can be implemented by revising the existing guidance and informing licensees and stakeholders with a RIS.

These recommendations should result in the following outcomes: 1) in the near-term, make the restricted release provision more viable and available for licensee use by providing new options and clarifying the risk-informed and flexible graded approach to select options; 2) provide more effective restrictions that protect the public health and safety over the long-term; 3) become more consistent with EPA's approach and recommendations of the National Research Council and the ASTM Standard; 4) should increase public confidence and acceptance of restricted use under the LTR; and 5) allow productive reuse of some sites. All these outcomes will enhance the decommissioning of existing licensed sites. Although they could also pertain to future licensees, the potential for future licensees needing restricted release should be reduced by the recommendations for other LTR issues, including measures to prevent future legacy sites, on-site disposals, and more realistic exposure scenarios.

b. Realistic Exposure Scenarios

Staff and licensee experience implementing the LTR has raised questions about perceived unnecessary conservatism in dose assessments. One significant source of potential conservatism is with selecting post-license termination land use scenarios. This issue focuses on how to select and justify land use scenarios for the 1000-year dose assessment time period for both the unrestricted release cases and restricted release (assuming failure of institutional controls) and whether more realistic scenarios can result.

The staff evaluated NRC's existing guidance, licensee and staff experience using this guidance, case studies that have resulted in selecting more realistic scenarios, and approaches used by EPA. Two options were evaluated to achieve more realistic scenarios. One was to improve the implementation of the current approach and guidance by training and sharing with licensees more realistic case studies. The other option was to allow justification of scenarios based on reasonably foreseeable future land use, as opposed to defaulting to very conservative scenarios such as the resident farmer. The staff recommends the option of using reasonable foreseeable land use. This option includes identifying reasonably foreseeable land use scenarios that are likely within the foreseeable future (e.g., the next few decades and to possibly 100 years), considering advice from land use planners and stakeholders. This option would also identify less likely, alternate scenarios to the reasonably foreseeable scenarios, to understand the robustness of the analysis. Compliance would be based on a range of reasonably foreseeable scenarios, but evaluating less likely alternate scenarios would provide information to reach a risk-informed decision. This option is consistent with the LTR critical group concept. Therefore, the staff recommends implementing this option using revised guidance, staff training, sharing the approach with licensees, and a RIS. The outcome of this recommendation would be a clearer approach and guidance to implement dose assessment exposure scenarios that are more realistic and risk-informed. Application of this approach might also result in fewer restricted release sites and less costly cleanup to unrestricted release levels.

c. Financial Assurance Measures to Prevent Future Legacy Sites

A number of sites licensed before the financial assurance regulations were issued in 1988 now find that the full cost of decommissioning exceeds their projections and fund balances. Furthermore, staff experience applying the financial assurance regulations has resulted in many lessons-learned that can be applied to improve the regulations and reduce the risks to decommissioning financial assurance. Based on this experience, the staff focused on specific risks that could cause shortfalls in decommissioning funding including: 1) restricted release assumption causes underestimation of decommissioning costs; 2) operational indicators of increasing costs; 3) unavailability of funds in bankruptcy; 4) inadequate financial disclosure; 5) reaching assets after corporate reorganization; 6) investment losses reducing trust account balances; and 7) increased decommissioning cost due to accidental release.

For each of these funding risks, the staff evaluated options and made recommendations for both existing and future licensees. To resolve the risk of underestimating decommissioning costs, the staff recommends requiring a licensee to obtain NRC approval of the decommissioning funding plan and prepare a cost estimate assuming unrestricted release, unless the licensee can demonstrate its ability to meet the restricted release requirements. The staff also recommends using a risk-informed approach to identify high-risk operational indicators (e.g., spills, groundwater contamination, and facility modification) and requiring updates to decommissioning cost estimates and financial assurance coverage. New requirements are recommended for additional certification of financial statements; holding parent company and subsidiaries liable for decommissioning costs by license conditions and/or agreements; and for licensees to perform periodic evaluations of the impact of investment losses on their trust fund balances and sufficiency of financial assurance coverage. A new rulemaking and implementing new guidance are recommended actions. The outcome of these recommendations should be to effectively reduce funding risks that could cause shortfalls in decommissioning funding, thus minimizing the potential for future legacy sites.

3. Recommended Implementation Actions

The following four actions would implement the recommendations in Attachment 10.

1) Rulemaking: Conduct a new rulemaking to examine adding and revising requirements for: a) financial assurance and b) licensee monitoring, reporting, and remediation to reduce the potential for future legacy sites. This single rulemaking would consider the specific recommendations in both Attachments 7 and 8 if conducting a rulemaking is approved by the Commission.

2) Guidance: Develop new guidance to implement the above rulemaking and revise existing guidance to address options for restricted release, on site disposal, and selecting realistic land use scenarios. Guidance development would include an opportunity for public comment.

3) Inspection and enforcement guidance: Revise the existing inspection and enforcement guidance to enhance monitoring, reporting, and remediation to prevent future legacy sites.

4) RIS: Prepare a RIS to inform a wide range of stakeholders about the LTR analysis of each issue, Commission direction, and planned actions.

4. Overall Outcomes Expected from Recommendations

SECY-02-0177 identified desired outcomes, or objectives, for each LTR issue to help guide the evaluations. As a follow-up, each of NRC's Strategic Plan performance goals was considered in conducting evaluations and making recommendations. Detailed outcomes relative to NRC's four performance goals are given in Attachment 12.

In summary, the outcomes of the staff's recommendations affect both existing decommissioning sites and future decommissioning sites. Existing decommissioning sites can be either licensees currently in decommissioning or formerly terminated NRC licensed sites where more cleanup is needed. Within this group are complex sites, including those with long-lived radionuclides (e.g., uranium and thorium), that have difficulty decommissioning, for a variety of financial, technical, or programmatic reasons. These sites can be thought of as NRC "legacy" sites–those sites where past operating or financial events have created the existing problems that must now be overcome, in some way, to conduct sufficient cleanup and ultimately complete decommissioning and license termination. The staff's recommendations are also prospective and based on lessons learned from the existing licensees. These recommendations will affect both currently operating licensees, who will decommission in the future, and new future licensees.

For existing decommissioning sites, particularly the complex sites with long-lived radionuclides, many recommendations should facilitate decommissioning by addressing key challenges these sites must address. Consistent use of more realistic exposure scenarios could result in more economical decommissioning, while maintaining safety. Furthermore, this recommendation could also result in fewer sites that might need to use the restricted release or alternate criteria. For those few sites, however, that might still need to use the restricted release or alternate criteria provisions of the LTR, viable options for restricting site use are recommended. A clarification also is recommended to improve the understanding of the risk-informed graded approach for selecting institutional controls and the flexibility this approach provides to licensees. This approach clarifies the use of more conventional institutional controls, such as deed restrictions, for lower-risk sites and durable institutional controls to enhance the effectiveness of institutional controls for higher-risk sites.

For future decommissioning sites, specific measures are recommended for financial assurance, licensee operations and reporting, and on-site disposal, that should reduce or mitigate the potential for future "legacy" sites. These measures should also reduce the need for using the restricted release or alternate criteria provisions of the LTR. Together, these outcomes contribute to the Commission's preference for license termination, with unrestricted release, which results in the greatest opportunity to return the site to productive use.

Finally, many of the recommendations simply clarify and address questions about the relationship between the LTR criteria and criteria in other NRC regulations such as the unimportant quantities limit in 10 CFR 40.13(a); onsite disposals in 10 CFR 20.2002; and the current case-by-case limit used for controlling the disposition of solids materials.

5. General Schedule for Recommended Implementing Actions

The general schedule for the recommended actions is given below and is based on the assumption, for planning purposes, that the Commission's decision and direction for LTR follow-up actions will be received by September 30, 2003.

Commission paper on mixing	9/30/03
New rulemaking to prevent future legacy sites	
Rulemaking Plan	9/30/04
Proposed Rule	9/30/06
Final Rule	9/30/07
New guidance (supporting new rule)	
Draft	9/30/06
Final	9/30/07
Revised Guidance	
Draft	9/30/05
Final	9/30/06
Revised inspection/enforcement guidance	9/30/05
RIS	3/30/04

RECOMMENDATIONS:

The staff recommends that the Commission approve the options and issue-specific implementation actions in Attachment 10.

RESOURCES:

The LTR analysis and recommended follow-up actions are currently unbudgeted, but resource estimates for the fiscal years (FY) 2004 to 2006 will be addressed using the Planning, Budgeting, and Performance Management process during the development of the FY 2005 budget.

Total resources estimates are given below in full-time equivalents (FTEs) and thousands of dollars ($K), and a resource breakdown given in Attachment 13.

FY 03:	1.0 FTE	$0K
FY 04:	1.0 FTE	$0K
FY 05:	3.0 FTE	$150K
FY 06:	2.0 FTE	$100K
FY 07:	1.0 FTE	$50K

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections. The staff plans on briefing the Advisory Committee on Nuclear Waste in May 2003.

/RA by Carl J. Paperiello Acting For/

William D. Travers
Executive Director
for Operations

Attachments:
1. "Results of Evaluations for the Restricted Release and Institutional Control Issue"
2. "Results of Evaluations for the Relationship between LTR Release Limits and the Unimportant Quantities Limit Under 10 CFR 40.13(a)"
3. "Results of Evaluations for Appropriateness of Developing a Separate Unrestricted Release Standard for Uranium and Thorium"
4. "Results of Evaluations for the Relationship between the LTR and On-Site Disposal under 10 CFR 20.2002"
5. "Results of Evaluations of the Relationship between the License Termination Rule and the Current Case-by-Case Approach for Controlling the Disposition of Solid Materials"
6. "Results of Evaluations for Realistic Exposure Scenarios"
7. "Results of Evaluations for Measures to Prevent Future Legacy Sites by Changes in Financial Assurance"
8. "Results of Evaluations for Measures to Prevent Future Legacy Sites by Changes in Licensee Operations"
9. "Planned Evaluations for Appropriateness of Allowing Intentional Mixing of Contaminated Soil under the License Termination Rule"
10. "Combined Set of Recommended Options and Implementation Actions for All Individual License Termination Rule Issues"
11. "Potential Applicability of License Termination Rule Issues to Existing Decommissioning Sites (SDMP, Complex, and Formerly Terminated Licensed Sites) and Future Decommissioning Sites"
12. "Major Outcomes of License Termination Rule Recommendations with Respect to NRC's Four Performance Goals"
13. "Breakdown of Resource Estimates for Recommended License Termination Rule Analysis Implementation Actions"

RESULTS OF EVALUATIONS FOR
THE RESTRICTED RELEASE AND INSTITUTIONAL CONTROL ISSUE

1. BACKGROUND

The staff provided background and an initial analysis of the restricted release issue in SECY-02-0177. The issue was defined and planned evaluations were identified. This attachment provides the results of the staff's evaluations.

2. ISSUE DESCRIPTIONS AND DESIRED OUTCOMES

2.1 Issue: U. S. Nuclear Regulatory Commission (NRC) licensees have difficulties arranging the institutional controls required by the restricted release and alternate criteria provisions of the License Termination Rule (LTR) that ensure long-term effectiveness. Subissues include:

1) Government and Tribes are unwilling to accept transfer of ownership of private sites, because of long-term liability and funding concerns (e.g., potential future additional cleanup, potential failure of engineered barriers, and the ability to obtain funds given to the U. S. Treasury for future custodial activities).

2) Lack of identifying independent third parties to ensure long-term effectiveness of institutional controls and, if needed, to provide control and maintenance if the current owner/licensee abandons the site, goes bankrupt, or if a subsequent owner does not provide control and maintenance. Also, there is a concern over long-term continuity of an independent third party.

3) Difficulties establishing legally enforceable institutional controls involving various types of "deed restrictions" that ensure effectiveness over long periods of time and if property ownership changes.

4) Unclear and perceived limited flexibility of the existing LTR risk-informed, graded approach to institutional control requirements for providing degrees of effectiveness based on dose levels and radionuclide half-life. This includes the meaning of "enforceable" and the threshold for needing "durable" controls, as well as use of engineered barriers, role of independent third party, and degree of public involvement.

5) Selecting realistic exposure scenarios that appropriately consider institutional control effectiveness and radiological hazard. Note that this issue is addressed under the realistic exposure scenario issue in Attachment 6.

The above issues pertain to both the restricted release provisions in 10 CFR 20.1403 and the alternate criteria in 10 CFR 20. 1404. One of the required conditions under 10 CFR 20.1404, is that a licensee "Has employed to the extent practical restrictions on site use according to the provisions of 10 CFR 20.1403 in minimizing exposures at the site."

Attachment 1

Resolves the institutional control long-term reliability issues by NRC monitoring and taking action to reimplement institutional controls if necessary over time.

A somewhat similar approach was approved by the Commission for the Western Nuclear Inc. site, where authority could be written into institutional controls for DOE to monitor and enforce controls on the private property adjacent to the site.

Cons:

The "Statement of Considerations" did not envision a periodic monitoring role for the NRC after license termination. However, there is nothing in the LTR that precludes it, provided that licenseable material remains at the site.

This has never been implemented by NRC or legally tested.

Annual reporting and fees may be difficult to secure from future owners.

If a system is needed to monitor terminated sites because of the potential impact on public health and safety, one could argue that the site is not appropriate for license termination. Rather, a possession-only license may be more appropriate.

The deed restriction is dependent on the law of the site's jurisdiction and may not be viable in all states.

Although NRC costs could be minimal for monitoring simple sites with institutional controls, increased costs could be needed if NRC must take some corrective action.

Funds received annually from the owner for NRC activities, or received as a single payment, would go to the U.S. Treasury, and NRC would need to recover these funds through the appropriation process (similar to UMTRCA sites making a payment to the U.S. Treasury)

4.2.2 Add a new option for restricting use by an NRC possession-only specific license after completion of remediation.

This option would involve amending the existing specific license for decommissioning to a possession-only specific license, after completing remediation and after LTR dose criteria are met. For such sites, the possession-only license acts as an institutional control to maintain the restrictions necessary to meet the LTR criteria.

For this option, all the requirements of 10 CFR 20.1403, other than institutional controls, would be required, including the public participation provisions and financial assurance. Financial assurance would, for this case, be based on a cost estimate for NRC monitoring and inspection fees, and any maintenance costs.

New license conditions for land use restrictions, monitoring, maintenance, reporting, and financial assurance would be specified in the possession-only license. A Long-Term Care Plan implemented under the possession-only license could provide the detailed plans for restrictions,

monitoring, reporting, and maintenance similar to the Long-Term Surveillance Plans under 10 CFR Part 40, Appendix A. The possession-only license is the type of institutional control, similar to EPA's orders or permits, that provide the necessary restrictions on access or future land use. NRC would monitor, inspect, and enforce under the license authority.

If site ownership changes in the future, the possession-only license would need to be transferred before ownership passes. Therefore, an independent third party is not needed. However, a standby trust would need to be established, similar to what has been done for some uranium mill tailings sites under Part 40, Appendix A, because of the potential for the licensee to go bankrupt or out of business. If this occurs, NRC would activate the standby trust and select a trustee to continue the site monitoring and maintenance that had been done by the owner/licensee, using funds from the financial assurance instrument.

At the end of the period of restricted site use, the possession-only license could be terminated; however, for long-lived radionuclides, the license would likely be permanent, but periodically renewable (e.g., every five years). The Timeliness Rule has been met with completion of remediation and compliance with the LTR dose criteria.

This option could be used for any restricted release site that is unable to establish acceptable institutional controls using other available options.

No rulemaking is needed to implement this option; it can be implemented with revisions to existing guidance for decommissioning and use of possession-only license. Environmental reviews, which may include an environmental impact statement, would need to be done for the license amendment establishing the possession-only license. An opportunity for a hearing would be provided as part of the amendment process.

Pros:

This option addresses the concern of some that the Federal government, which allowed a site to be contaminated through its license authorization and termination actions, should not leave long-term protection up to other parties.

Provides viable and immediately available option that could be selected by licensees currently preparing their decommissioning plans and thereby avoid potential delays.

Provides licensees with the ultimate solution to the LTR requirement for legally enforceable institutional controls or durable institutional controls if no other acceptable options are available. This option would resolve all restricted release issues.

This is the most effective monitoring and enforcement tool available to NRC for short- or long- term use that NRC knows how to use. Avoids the legal complexity and uncertainty of establishing enforceable institutional controls that will be effective over long-time periods.

Gives flexibility for other solutions for restricted use to evolve and possibly become available in the future, such as DOE ownership under NWPA 151(b) or the Guardian Trust Pilot for an independent third party.

No rulemaking needed to implement; can implement with revisions to existing guidance for decommissioning and use of possession-only license.

NRC's licensing oversight of the few complex decommissioning sites could be combined with the existing NRC oversight of over 20 uranium recovery sites required by UMTRCA. Thus, there is an existing statutory NRC mission and well-established program to provide regulatory oversight in perpetuity for as many as 40 sites that are very similar to the complex decommissioning sites and would require about the same type of monitoring.

Similar to EPA , State of Ohio, and NRC, under UMTRCA/Part 40 Appendix approaches, for a government entity to remain in an oversight role to ensure long-term effectiveness of institutional controls.

This approach should increase public confidence because this option would be more protective of future generations because of continuous Federal government involvement. This approach is also consistent with EPA's approach to continued oversight.

Staff and Commission reviewed and found the Ohio possession-only license approach more stringent than the LTR, but because this approach did not create a significant regulatory conflict, it was determined to be compatible with NRC's program.

Most cost effective option for a few sites.

Low-cost NRC monitoring that could use an annual letter of certification or registration.

NRC resources would be fee recoverable from the licensee.

Cons:

Concerns could be raised about lack of finality and departure from the LTR goal of license termination and no further NRC role. However, this approach may be only needed for rare cases to resolve existing decommissioning sites. Furthermore, it should not be a precedent for future sites because many of the staff's other recommendations in this paper will minimize future legacy sites that might need restricted release.

NRC licensing oversight for some sites could be permanent because the current sites considering restricted release are sites with uranium and thorium contamination. Although this NRC role was not envisioned under the LTR, it is similar to the existing statutory role under UMTRCA for permanent NRC oversight of DOE's long-term stewardship of Title I and II uranium recovery sites. Therefore, such a permanent oversight role for long-term stewardship is not a new role for NRC, as an agency.

A licensee could object to concept and fees over the long-term, including the license "stigma". On the other hand, this option would only be used if the licensee selected it because it was unable to arrange other institutional controls or third party oversight under the LTR.

4.2.3 Add a new option for restricting use by an NRC general license after completion of remediation.

This option would involve terminating the existing specific license after completing remediation and after LTR dose criteria are met and issuing a new general license for long-term care. The Commission directed the staff to evaluate a general license option. The general license would be a type of institutional control, similar to EPA's orders or permits, that provides the necessary restrictions on future use. Required environmental reviews, advice from affected parties, and financial assurance would continue.

This option could be used for sites with a higher hazard (above 100 mrem/yr dose cap), longer duration (e.g., long-lived radionuclides such as uranium or thorium sites), or if a site cannot establish other types of acceptable institutional controls.

A Long-Term Care Plan implemented under the general license could provide the site-specific conditions for restrictions, monitoring, and maintenance similar to the Long-Term Surveillance Plans under 10 CFR Part 40, Appendix A. Reporting requirements could also be included in the general license, such as a periodic registration process; an annual report similar to the current approach used under 10 CFR Part 40, Appendix A, for uranium recovery sites; or an annual letter certifying effectiveness of restrictions and results of monitoring and maintenance. However, unlike the 10 CFR Part 40, Appendix A approach, where the general licensee will only be the Federal government, the general licensee for this option will be private entities who might change over time and may not understand that they are a licensee.

A rulemaking would be needed to establish a new general license program and fee category.

Pros:

Except for the cost of rulemaking and the associated time to complete the rule, this option has the same pros as the possession-only specific license.

Cost of NRC monitoring would be fee-recoverable from the licensee thru a new fee category.

Cons:

No advantage over the possession-only license option.

Requires new rulemaking to establish the general license program and fee category.

The time need to complete a new rulemaking (2-3 years) would further delay the decommissioning schedules for some licensees that are currently preparing their decommissioning plans and seeking viable options for institutional controls.

Rulemaking would not be cost-effective for a few sites.

It is not clear that NRC could require prior approvals of a change in ownership under the general license.

4.2.4 Continue to monitor the DOE long-term stewardship program changes and reevaluate the potential for restricting use through future site transfers to DOE under NWPA 151(b).

Revised DOE policy and program changes have been recently settled by including the new Office of Legacy Management in the President's budget for Congressional approval. Therefore, continued NRC monitoring both at the staff and senior management level may be useful to determine if and when NRC might again discuss potential transfer of a few sites to DOE under NWPA Section 151(b). NRC could also be supportive of DOE's new office in communications with Congress.

Pros:

DOE has unique and extensive stewardship capability for as many as 200 future sites, that will require a mission and supporting infrastructure to last in perpetuity. Thus, DOE ownership continues to be a highly effective Federal solution that would resolve the institutional control and third party issues.

Transfer of privately owned sites to DOE is already authorized under NWPA Section 151(b) and could provide another viable option for durable institutional controls, if DOE agrees.

Under the expanded and enhanced long-term commitment to long-term stewardship by DOE's new Office of Legacy Management, there might be an opportunity to reconsider, at an appropriate time, transfer of NRC licensed sites to DOE.

Cons:

There is uncertainty in Congressional approval of DOE's new office.

There is continued uncertainty about DOE's willingness to accept NRC licensed sites.

4.2.3 Remove dose cap requirements for sites with Federal ownership or control.

For sites that could be Federally owned or under Federal control, including NRC licensing, do not assume failure of the Federal government, and therefore, the dose cap requirements of the LTR assuming failure of institutional controls would not apply.

Pros:

Could make restricted release more available for a site that could not meet the 500 mrem/yr dose cap.

Could result in less cleanup and lower cost to licensee.

Similar to EPA's approach, which does not assume failure of institutional controls, because of its overall approach to effectiveness, including EPA's ongoing role to conduct Five-Year Reviews (see section 3.1).

Cons:

Would require rulemaking to change, or an exemption.

Likely would reduce public confidence because of removing an existing LTR dose requirement and the appearance of becoming less protective of future generations.

Removes the dose cap, which is the tool currently used to implement the risk-informed and graded approach to institutional controls.

Reduces long-term protection of future generations by removing the dose caps , which limits the dose consequences should the Federal government controls fail.

5. RECOMMENDATIONS

The recommended options and recommended implementation actions to resolve this issue are provided below.

1.1 Clarify the existing risk-informed, graded approach for restricting use. Implement with revised guidance and a RIS.

1.2 Emphasize the availability of the option of restricting use with layered and redundant institutional controls together with an independent third party that is also responsible for one of the institutional controls. Implement with revised guidance and a RIS.

1.3 Add a new option for restricting use by NRC monitoring and enforcement of institutional controls after license termination using either the regulation or legal agreement. Implement with revised guidance (that includes a model restrictive covenant) and a RIS.

1.4 Add a new option for restricting use by an NRC possession-only specific license. Implement with revised guidance and a RIS.
Note that the staff plans on continuing to monitor DOE's Long Term Stewardship Program changes and reevaluate the potential for restricting use through future site transfers to DOE under NWPA 151(b).

Note that the staff plans on continuing to monitor and participate, where beneficial to the staff, with cooperative, interagency activities to share information and develop solution to long-term stewardship/institutional controls issues (e.g., ECOS Long-Term Stewardship Subcommittee, DOE Long-Term Stewardship Roadmap development).

Note that the staff will continue to explore with licensees the use of the recommended approaches for restricted release, pending the Commission's deliberations. The staff will inform the Commission if a licensee is willing to adopt any of these approaches. In addition, if the Commission approves one or more of the options, the staff will seek to implement the option(s) in advance of the RIS and guidance if it will further the decommissioning process.

November 17, 2003

MEMORANDUM TO: William D. Travers
Executive Director for Operations

FROM: Annette L. Vietti-Cook, Secretary **/RA/**

SUBJECT: STAFF REQUIREMENTS - SECY-03-0069 - RESULTS OF THE LICENSE TERMINATION RULE ANALYSIS

The Commission has approved the options and issue-specific implementation actions identified in SECY-03-0069 subject to the comments provided below.

1. The Commission has approved the staff's recommendations for restricted release and institutional control as described in attachment 1. The staff should gather comments on the recommended actions from the public, Agreement States, licensees and any other interested stakeholders and share the results with the Commission before issuing final guidance.

2. The Commission has approved the staff's recommendations for on-site disposal under 10 CFR 20.2002 as described in attachment 4. The guidance should be published in a Regulatory Issue Summary in such a manner that allows for public input and comment. Also, the staff should add a third option to allow that if the material to be disposed on site is mainly short lived activity which will significantly decay in a few years, then the staff could approve on-site disposal with a maximum dose rate of 25 mrem/year without requiring additional financial assurance for license termination so long as the likelihood of creating a legacy site is low. For example, this option would assume that license termination is not imminent.

3. The Commission has approved the staff's recommendation for controlling the disposition of solid materials as described in attachment 5 and the resources applied to the development of the proposed Regulatory Issues Summary should be constrained. When developing the Regulatory Issue Summary to address this recommendation, the staff will need to provide some additional detail, not contained in the paper, which describes the conservatism in the license termination analysis related to off-site release of the material after license termination and how it may be possible to reduce some of the conservatism and still retain adequate assurance of protection of public health and safety with the unrestricted release of the material.

4. The Commission has approved the staff's recommendation for use of realistic exposure scenarios as described in attachment 6.

5. The Commission has approved the staff's recommendations for changes in financial assurance as described in attachment 7. Changes in financial assurance requirements

must be carefully coordinated among NRR, NMSS, and OGC to ensure there are consistent standards being applied across the Agency. The staff should develop options for existing licensees to develop a decommissioning funding plan based on restricted release only if they can reasonably demonstrate that restricted release is viable for the site. For new licensees, the preferred decommissioning plan should be for unrestricted release but the final regulations should allow for the potential of restricted release in the event of unusual circumstances (i.e., a major incident resulting in a significant environmental impact) or a determination that the facility is needed in the national interest. With respect to the unavailability of funds in bankruptcy where financial assurance is provided by a parent company or through self-guarantee, the staff will need to document more than just a general concern to justify significant regulatory changes in this area. Any regulatory change to address investment loss in trust account balances must be carefully worded so that it focuses on long-term market changes and not short-term changes or seasonal adjustments. Public comments in this area will be important to properly focus the regulation so that it does not cause unnecessary recalculations of funds needed for decommissioning but will trigger action when appropriate.

6. The Commission has not objected to the staff developing a proposed rule related to property damage coverage for accidental release and publishing it for public comment, but the Commission intends to reserve final judgement on this issue until after review of the public comments.

7. The Commission has approved the staff's recommendation related to changes in licensee operations as described in attachment 8. However, in addition to incorporating risk-informed approaches, the staff should ensure that they are performance-based. The staff will have to be very careful when crafting the guidance documents so that it is clear to the licensees and to the staff how much characterization information is enough. The staff should only ask for limited information. Licensees should not be required to submit the equivalent of a full scale MARSSIM survey every year.

cc: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield
OGC
CFO
OCA
OIG
OPA
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)
PDR

April 15, 2004

**NRC STAFF INTERIM GUIDANCE FOR A
LONG-TERM CONTROL POSSESSION ONLY LICENSE AT THE
SHIELDALLOY NEWFIELD SITE, NEW JERSEY**

INTRODUCTION AND BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC) staff recommended to the Commission in SECY-03-0069 the possession-only specific license for long-term control as one option for resolving the License Termination Rule (LTR) institutional control issue at sites where restricted use or alternate criteria could be used. This new type of possession-only license is referred to in this guidance as a long-term control (LTC) license to clearly distinguish it from the NRC's existing possession only licenses for storage. Attachment 1 of SECY-03-0069 provides a description and evaluation of the staff's recommended option of possession-only license for long-term control. On November 17, 2003, the Commission approved this LTR recommendation (SRM-SECY-03-0069).

The staff also noted in SECY-03-0069 that it would continue to work with licensees who expressed an interest in the LTC license and would inform the Commission of the licensee's interest. Following discussions with the staff, Shieldalloy Metallurgical Corporation (SMC) informed the staff that it has decided to use the LTC license and will prepare a revised decommissioning plan to incorporate this approach. The Commission has been informed of SMC's intent to use the LTC license.

The purpose of this "interim" guidance is to provide SMC with: 1) a discussion of key concepts of the new LTC license option and 2) specific guidance for preparing sections of the decommissioning plan related to the LTC license. This interim guidance is based on both existing guidance in the NMSS Consolidated Decommissioning Guidance (NUREG-1757), additional details for the LTC license based on Attachment 1 of SECY-03-0069, and the Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites under Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (NUREG-1620, Rev. 1). The staff expects that lessons learned from this project will be useful for eventually preparing draft regulatory guidance for public comment as approved by the Commission in SRM-SECY-03-0069. The draft guidance would be finalized as a revision to the NMSS Consolidated Decommissioning Guidance in NUREG-1757.

Enclosure

KEY CONCEPTS

Purpose of LTC License

The primary purpose of NRC's LTC license is to provide the legally enforceable and durable institutional controls required by 10 CFR 20.1403(b) to ensure the long-term protection of the public health, safety, and the environment.

The conditions written in the LTC license would specify the necessary controls to limit site access and land use that the licensee must monitor and maintain and that NRC would inspect and enforce, if necessary. The LTC license would also specify other required long-term control activities to be conducted by the licensee such as surveillance, maintenance, reporting, records retention, and stakeholder involvement (see guidance below). Detailed plans to implement the LTC license conditions would be given in a Long-Term Control and Maintenance Plan that the licensee would prepare and NRC would approve during decommissioning and before the LTC license is put in place.

Roles and Responsibilities

The licensee has the primary responsibility for long-term protection of the public health, safety, and the environment by implementing and then maintaining the effectiveness of the controls required by the LTC license. The licensee would maintain the required site access and land use controls, as well as engineered barriers, using periodic surveillance, maintenance, and monitoring, if needed. The licensee would also provide annual reports to NRC, the State, and local governments. Finally, licensing records would be maintained by the licensee.

NRC is responsible for assuring that the licensee's controls and maintenance remain effective by conducting oversight reviews, making periodic inspections, conducting five-year license renewals, issuing a new LTC license when ownership changes in the future, enforcing the license, if needed, and maintaining licensing records for the duration of the LTC license.

Oversight reviews could include reviewing licensee annual reports and other reports (e.g., corrective action reports or requests for NRC approval of the sale of the site) and obtaining advice from stakeholders. NRC's inspection role might include an annual inspection for the first five years and then once every five years thereafter as part of the license renewal process. Periodic inspections might also be needed to address specific adverse events, allegations, and licensee corrective actions. NRC inspections could involve seeking advice and information from stakeholders. A license renewal process would also be conducted every five years, considering licensee reports, NRC inspections, and stakeholder advice. License renewal is a regulatory mechanism to evaluate the sustainability of the LTC license over the long term including: effectiveness of site access and land use controls, licensee performance, new site information, and sufficiency of funding. These evaluations could result in revised license conditions necessary to ensure long-term effectiveness of controls. Enforcement actions may be taken if the conditions of the license are not met.

Stakeholders have a role under the LTR during the licensee's preparation of the decommissioning plan for a restricted use site. For these sites, the licensee is required by 10 CFR 20.1403 (d) to seek advice from such affected parties regarding a number of matters,

including the plans for enforceable institutional controls, sufficient financial assurance, and undue burdens on the local community or other affected parties. The licensee shall document in the decommissioning plan how the advice was sought and incorporated, as appropriate, following analysis of that advice. Similarly, under 10 CFR 20.1405, NRC shall notify and solicit comments from affected parties upon receipt of the decommissioning plan.

In addition to the State and EPA, some other stakeholders may have an ongoing interest in the site after decommissioning has been completed and the LTC license is in place. From time to time, it might be appropriate to schedule public meetings, such as during the five-year license renewal process, to obtain information about the site and to maintain a local awareness of the site and the restrictions on site access and use.

Requirements for Licensees Proposing Restricted Use with the LTC License. The decommissioning goal for a site proposing the LTC license is the same as any other decommissioning site proposing restricted use--safe site decommissioning that complies with the LTR. However, for such sites, the license is not terminated after remediation, it is only amended to become an LTC license. Nevertheless, a licensee proposing to use the LTC license needs to comply with all the criteria of 10 CFR 20.1403, even though the license will not be terminated. These restricted use requirements for licensees are:

10 CFR 1403(a): Eligibility for restricted use (ALARA or public/environmental harm)

10 CFR 1403(b): Legally enforceable institutional controls and 25mrem/yr dose criterion

10 CFR 1403(c): Sufficient financial assurance for control and maintenance

10 CFR 1403(d): Submit a decommissioning plan or a license termination plan for restricted use and include how advice from affected parties has been sought and incorporated

10 CFR 1403(e): 100 and 500 mrem/yr dose “cap” requirements if institutional controls were no longer in effect

However, the institutional control requirements would be met with the LTC license conditions.

In addition, because the NRC license would be amended and not terminated, other NRC requirements for NRC licensees would continue, such as record keeping.

Eligibility for Restricted Release and the LTR License Option

In the Statements of Consideration for the LTR, the Commission noted that it allows restricted use as an appropriate method of decommissioning while maintaining the philosophy that “... in general, termination of a license for unrestricted use is preferable because it requires no additional precautions or limitations on use of the site after licensing control ceases, in particular for those sites with long-lived nuclides.”

As a result, sites considering restricted use must first comply with the existing “eligibility” requirements of 10 CFR 20.1403(a) that further reductions in residual radioactivity to comply

with unrestricted use criteria would result in net public or environmental harm or are not being made because the levels associated with restrictions are as low as reasonably achievable (ALARA).

In addition, consistent with SECY-03-0069, the use of the LTC license option would be an acceptable option if:

a. Durable institutional controls are required because the site is considered higher risk under the staff's graded approach to institutional controls in SECY-03-0069 (see below), and

b. The licensee can demonstrate to NRC satisfaction, that it was unable to establish other types of acceptable institutional controls and independent third party arrangements (e.g., letter from the State rejecting responsibility for ownership, control, or independent third party oversight).

Maintaining Ownership of the Site and Minimizing the Size of the Restricted Area

The LTC license approach for SMC would maintain the current license boundaries with restrictions on access and use for selected portions of the site as necessary to meet restricted use criteria. Other portions of the site could have no restrictions on access and use and could be used for industrial applications consistent with local zoning constraints. The only restriction on these portions of the site would be to: 1) conduct confirmatory groundwater monitoring and 2) prohibit the sale separately from the restricted use portion containing the residual contamination. Maintaining ownership of the complete site will help ensure confirmatory monitoring over the long-term. It will also help ensure sustainability of owner/licensee controls , and thus protection of public health and safety, over the long-term.

The staff considers that minimizing the size of the restricted use area would contribute to demonstrating ALARA. It would also result in a smaller area to control, which may make access limitations like fencing and surveillance simpler and more effective as compared to a much larger area.

Risk-Informed, Graded Approach to Institutional Controls.

Using the NRC LTC license is a way to provide the enforceable "durable" institutional controls required under 10 CFR 20.1403 (e), if needed, because a Federal regulatory entity provides the long-term oversight and enforcement. Generally, durable institutional controls are justified under the staff's risk-informed, graded approach recommended in the LTR Analysis if the site is considered a higher risk site due to either: 1) the longer hazard duration from the long-lived radionuclides (uranium and thorium) in the residual contamination or 2) a calculated dose above 100 mrem/yr when assuming no institutional controls.

For the SMC site, durable institutional controls would be necessary, at least, because of the long hazard duration (long-lived, uranium and thorium contamination). The hazard level will be determined by the calculated dose assuming no institutional controls and will complete the understanding of total risk at the site. This hazard level will help tailor the stringency of the

controls specified in the LTC license and NRC's oversight actions. Additional tailoring could be based on how controls and engineered barriers might fail and
site conditions.

Flexibility for Potential Reuse of Material

The time period for the LTC license can be flexible. The LTC license is not necessarily permanent, but would be as long as needed to protect public health and safety and the environment based the half life of the nuclides and other factors. For example, at the SMC site, if reuse of the slag becomes viable, the licensee could submit a license amendment request and decommissioning plan for NRC approval. After NRC approval and license amendment for decommissioning, the material could be removed for reuse and the decommissioning license terminated with unrestricted release. Thus, potential reuse would not be precluded by the LTC license.

Transfer of control/ownership and deed notice.

Transfers of site ownership are expected over the long-term, and the new owner(s) will need to become the licensee and provide the controls as specified in the conditions of the LTC license. Thus, the required control and maintenance under the LTC license would continue to be effective over the long-term even when ownership transfers as a condition of the license. The licensee must notify NRC of a potential sale and obtain NRC prior approval of the new owner by amending the license prior to the effective date of the sale of the licensed property. The prospective owner must become an NRC licensee effective at the time of the sale. The licensee also must establish and maintain/re-record a deed notice, approved by NRC, as a condition of the license. This will provide additional assurance that potential future owners will be informed that an NRC LTC license is required as well as the conditions of the license.

Sufficient Financial Assurance and Trust.

The licensee must establish a trust and place sufficient funds into it to produce annual income that is sufficient to cover the (1) annual average costs of licensee surveillance, control, radiological monitoring of surface and groundwater if needed, and routine maintenance, (2) NRC oversight costs, and (3) trustee fees and expenses. The licensee should assume 1 % return on investment (consistent with 10 CFR Part 40, Appendix A). The NRC would be the beneficiary of the trust. The licensee would request, and the trustee would pay, in accordance with the instrument, for the costs of surveillance, control, maintenance, and NRC oversight costs, most likely on an annual basis. Because the fund would produce income sufficient to hire a contractor to perform the surveillance and control tasks, the licensee could hire a contractor to perform the duties, and be reimbursed for the full cost, rather than performing the work itself.

In the event the licensee does not perform its duties, NRC could take enforcement action, as necessary, to ensure that control activities are maintained. Alternatively, the trustee could be directed by NRC to provide funds to a contractor to work on behalf of the licensee. NRC could seek a court to appoint a custodial trustee to continue the long-term control activities using funds from the trust in the event that no licensee exists.

NRC Fees for LTC Oversight Activities

No annual fees (10 CFR Part 171) are required for the LTC license. However, fees for NRC services would be recovered (10 CFR Part 170). Therefore, the licensee would be charged for NRC activities during the year, expected to be review of one annual report, annual inspections during the first five years, license renewal activities every five years, enforcement actions if needed, and responses to events and licensee corrective actions as needed. For initial planning purposes at the SMC site, the licensee should assume an NRC fee of $10,000 for one report review and one inspection each year. Also assume a fee of $20,000 once every five years for the five-year license renewal, expanded inspection, and report review.

Engineered Barriers

If engineered barriers (e.g., disposal cell and cover) are used, their contribution to compliance should be evaluated as well as their ability to remain effective over the 1000 year compliance time period such that the applicable dose criteria with and without institutional controls are met. Although the licensee will conduct surveillance and routine maintenance of the site (e.g., fence or sign repair), ongoing active maintenance and repair of the engineered barrier should not be relied upon to maintain the effectiveness of the engineered barrier under the LTC license conditions. Consistent with this approach, NRC's guidance in NUREG-1757, Vol 2. Section 3.5, encourages licensees to design robust engineered barriers to mitigate potential future failures, simplify long-term control and minimize the extent of routine maintenance and associated costs, especially for long-lived radionuclides. The design needs to take into account the potential for barrier degradation over time.

The staff's preferred approach is for licensees to design a robust engineered barrier with an erosion control cover that is consistent with the NRC's guidance entitled Design of Erosion Protection for Long-Term Stabilization in NUREG-1623 and section 3.4, Design of Erosion Protection, in NUREG-1620, Rev. 1. Although NUREG-1623 was developed initially for use at uranium mill tailings sites, Section 1, Introduction on page 1 of NUREG-1623 indicates that the guidance can be applied to other sites as well, including decommissioning sites (e.g., Site Decommissioning Management Plan sites). This guidance contains specific criteria to meet the 1,000-year longevity requirement without the use of active maintenance. Although this requirement pertains to uranium mill tailings sites, and there is not a similar requirement under 10 CFR 20.1403 for decommissioning sites, NRC prefers this approach because it is the simplest and most effective way to demonstrate long-term erosion protection with no reliance on ongoing active maintenance. Furthermore, this approach has a well documented technical basis for acceptable methods to achieve long-term protection and over a decade of design, construction, and oversight experience.

Dose Assessments.

Dose assessments for restricted use sites must have doses calculated for two cases: 1) with the controls assumed to be in place and 2) assuming institutional controls are not in effect. This also applies to a site when an LTC license is proposed. In conducting dose assessments, the licensee should identify more realistic exposure scenarios assuming past, present, and reasonably foreseeable (i.e., a few decades and possibly up to 100 years) land use as described in Attachment 6 of SECY-03-0069 and approved by the Commission. No

institutional controls also assumes no maintenance and no repair of engineered barriers, if used, and, as a result, how the engineered barrier might degrade over time, for example, due to erosion or biointrusion.

If SMC proposes that a portion of its site should be unrestricted use, then the total dose from all portions of the site must meet the applicable dose criteria. Therefore, dose assessments for both restricted and unrestricted use portions of the site must also take into consideration the impact of the other portion of the site--impacts of the restricted use portion on the unrestricted use portion (e.g., the potential for future contaminated groundwater to migrate into the unrestricted area) and impacts of the unrestricted portion on the restricted use portion.

Finality of Decommissioning Decisions

NRC recognizes the importance of the finality of its decommissioning decisions. Under 10 CFR 20. 1401(c), the Commission could require additional cleanup in the future only if based on new information, it determines that the criteria in the LTR were not met and residual activity remaining at the site could result in significant threat to public health and safety. This requirement also would apply to a site with the LTC license and may be particularly important to potential future owners/licensees who may be concerned about future liabilities should they purchase the site.

Long-Term Record Retention and Availability

The licensee will be required to maintain those decommissioning records, which are necessary for maintaining effective long-term protection. In addition, new LTC records must be maintained for the duration of the LTC license. The purpose of record keeping is to support those licensee LTC activities necessary for effective long-term protection. In the event of ownership and license transfer in the future, there are existing NRC requirements for records transfer to ensure that important records remain available.

In addition, NRC intends to continue maintaining the LTC licensing records in the same docket file used for operations and decommissioning. This approach should result in a continuous and completely documented history of the site operations, decommissioning, and long-term control available in a single file that will improve the efficiency and effectiveness of future search and retrieval of site information. These records are expected to be available to the public in the future. Finally, NRC currently maintains the site decommissioning data base, which includes restricted use sites. This publically available data base provides Internet access to general site information about all NRC decommissioned sites.

NRC recognizes that maintaining records and making them publically available over the long term is one of the important elements to ensure protection for long periods of time so that knowledge of the site will not be forgotten. Retention of duplicate records in different locations by the licensee and NRC enhances long-term record retention.

Content of the LTC possession only license and LTC plan

LTC license conditions specify requirements for: prohibited site access and land use, permitted site access and land use, physical controls (fences, signs, monuments), surveillance,

groundwater monitoring (if needed), corrective actions, maintenance, reporting, records retention and availability.

The LTC Plan provides site information and implementation activities and procedures for each license condition (similar to the Long-Term Surveillance Plan for uranium mill tailings sites required by 10 CFR Part 40, Appendix A. See Appendix D of NUREG-1620, Rev. 1 for guidance). The LTC Plan would include the following information:

Legal description and ownership of the land

Final condition of the site, residual contamination, engineered barriers, and physical controls

LTC license conditions and implementing activities and procedures

INFORMATION TO BE SUBMITTED IN THE DECOMMISSIONING PLAN

Specific guidance on the information to be submitted in the DP for institutional controls, site maintenance, and financial assurance from the NMSS Consolidated Decommissioning Guidance (NUREG-1757, Vol. 1, Rev. 1 and Vol. 3) is provided below. This existing guidance has been supplemented with new draft guidance on the use of the LTC license for institutional controls and site maintenance. The additional new guidance for the LTC license is shown in **bold.**

Existing guidance in NUREG-1757 for eligibility demonstration, obtaining public advice, and dose modeling and ALARA demonstration, and use of engineered barriers (Section 3.5 of NUREG-1757, Vol 2) are sufficient if the LTC license term and concept are specified as the institutional control. However, a new section has been added (17.7.3.2.2) that indicates where the information on engineered barriers should be located in the DP.

17.7.3.2 Institutional Controls **and Engineered Barriers**

17.7.3.2.1 Institutional Controls

The information supplied by the licensee should be sufficient to allow the staff to fully understand what institutional controls the licensee plans to use or has provided for the site and the manner in which these institutional controls will limit doses to the average member of the critical group to 0.25 mSv/y (25 mrem/y). The staff's review should verify that the following information is included in the description of institutional controls that the licensee plans to use or has provided for the site:

Location and Type of Institutional Controls

- **Location and description of the general type of institutional controls and the basis for selection using NRC's risk-informed graded approach in Attachment 1 of the LTR Analysis in SECY-03-0069. Using this approach, determine if the restricted area of the SMC site is a lower or higher risk**

area and the general type of institutional controls that are needed. Consider both hazard duration based on the half-life of nuclides in the contamination as well as hazard level (i.e., less than or greater than 100 mrem/yr) based on dose assessments assuming no controls. This approach might result in identifying unrestricted use areas where no institutional controls are required, and restricted use areas using either legally enforceable institutional controls or durable and legally enforceable institutional controls.

- **A demonstration that the size of the restricted use area has been minimized. The staff considers that minimizing the size of the restricted use area would contribute to demonstrating ALARA for sites that are considering partitioning the site into unrestricted and restricted use portions. It would also result in a smaller area to control, which may make access limitations like fencing and surveillance simpler and thus more effective, compared to a much larger area.**

  However, for a site like the SMC site where partitioning could be used, single ownership of both the unrestricted and restricted use portions of the existing site should be maintained under the LTC license.

- A description of the **specific type of** legally enforceable institutional control(s) and an explanation of how the institutional control is a legally enforceable mechanism;

  State that SMC would use two specific types of institutional controls. First, that the NRC LTC license is considered to be a specific type of legally enforceable and durable institutional control. Second, describe the licensee's responsibility to put in place and maintain a deed notice that notifies potential landowners of the LTC license requirement and the conditions of the LTC license.

<u>Restrictions and Controls Implemented by Licensee</u>

- A description of the restrictions on present and future landowners;

  Describe the access and land use restrictions based on the dose assessments assuming no controls. Identify specific access and land use scenarios that could lead to non-compliance with the dose criteria of the LTR and therefore should be <u>prohibited</u> (e.g., farming, construction of a residence, excavation into the cell for any purpose, or groundwater use).

  Also indicate what access and land use that might be <u>permitted</u> (e.g., industrial, recreational, or wildlife conservation area).

  Describe what restrictions on land use would be needed to maintain effective engineered barrier performance (e.g., prohibit excavation of the

cell cap and removal of cell cap material or contaminated material) as well as permitted access and land use.

Describe the licensee's activities to restrict/control access and land use, including fences, signs, monuments, and periodic surveillance (e.g., annual site surveillance and adverse event surveillance). All of the above should be conditions in the LTC license. Recognize that the licensee will need to prepare a Long-Term Control Plan that will describe the details of how the licensee will implement the LTC license conditions.

- A discussion of the durability of the institutional control(s);

  Note that NRC considers the LTC license along with the deed notice to be a durable institutional control.

Duration of the LTC License

- A description of the duration of the institutional control(s), the basis for the duration, the conditions that will end the institutional control(s) and the activities that will be undertaken to end the institutional control(s);

  Discuss that the duration of the LTC license will be permanent for the SMC site based on the long-half life of the uranium and thorium contamination. However, the license would be renewed in five-year increments.

Records Retention and Availability

- A description of the records pertaining to the institutional controls, how and where will they will be maintained, and how the public will have access to the records.

  Identify both historical and new records to be retained under the LTC license by the licensee that are necessary for the licensee to provide effective long-term protection. This includes the Decommissioning Plan, Final Status Survey Report, LTC license, Long-Term Control Plan, and all correspondence under the LTC license.

  Identify the location and methods used for retention of records by the licensee.

  Note that NRC will retain all licensing records as part of it's Agency record keeping system and that these records will be available to the public in the future as they are today.

Detriments and Benefits from the LTC License

- A description of any detriments associated with the maintenance of the institutional control(s);

  Describe any detriments to using the LTC license. For example, describe potential impacts on sale of property or value of property due to the NRC license "stigma" or perceptions that NRC could potentially requiring further cleanup in the future (i.e., finality). Detriments might also be a result of restricted use of the land, independent of the type of legal instrument used (LTC license). Include stakeholder inputs, if provided.

17.7.3.2.2 Engineered Barriers

- **Include the information on engineered barriers using the guidance in Section 3.5 of NUREG-1757, Vol 2.**

17.7.3.3 Site Maintenance

Licensee Maintenance, Control, and Monitoring Program

- A description of the site maintenance and control program and the basis for concluding that the program is adequate to control and maintain the site.

  Describe the general maintenance and control activities that should be required as conditions of the LTC license, such as visual surveillance and routine maintenance of physical controls and engineered barriers (e.g., fence repair, cutting grass, or removing vegetation).

  Describe radiological monitoring of surface or groundwater, if such monitoring is needed to verify dose modeling results of potential radionuclide contamination in surface or groundwater. Include location and frequency of sampling, duration of monitoring, and supporting justifications.

  Reference the Long Term Control Plan that will be prepared by the licensee that will give the detailed activities and procedures to implement the license conditions.

  Demonstrate that the design of any engineered barriers are sufficiently robust so that ongoing active maintenance or periodic repair necessary to maintain the effectiveness of the engineered barrier is not needed. For example, the design objective should be to preclude the occurrence and need for repair of deep gullies in the erosion protection cap that could exposes residual contamination. Similarly, the cover design (thickness and material) that might be needed for shielding of the residual contamination should be designed to preclude erosion that might reduce

its thickness and shielding effectiveness and not rely on repairs to restore the cover thickness. Note that an acceptable erosion cover design would be one that is consistent with NRC's guidance for erosion protection in NUREG-1620, Rev. 1 and NUREG-1623.

- A demonstration that an appropriately qualified entity has been provided to control and maintain the site.

  Under the LTC license, the entity could be the licensee or a contractor to the licensee. Discuss the qualifications of the personnel that are necessary to conduct the planned LTC activities.

- A description of the arrangement or contract with the entity charged with carrying out the actions necessary to maintain control at the site.

  This applies if the licensee plans on using a contractor.

- A demonstration that the contract or arrangement will remain in effect for as long as feasible, and include provisions for renewing or replacing the contract.

- A description of the plans for corrective actions that may be undertaken in the event the **site maintenance and** control program fails; and

  Identify reasonably foreseeable events (e.g., forced entry through fences or disruption of cap material) that could cause a failure of access and land use controls. Describe the corrective actions the licensee would take and requirements that NRC would be notified of the events and planned corrective actions.

- **A description of licensee reporting to NRC and State and local officials, including an annual report and event corrective actions reports, as needed. The annual report should describe licensee surveillance and routine maintenance. Event corrective action reports would identify the adverse event that occurred and the licensee's planned corrective actions. Follow up reports would summarize the results of the corrective actions taken and an analysis of lessons learned from the event and plans to prevent similar future events from occurring.**

NRC Oversight and Enforcement

- A description of the entities enforcing, and their authority to enforce, the institutional control(s);

  Identify that NRC will have jurisdiction for oversight of licensee activities and can take enforcement actions, if needed, under its licensing authority from the AEA.

The following three bullets are not applicable because there would be no third party under the LTC license. NRC's general role under the LTC license is to assure that the controls are maintained and remain protective over time. Also note that NRC activities would include review, inspection, license renewal, and enforcement.

- A description of the activities that the entity with the authority to enforce the institutional controls may undertake to enforce the institutional controls;

- A description of the manner in which independent oversight of the entity charged with maintaining the site will be conducted and what entity will conduct the oversight.

- A description of the periodic site inspections that will be performed by the third party, including the frequency of the inspections.

- A description of the manner in which the entity with the authority to enforce the institutional control(s) will be replaced if that entity is no longer willing or able to enforce the institutional control(s) (this may not be needed for Federal or State entities);

  Not applicable under an NRC LTC License.

Sufficient Financial Assurance

The basis for financial assurance for a LTC license should be a combination of methods from 10 CFR 40.36, 10 CFR 20.1403, and NUREG-1757, Vol. 3.

10 CFR 40.36 provides for submission and approval by the NRC of the financial instruments used for financial assurance. It further provides for adjusting the cost estimate and funding levels every three years, which will provide a feedback of actual cost experience into the cost estimate. It specifies the methods by which financial assurance must be provided. However, the scope of 10 CFR 40.36 is limited to decommissioning financial assurance for licenses which authorize "possession and use" of more than 10 mCi of source material in a readily discernible form. A LTC license does not necessarily authorize "use". Nor is the LTC licensed facility expected to require "decommissioning" in the traditional sense. Therefore, selected provisions of 10 CFR 40.36 should be included as license conditions in the LTC license, to provide financial assurance for long-term control.

10 CFR 20.1403 provides for sufficient funding to enable an independent contractor to perform the surveillance and control tasks. In practice, this would require adding contractor overhead and profit to the cost of performing the tasks. Because 10 CFR 20.1403 applies only to termination of a license, its provisions should be included as a license condition in the LTC license.

NUREG-1757, Vol. 3 contains guidance on performing the cost estimate for site control and maintenance. Once the amount is estimated, the licensee must provide sufficient funds to produce an annual average income that covers the annual surveillance, control, and maintenance/repair costs, NRC fees, and trustee expenses. By analogy to uranium mill tailings funds, a 1% rate of return may be used by the licensee to determine the minimum funding level. This rate would contribute to the LTR requirement for sufficient funds for a site with long half-life radionuclides needing control over a long time period. It is also justified because the current licensee responsible for the contamination should fund the long-term control so that no additional costs will be passed on to future site owners/licensees.

The cost estimate should include funds for at least the following licensee activities:

- **site surveillance of access and land use restrictions**
- **routine maintenance**
- **radiological monitoring of surface and groundwater, if needed**
- **reporting**
- **records retention.**

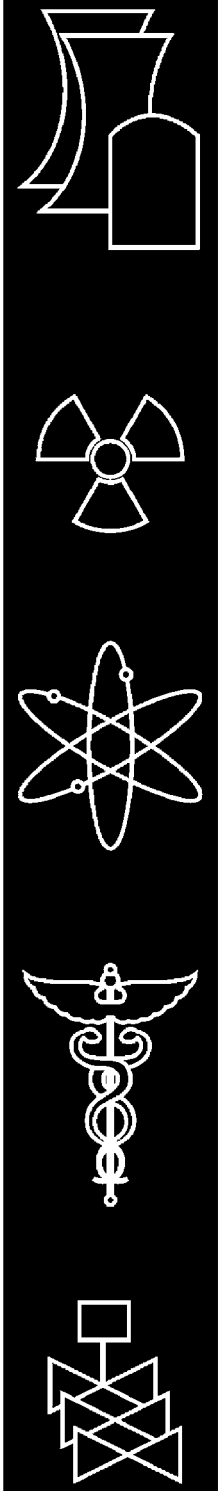
The cost estimate should also assume the following NRC oversight fees:

- **a fee of $10,000 for one inspection and one report each year**
- **$20,000 every five years for five year license renewal, inspection, and report.**

Finally, the estimate should include reasonable trustee fees and expenses.

NUREG-1757 Vol. 3 provides for contingency factor of 25% to be added to the cost estimate. This contingency should be retained to buffer against potential market losses, and to provide for unexpected costs. If the contingency proves insufficient, the licensee should be required to add funds to the trust. As a matter of fairness, particularly in light of the long term existence of the fund, if the balance substantially exceeds the amount needed to produce sufficient annual income, a provision, to return excess funds to the licensee with NRC's approval, should be included in the trust.

NUREG-1757
Supplement 1



Consolidated NMSS Decommissioning Guidance

Updates to Implement the License Termination Rule Analysis

Draft Report for Comment

U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555-0001

NUREG-1757
Supplement 1

Consolidated NMSS Decommissioning Guidance

Updates to Implement the License Termination Rule Analysis

Draft Report for Comment

Manuscript Completed: September 2005
Date Published: September 2005

Prepared by
D.W. Schmidt, K.L. Banovac, J.T. Buckley,
D.W. Esh, T.L. Fredrichs, R.L. Johnson,
C.A. McKenney, T.G. McLaughlin, D.A. Widmayer,
T.H. Youngblood

Division of Waste Management and Environmental Protection
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

The licensee should describe how it has used the risk-informed graded approach (described in Appendix M of this Volume and Section 3.5) to select the appropriate institutional controls and engineered barriers for decommissioning under restricted use or alternate criteria, so that restrictions and engineered barriers are most effectively targeted and are based on duration and magnitude of the hazard. This approach is flexible and uses risk insights from dose assessments to tailor site-specific restrictions and engineered barriers that would prevent potential disruptive land uses or natural processes important to compliance with the dose criteria. Appendix M also describes how institutional controls combine with other elements, such as engineered barriers, to form a total system to sustain protection.

If a licensee cannot establish acceptable institutional controls or independent third party arrangements, the licensee may propose one of the two new options involving NRC: an NRC Long-Term Control (LTC) license or an NRC Legal Agreement and Restrictive Covenant (LA/RC). Both of these options are described in Appendix M of this Volume and are summarized below. These options should be considered as a last resort, even though they are available for use under the conditions described in Appendix M.

The LTC license option is a possession-only license that would be used to satisfy the LTR requirement for legally enforceable and durable (if needed) institutional controls. The conditions of the LTC license would require the licensee to maintain restrictions on site use and any necessary monitoring, maintenance, and reporting. NRC would use inspections and enforcement, if needed, to assure that the licensee's controls and other activities are effective.

The LA/RC option is a combination of a legal agreement and restrictive covenant that provides a legally enforceable and durable institutional control, with the NRC having an enforcing role. Under the LA/RC option, the current licensee or site owner and NRC enter into a legal agreement on the restrictions and controls needed for license termination under restricted conditions. The legal agreement includes using a restrictive covenant, which outlines the restrictions on site use and any necessary maintenance, monitoring, or reporting. In accordance with the legal agreement, the licensee or site owner is required to record the restrictive covenant with the appropriate recordation body in the jurisdiction where the site is located, before the site is released under restricted conditions.

The LTC license is preferred over the LA/RC option for institutional controls involving NRC, as NRC licensing and enforcement is a proven approach, and the LA/RC option has some limitations: it has not been implemented by the NRC or legally tested; NRC's ability to enforce the LA/RC depends on the laws of the jurisdiction where the site is located; and it would be more difficult for NRC to enforce the LA/RC, in comparison to the LTC license. The LTC license is preferred for sites that will require more complex monitoring or maintenance activities. Complex monitoring or maintenance activities could include maintenance of an engineered barrier and groundwater or radiological monitoring activities, which require the site owner to have necessary knowledge, expertise, or technical abilities to carry out these activities and comply with all provisions of the LTC license. If the restrictions on site use or monitoring and reporting activities are simpler, the LA/RC may be an appropriate institutional control option.

January 26, 2006

David R. Smith
Environmental Manager
Shieldalloy Metallurgical Corporation
Aluminum Products& Powders Division
14 West Boulevard, P.O. Box 768
Newfield, NJ 08344-0768

SUBJECT: REJECTION OF THE REVISION 1 TO THE DECOMMISSIONING PLAN FOR THE NEWFIELD FACILITY (TAC NO. L52094)

Dear Mr. Smith:

By letter dated October 24, 2005 (ML053190212), Shieldalloy Metallurgical Corporation (SMC) submitted Rev. 1 of the Decommissioning Plan (DP) for the Newfield Facility, with supporting documents. On October 31, 2005, the U.S. Nuclear Regulatory Commission (NRC) staff began its 90-day expanded acceptance review of the DP in accordance with NUREG-1757 (Consolidated NMSS Decommissioning Guidance), Vol. 1, Section 5.3. The purpose of an expanded acceptance review is to determine if there is enough information in the DP, and, if the level of detail appears to be adequate, for the NRC staff to perform a detailed technical review.

In addition, the expanded acceptance review included a limited technical review. This technical review focused on those areas which experience has shown to have the potential for significant technical deficiencies (dose modeling, surface water hydrology and erosion protection, institutional controls, and financial assurance). The NRC staff used the guidance in NUREG-1757 and the May 15, 2004, interim guidance for a long-term control (LTC) license at the SMC site for conducting the review to identify technical deficiencies that could significantly impact the progress of the detailed technical review. Deficiencies identified by our review are enclosed.

NRC is not accepting SMC's DP for the Newfield Facility at this time due to these deficiencies. Acceptance at this time would likely require multiple rounds of requests for additional information (RAIs) from the NRC staff to resolve the deficiencies. To date, the NRC staff has provided the May 15, 2004, interim guidance to SMC regarding the use of a LTC license for long-term control as well as guidance on dose assessment, engineered barriers, and financial assurance. We have held open-to-the-public meetings and teleconferences with SMC to discuss various issues regarding the DP. We also used a phased approach whereby NRC staff reviewed and provided comments to SMC on draft chapters of the DP. We are particularly concerned that, regardless of these additional measures that have been taken to enable SMC to submit an acceptable DP, we have identified several areas where multiple rounds of RAI's will be necessary to provide us with the information needed to complete a technical review of the DP. Furthermore, there appears to have been a general disregard for the interim guidance provided by NRC so that SMC could address restricted use/institutional control issues and resubmit a high quality DP.

Based on the above, we believe that SMC management should meet with NRC management to discuss the path forward for the Newfield Facility, including the schedule for initiation of decommissioning at the site. Please contact Ken Kalman, of my staff, at (301) 415-6664 to arrange this meeting.

Please direct any questions concerning your request to me at (301) 415-7295.

Sincerely,

/RA/

Daniel Gillen, Deputy Director
Decommissioning Directorate
Division of Waste Management
and Environmental Protection
Office of Nuclear Material Safety
and Safeguards

Enclosure:
NRC Comments

Docket No.: 04007102
License No: SMB-743

cc:
Eric Jackson, President
Jill Lipoti, Ph.D., NJ DEP
Donna Gaffigan, NJ DEP
Trevor Anderson, US EPA
L. Williams, Newfield Resident
T. Ragone, Newfield Resident

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SIGNIFICANT DEFICIENCIES NOTED
IN THE NRC STAFF'S LIMITED TECHNICAL REVIEW
OF SHIELDALLOY METALLURGICAL CORPORATION'S
DECOMMISSIONING PLAN FOR THE NEWFIELD FACILITY

Dose Modeling

During numerous meetings with SMC, the NRC staff stressed the importance of identifying and justifying the chosen value for parameters determined to be important to the estimated dose. For most of the scenarios evaluated for the restricted area, assuming that institutional controls fail, key parameters are not identified. For example, in Chapter 17, SMC discussed how parameter values were derived, but no justification was provided. In fact, some significantly important parameters (e.g., shielding factor) are not even included in the list.

It should be noted that the greatest expected risk associated with the site is expected to be associated with the radioactivity in the controlled area once controls have failed. However, more discussion is provided for chosen parameter values for situations at the site where the radiological risk is expected to be much less (e.g., scenarios associated unrestricted release). In some of these situations, the justification for chosen parameter values is minimal. For example, for the industrial scenario, SMC noted that the fraction of time spent outdoors and the shielding factor are two of the most sensitive parameters. However, the reference cited as a basis for the chosen value for the fraction of time spent outdoors would suggest that the selected value is likely to result in a lower than actual dose. The value selected for the shielding factor is not even listed. In other cases, a reference is cited. However, it is not clear how the chosen value was derived from the reference (e.g., the fraction of the time that a trespasser is assumed to spend at the site in the unrestricted release area) or the basis for selecting the value (e.g., why it is considered to be either acceptable or conservative).

In considering multiple land-use scenarios, SMC needs to provide more information used in defining the scenarios and developing appropriate exposure pathways. For example, the justification for excluding the groundwater as an exposure pathway is lacking in that it amounts to assuming that the current water supply will always be available. During our June 14, 2005, telephone conference, NRC staff advised SMC to evaluate the potential impacts associated with including the groundwater pathway before attempting to justify its exclusion. This comment was also reiterated in our June 24, 2005, letter to SMC (ML051680544). It is not clear if this was done in the DP.

SMC was also advised to consider a scenario of a recreational user being exposed to a previously excavated portion of the pile when the land-use restriction fails. However, there is no discussion of this scenario in the DP.

Surface water hydrology and erosion protection

SMC failed to produce sufficient information showing that it met the regulatory requirements regarding the use of engineered barriers. (For one acceptable approach, see Guidance in NUREG-1623). Many of the technical analyses were incorrect and incomplete relative to surface water hydrology and design of erosion protection. For example, the Probable Maximum Precipitation and resulting Probable Maximum Flood runoff rates were incorrectly determined. The determinations of actual runoff velocities, relative to the permissible velocities, were not appropriate, based on inappropriate use of Manning's 'n' value, rainfall intensity, slope lengths, and flow concentration factors. Insufficient information was provided to address the flow velocities on the top slopes as well as the likely need for rock to be placed on the side slopes and on the toe of the side slopes.

Restriced Use/Institutional Controls

Chapter 16 on restricted use includes very limited information about the proposed use of the long-term control (LTC) possession-only license and a supporting deed notice. Although the proposed LTC license could resolve one of the most significant issues that caused rejection of the first DP, SMC did not provide important information about the LTC approach and restricting future site use that was described in NRC's interim guidance developed for this site and discussed with SMC. Major areas with either missing or insufficient information include:

Eligibility for the LTC license option, including a demonstration that SMC was unable to arrange other types of institutional controls and independent third party arrangements,, such as a letter from the State rejecting responsibility for ownership, control, or independent third party oversight (interim guidance, p. 4);

Although restrictions were simply listed, there was no justification given based on risk insights from dose assessments, such as specific access and land use scenarios that could lead to non-compliance with the dose criteria (interim guidance, p. 9);

Detriments to using the LTC license including stakeholder input (interim guidance, p. 11); and

Demonstration that the engineered cap has been designed to be sufficiently robust to remain effective even assuming loss of monitoring and maintenance (interim guidance, p. 11) (see also comment above on erosion control).

NRC recognizes that SMC proposes to release the unrestricted use portion of the site rather than maintain it with the restricted use portion under the LTC license. This approach is inconsistent with NRC's interim guidance developed for this site, and there may be benefit in further exploring this issue. NRC notes that SMC justified its position in response to the Site-Specific Advisory Board (SSAB) comments on this question, stating its position is based on sufficient financial assurance to pay for long-term monitoring and maintenance of the restricted area. NRC's interim guidance developed

for this site and draft guidance in NUREG-1757 Supplement 1 were written to provide both protection and beneficial reuse of the total site. Both guidance documents explain that the LTC license would specify safe, and therefore, permitted uses of all parts of the site so there would be no uncertainty regarding safe use of the site by parties interested in leasing or purchasing the site in the future. Thus, there might be no restrictions on future use for the majority of the site area outside of the restricted area with the disposal cell. To help resolve this issue, SMC should describe the potential for reuse of the site as a whole under the LTC license. SMC should work with the SSAB to clearly discuss the pros and cons of this approach given in the NRC's draft guidance on page II-57, to ensure common understanding, as well as to identify how the whole site could be reused under the LTC license, real or perceived barriers to reuse, and, ways to resolve these barriers. SMC should also discuss how site ownership of the restricted use portion of the site would be sustained over the long-term, if it were separate from the rest of the site, to avoid gaps in ownership, and control, and to minimize NRC's active involvement to take actions if there is a gap. SMC should further explore both approaches with the SSAB and provide this additional information for NRC review.

Although SMC provided information on use of institutional controls that it received from the SSAB, NRC recognizes that there was a general concern that not enough information was provided to the SSAB. SMC should take this opportunity to enhance its interactions with the SSAB, as it noted in responses to the SSAB input.

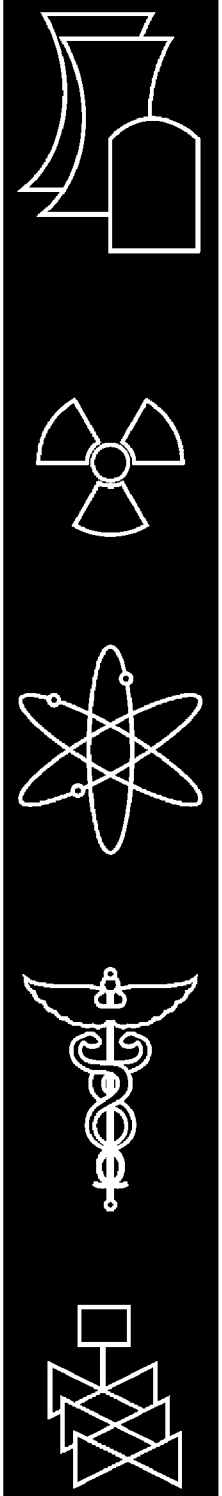
Financial Assurance

The staff is concerned that SMC did not provide sufficient rationale for it's alternative approach to meet the regulatory requirements for financial assurance. Specifically, SMC assumes a greater return on investment (ROI) than appears appropriate for the long-term surveillance and monitoring fund. The NRC's interim guidance (which represents one approach for meeting the regulations) applies a 1% ROI for the LTC license. However SMC used a 3% ROI. The higher ROI assumed by SMC reduces the amount placed in trust to cover long-term surveillance and monitoring costs, which increases the potential for inadequate funding in the event a string of losses occurs in the funds investments. Also, SMC did not specify whether it would include a 25% contingency in the long-term surveillance and monitoring fund.

The tables of decommissioning costs do not present sufficient detail to permit the NRC to assess the adequacy of the cost. The unit costs combine labor, material, equipment, and overhead and profit costs. NUREG-1757, Vol. 3 and the interim guidance developed for this site asks the licensee to present the cost elements separately.

The NRC staff also notes that the DP did not include a Certification Statement or an originally signed financial instrument to cover the decommissioning costs. The Certification is required as an affirmation that financial assurance has been provided, even though the licensee plans to pay for decommissioning out of operating funds. The Certification and originally signed financial instrument will be required before final approval of the DP.

NUREG-1757
Vol. 1, Rev. 2



Consolidated Decommissioning Guidance

Decommissioning Process for Materials Licensees

Final Report

U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555-0001

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Consolidated Decommissioning Guidance

Decommissioning Process for Materials Licensees

Final Report

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Prepared by
K.L. Banovac, J.T. Buckley, R.L. Johnson,
G.M. McCann, J.D. Parrott, D.W. Schmidt,
J.C. Shepherd, T.B. Smith, P.A. Sobel,
B.A. Watson, D.A. Widmayer, T.H. Youngblood

Division of Waste Management and Environmental Protection
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ABSTRACT

As part of its redesign of the materials license program, the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Material Safety and Safeguards (NMSS) has consolidated and updated numerous decommissioning guidance documents into a three-volume NUREG. Specifically, the three volumes address the following topics:

(1) "Decommissioning Process for Materials Licensees";
(2) "Characterization, Survey, and Determination of Radiological Criteria"; and
(3) "Financial Assurance, Recordkeeping, and Timeliness."

This three-volume NUREG series replaces NUREG-1727 (NMSS Decommissioning Standard Review Plan) and NUREG/BR-0241 (NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees). NUREG-1757 is intended for use by NRC staff, licensees, and others.

Volume 1 of this NUREG series, entitled "Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees," takes a risk-informed, performance-based approach to the information needed to support an application for decommissioning a materials license and compliance with the radiological criteria for license termination in 10 CFR Part 20, Subpart E. The approaches to license termination described in this guidance will help to identify the information (subject matter and level of detail) needed to terminate a license by considering the specific circumstances of the wide range of radioactive materials users licensed by NRC. Licensees should use this guidance in preparing license amendment requests. NRC staff will use this guidance in reviewing these amendment requests.

Volume 1 is intended to be applicable only to the decommissioning of materials facilities licensed under 10 CFR Parts 30, 40, 70, and 72 and to the ancillary surface facilities that support radioactive waste disposal activities licensed under 10 CFR Parts 60, 61, and 63. However, parts of this volume are applicable to reactor licensees, as described in the Foreword to this volume.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in this NUREG are covered by the requirements of 10 CFR Parts 19, 20, 30, 33, 34, 35, 36, 39, 40, 51, 60, 61, 63, 70, 72, and 150 which were approved by the Office of Management and Budget, approval numbers 3150–0044, 0014, 0017, 0015, 0007, 0010, 0158, 0130, 0020, 0021, 0127, 0135, 0199, 0009, 0132, and 0032.

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verify that both technical and QA programmatic audits and surveillances will be performed to provide a comprehensive independent verification and evaluation of procedures and activities affecting quality. The staff should verify that audits and surveillances objectively assess the effectiveness and proper implementation of the QA program and address the technical adequacy of the activities being conducted. The staff should verify that provisions will be provided such that audits and surveillances are required to be performed in all areas where the requirements of the QA program are applicable. The staff should verify that audit and surveillance deficiency data are analyzed and trended. The staff should verify that reports that indicating quality trends and the effectiveness of the QA programs will be given to management for review, assessment, corrective action, and follow up.

17.7 RESTRICTED USE

17.7.1 OVERVIEW

NRC staff should review the information supplied by the licensee to determine if the description of the activities undertaken by the licensee is adequate to allow the staff to conclude that the licensee has complied with the requirements of 10 CFR 20.1403 for those licensees who intend to request termination of their radioactive materials licenses using the restricted use provisions of 10 CFR Part 20, Subpart E.

If the licensee is requesting license termination under restricted use in 10 CFR 20.1403, this information should include: a demonstration that the licensee qualifies for license termination under 10 CFR 20.1403(a); a description of the institutional controls the licensee has instituted or plans to institute at the site; a description of the activities undertaken by the licensee to obtain advice from the public on the proposed institutional controls and the results of these activities; a demonstration that the potential doses from residual radioactive material at the site will not exceed the limits in 10 CFR 20.1403 and are ALARA; and a description of the amount and mechanism for financial assurance required under 10 CFR 20.1403(c).

The LTR established a system of controls to sustain protection at restricted use or alternate criteria sites. This approach is described in Appendix M. The total system includes the following six elements: (1) legally enforceable institutional controls; (2) engineered barriers; (3) monitoring and maintenance; (4) independent third party oversight; (5) sufficient funding; and (6) maximum limits on dose (i.e., “dose caps”) if institutional controls fail. While elements 1, 3, 4, 5, and 6 are required by the LTR, element 2 (engineered barriers) is not required but could be used to mitigate adverse processes (e.g., infiltration or erosion) so that the dose criteria of the LTR can be met (see Section 3.5 of Volume 2 of this NUREG report). The licensee should describe how it proposes to apply the total system approach to its specific site.

The licensee should describe how it has used the risk-informed graded approach (described in Appendix M of this Volume and Section 3.5 of Volume 2 of this NUREG report) to select the appropriate institutional controls and engineered barriers for decommissioning under restricted use or alternate criteria, so that restrictions and engineered barriers are most effectively targeted

and are based on duration and magnitude of the hazard. This approach is flexible and uses risk insights from dose assessments to tailor site-specific restrictions and engineered barriers that would prevent potential disruptive land uses or natural processes important to compliance with the dose criteria. Appendix M also describes how institutional controls combine with other elements, such as engineered barriers, to form a total system to sustain protection.

If a licensee cannot establish acceptable institutional controls or independent third party arrangements, the licensee may propose one of the two new options involving NRC: an NRC long-term control (LTC) license or an NRC legal agreement and restrictive covenant (LA/RC). Both of these options are described in Appendix M of this Volume and are summarized below. These options are new types of legally enforceable and durable institutional controls established by Commission policy (see SECY-03-0069). These options are not for the purpose of storage of radioactive materials; they are to serve as an institutional control mechanism for restricted use decommissioning. These options should not be considered a guaranteed option for decommissioning, but would be used as a last resort for those sites that could not decommission to unrestricted use levels and could not arrange for other institutional controls. Therefore, these options should not encourage or lead to the proliferation of restricted use sites. In addition, for both of these options, all the restricted use requirements of the LTR must be met, to ensure protection of the public health and safety. Furthermore, NRC is taking measures to prevent future decommissioning problem sites (including reducing the number of future restricted use sites) by considering changes to financial assurance requirements and licensee operations, as described in SECY-03-0069 and RIS-2004-08.

The LTC license option is a possession-only license that would be used to satisfy the LTR requirement for legally enforceable and durable (if needed) institutional controls. The conditions of the LTC license would require the licensee to maintain restrictions on site use and any necessary monitoring, maintenance, and reporting. NRC would use inspections and enforcement, if needed, to assure that the licensee's controls and other activities are effective.

The LA/RC option is a combination of a legal agreement and restrictive covenant that provides a legally enforceable and durable institutional control, with the NRC having an oversight role. Under the LA/RC option, the current licensee or site owner and NRC enter into a legal agreement on the restrictions and controls needed for license termination under restricted conditions. The legal agreement includes using a restrictive covenant, which outlines the restrictions on site use and any necessary maintenance, monitoring, or reporting. In accordance with the legal agreement, the licensee or site owner is required to record the restrictive covenant with the appropriate recordation body in the jurisdiction where the site is located, before the site is released under restricted conditions.

It is noted that the LA/RC option has not been implemented by the NRC or legally tested, and NRC's ability to enforce the LA/RC depends on the laws of the jurisdiction where the site is located. Therefore, the licensee must demonstrate that the LA/RC is a legally enforceable institutional control in the jurisdiction where the site is located.

If complex monitoring or maintenance activities are needed at a restricted use site, the LTC license could be an appropriate institutional control option (compared to the LA/RC). Under the LTC license option, NRC would need to review and approve the transfer of site ownership (including determining whether the new owner had the technical capability or means to conduct any complex monitoring or maintenance activities), as the new owner(s) would become the LTC licensee to provide the necessary controls outlined in the LTC license. Complex monitoring or maintenance activities could include maintenance of an engineered barrier or groundwater or radiological monitoring activities, which require the site owner to have necessary knowledge, expertise, or technical abilities to carry out these activities and comply with all provisions of the LTC license. If the restrictions on site use or monitoring and reporting activities are simpler, the LA/RC may be an appropriate institutional control option. Simpler restrictions or activities related to the restrictions could include the site owner responding to an annual NRC inquiry as to how the site is being used or allowing the NRC to conduct a periodic inspection of the site.

Figure 17.1 illustrates the process for selecting appropriate institutional controls (including institutional control options involving NRC) for restricted use or alternate criteria decommissioning. Refer to Section 17.8 of this volume for guidance on decommissioning using the alternate criteria provisions in 10 CFR 20.1404. The steps in this process are described below.

1. Determine if the site is a lower or higher risk site, based on the following criteria. (See also Table M.1 and Section M.2 of this volume.)

   Lower risk sites (legally enforceable institutional controls):

   Shorter hazard duration: shorter dose persistence or shorter radionuclide half-life (less than 100 years).

   Lower hazard level: calculated dose is less than 1.0 mSv/y (100 mrem/y) assuming institutional controls are not in place.

   Higher risk sites (legally enforceable and durable institutional controls):

   Longer hazard duration: longer dose persistence or longer radionuclide half-life (more than 100 years).

   Higher hazard level: calculated dose is 1.0–5.0 mSv/y (100–500 mrem/y) assuming institutional controls are not in place.

2. For lower risk sites, determine if legally enforceable institutional controls and independent third party arrangements can be established.

   Yes: Licensee can arrange for appropriate legally enforceable institutional controls and independent third party arrangements. The licensee must comply with all LTR requirements in 10 CFR 20.1403 or 10 CFR 20.1404, for license termination under restricted conditions or alternate criteria, respectively.

   No: Licensee should document that it could not arrange for legally enforceable institutional controls or independent third party arrangmements and may go to step 4

to select institutional control options involving NRC. The institutional control options involving NRC, which provide legally enforceable and durable institutional controls, may be used, even though durable controls are not necessary for lower risk sites.

3. For higher risk sites, determine if legally enforceable and durable institutional controls, via government (Agency other than NRC) ownership or control, and independent third party arrangements can be established.

   Yes: Licensee can arrange for legally enforceable and durable institutional controls and independent third party arrangements. The licensee must comply with all LTR requirements in 10 CFR 20.1403 or 10 CFR 20.1404, for license termination under restricted conditions or alternate criteria, respectively.

   No: Licensee should submit a letter from Federal, State, or local government declining to take ownership or control responsibility and may go to step 4 to select institutional control options involving NRC.

4. Determine the appropriate NRC option for providing an institutional control.

   LTC license option could be used if:

   — Substantial restrictions, monitoring, or maintenance require special expertise (e.g., groundwater monitoring or maintaining an engineered barrier); or

   — Maintaining single ownership of a site with both restricted use and unrestricted use areas is desirable to sustain future ownership to ensure long-term protection of public health and safety.

   LA/RC option could be used if:

   — Current licensee or formerly licensed site owner demonstrates that the LA/RC option would be effective and legally enforceable by NRC in the jurisdiction where the site is located; and

   — Restrictions, monitoring, or maintenance activities are simple and do not require special expertise (e.g., annual letter certifying restrictions are in place, fence repair, or sign replacement).

   Both the LTC license and LA/RC institutional control options provide legally enforceable and durable (if needed) institutional controls. The licensee must comply with all LTR requirements in 10 CFR 20.1403 or 10 CFR 20.1404, for license termination under restricted conditions or alternate criteria, respectively.

Demonstrate LTR compliance in the DP: After the above steps are completed and an institutional control option is selected, the licensee would incorporate the option into its DP and demonstrate compliance with all other applicable LTR requirements in 10 CFR 20.1403 or 10 CFR 20.1404, for license termination under restricted conditions or alternate criteria, respectively.

Before preparation and submittal of the DP to NRC, licensees are encouraged to contact NRC or the appropriate Agreement State authority to discuss the selection of appropriate institutional controls (including institutional control options involving NRC) for restricted use or alternate criteria decommissioning.

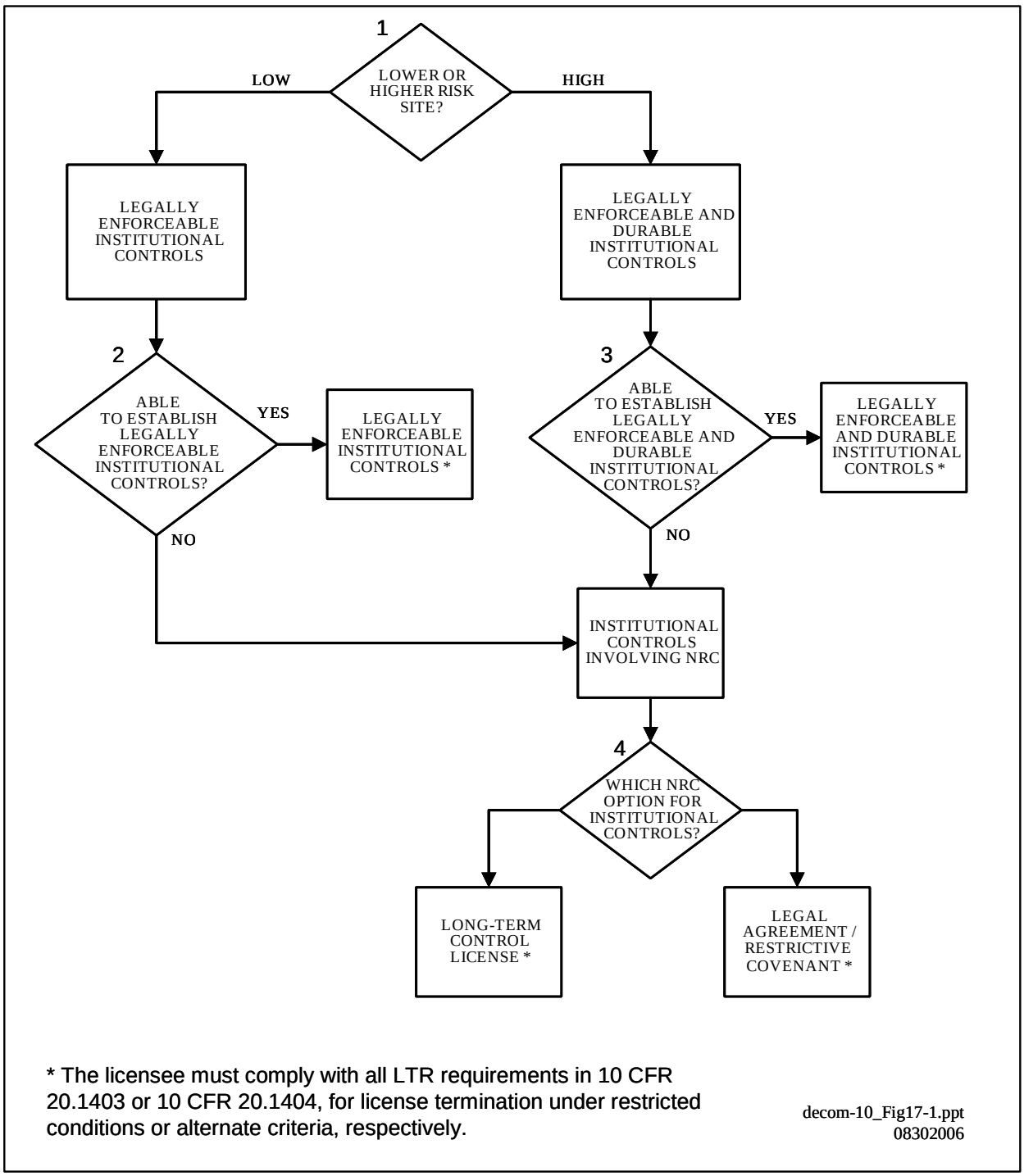

Figure 17.1 Process for Selecting Institutional Controls.

17.7.2 INITIAL ELIGIBILITY DEMONSTRATION

The purpose of the review of the licensee's demonstration that it is initially eligible to further evaluate release of the site, under the provisions of 10 CFR 20.1403, is to verify that the licensee has demonstrated that further reductions in residual radioactivity at the site to meet the unrestricted release criteria in 10 CFR 20.1402 would: (1) result in net public or environmental harm; or (2) are not being undertaken because the residual radioactivity levels are ALARA.

ACCEPTANCE CRITERIA: INFORMATION TO BE SUBMITTED

The information supplied by the licensee should be sufficient to allow the staff to fully understand how the licensee has concluded that reducing radioactivity to the unrestricted use levels in 10 CFR 20.1402 would result in net public or environmental harm or are not being undertaken because the residual radioactivity levels are ALARA. The staff's review should verify that the following information is included in the licensee's demonstration that it is eligible for requesting license termination under the provisions of 10 CFR 20.1403:

- A demonstration that the benefits of dose reduction are less than the cost of doses, injuries, and fatalities (see Volume 2 of this NUREG series); or
- A demonstration that the proposed residual radioactivity levels at the site are ALARA.

EVALUATION FINDINGS: EVALUATION CRITERIA

If the licensee has concluded that further reductions in residual radioactivity levels would result in net public or environmental harm, the staff should verify that the licensee has accurately calculated the benefits versus costs of further remediation using the guidance in Chapter 6 and Appendix N of Volume 2 of this NUREG series. In considering the net public and environmental harm, a licensee's evaluation should consider the radiological and nonradiological impacts of decommissioning on a person that may be impacted, as well as the potential impact on ecological systems from decommissioning activities. (See Section B.3.2 of the "Statements of Consideration" for the License Termination Rule, 62 FR 39069.)

If the licensee has concluded that further reductions in residual radioactivity levels are not required because they are ALARA, the staff should verify that the licensee has considered all of the applicable benefits and costs of further reduction of residual radioactivity and accurately calculated the benefits and costs using the methodology described in Chapter 6 and Appendix N of Volume 2 of this NUREG series.

17.7.3 INSTITUTIONAL CONTROLS AND ENGINEERED BARRIERS

The purpose of the review of the description of the institutional controls and engineered barriers the licensee has provided for the site is to determine if the licensee has made provisions for

legally enforceable institutional controls that will limit the dose to the average member of the critical group to less than 0.25 mSv/y (25 mrem/y).

ACCEPTANCE CRITERIA: INFORMATION TO BE SUBMITTED

The information supplied by the licensee should be sufficient to allow the staff to fully understand what institutional controls and engineered barriers the licensee plans to use or has provided for the site and the manner in which these institutional controls will limit doses to the average member of the critical group to 0.25 mSv/y (25 mrem/y).

In the NRC's view, engineered barriers are distinct and separate from institutional controls (NRC 2002). Used in the general sense, an engineered barrier could be one of a broad range of barriers with varying degrees of durability, robustness, and isolation capability. Generally, engineered barriers are passive, man-made structures or devices intended to enhance a facility's ability to meet the dose criteria in the LTR. Engineered barriers are usually designed to inhibit water from contacting waste, limit releases of radionuclides (e.g., through groundwater, biointrusion, erosion), or to mitigate doses for inadvertent intruders. Institutional controls are used to limit inadvertent intruder access to, and/or use of, the site to ensure that the exposure from the residual radioactivity does not exceed the established criteria. Institutional controls include legal mechanisms (e.g., land use restrictions) and may include, but are not limited to, physical controls (e.g., signs, markers, landscaping, and fences) to control access to the site and minimize disturbances to engineered barriers.

NRC reviewers and licensees should refer to Section 3.5 of Volume 2 of this NUREG series for guidance on engineered barriers. Section 3.5 provides guidance on the engineered barrier analysis process, including analysis of: (a) contribution of engineered barriers towards compliance, with institutional controls in place, including monitoring and maintenance; and (b) contribution of engineered barriers toward compliance, assuming loss of institutional controls (including monitoring and maintenance) and degradation of barriers. The guidance also discusses the main elements that support the assessment of engineered barrier performance, including: (a) design and functionality of engineered barriers, including interactive effects (both positive and negative) from the implementation of multiple barriers; (b) technical basis for design and functionality of engineered barriers; (c) degradation mechanisms and sensitivity analysis; (d) uncertainty in design and functionality of engineered barriers; (e) suitability of numerical models; (f) model support; and (g) quality assurance.

The licensee should summarize the total system of controls used to provide protection and include a general description of each system element and how it contributes to protection. Elements might include institutional controls, engineered barriers, monitoring and maintenance; independent third party oversight; trust fund; and maximum limits on dose (i.e., "dose caps") assuming institutional controls fail. Refer to Appendix M of this Volume, which describes this total system approach and apply the approach for the specific site. The staff's review should verify that the following information is included in the description of institutional controls that the licensee plans to use or has provided for the site:

Area and Type of Institutional Controls

- Area and description of the general type of institutional controls and the basis for selection, using NRC's risk-informed graded approach in Appendix M of this Volume. Using this approach, determine if the restricted area of the site is a lower or higher risk area and the general type of institutional controls that are needed. Consider both hazard duration, based on the dose persistance and the half-life of radionuclides, as well as hazard level [i.e., less than or greater than 1.0 mSv/y (100 mrem/y)] based on dose assessments assuming controls are no longer in effect. For a simpler site, the complete area of the current site would be restricted use. For a more complex site, this approach might result in identifying unrestricted use areas where no institutional controls are required, and restricted use areas using either legally enforceable institutional controls or durable and legally enforceable institutional controls.
- A demonstration that the size of the restricted use area has been minimized. The staff considers that minimizing the size of the restricted use area would contribute to demonstrating ALARA for sites that are considering subdividing the site into unrestricted and restricted use portions. It would also result in a smaller area to control, which may make access limitations like fencing and surveillance simpler and thus more effective.

  When determining what portion of the site needs to be restricted (or how a site could be subdivided between restricted and unrestricted portions), the licensee should consider and balance the goal of minimizing the restricted area of the site (and minimizing burdens associated with restricted use) with defining the area that will ensure long-term protection. Risk insights from dose assessments (extent of residual radioactivity and how it migrates/travels through the environment) will help determine what areas need to be monitored and the location and size of the restricted area.

  For a licensee considering an LTC license that has both restricted and unrestricted use areas of its site, the licensee should evaluate and choose whether to: (a) keep both restricted use and unrestricted use areas together under single ownership and LTC license; or (b) release the unrestricted use areas of the site while maintaining the restricted use areas under the LTC license. The licensee should consider and demonstrate how its choice will enhance long-term protection of public health and safety, through maintenance of the site controls and restrictions. For example, for a privately owned site, where the restricted use area has little or no resale value but the unrestricted use area does have resale value, keeping both areas together under an LTC license could maintain the value for the entire site and thus sustain future ownership. However, keeping both areas together could result in undue burdens at some sites. Thus, both benefits and burdens should be evaluated, considering the views of affected parties. See Appendix M of this volume for further discussion of this choice and the flexibility for partial restricted release (i.e., release of unrestricted use areas while maintaining restricted use areas under an LTC license). The licensee should show the boundaries of both the restricted use area(s) and the unrestricted use area(s) in its DP.

- A description of the specific type of legally enforceable institutional control(s) and an explanation of how the institutional control is a legally enforceable mechanism.

  If such controls cannot be arranged, provide justification for appropriateness of using either the LTC license or LA/RC options:

  — durable institutional controls are required; and

  — licensee was unable to establish other types of legally enforceable institutional controls or independent third party arrangements (e.g., letter from the State declining responsibility).

  For the LTC license, state that two specific types of institutional controls would be used. First, describe that the NRC LTC license is considered to be a specific type of legally enforceable and durable institutional control. Second, describe the licensee's responsibility to put in place and maintain a deed notice that notifies potential landowners of the LTC license requirement and the conditions of the LTC license.

  Use the following criteria to decide when the LTC license or LA/RC would be appropriate:

  LTC license could be used if:

  — Substantial restrictions, monitoring, or maintenance require special expertise (e.g., groundwater monitoring, use of an engineered barrier);

  — Maintaining single ownership of a site with both restricted use and unrestricted use areas is desirable to sustain future ownership to ensure long-term protection of public health and safety.

  LA/RC option could be used if:

  — Current licensee or formerly licensed site owner demonstrates that the LA/RC option would be effective and legally enforceable by NRC in the jurisdiction where the site is located; and

  — Restrictions, monitoring, or maintenance activities are simple and do not require maintaining special expertise (e.g., annual letter certifying restrictions are in place, fence repair, sign replacement).

Restrictions and Controls Implemented by Licensee

- A description of the restrictions on present and future landowners;

  Describe the access and land use restrictions, based on the dose assessments assuming no controls. Identify specific access and land use scenarios that would lead to non-compliance with the dose criteria of the LTR and therefore should be prohibited (e.g., farming, construction of a residence, excavation into the cell for any purpose, or groundwater use).

Indicate what access and land uses might be permitted (e.g., industrial, recreational, or wildlife conservation area).

Describe what restrictions on land use would be needed to maintain effective engineered barrier performance (e.g., prohibit excavation of the cell cap and removal of cell cap material or contaminated material), as well as permitted access and land use.

Describe the licensee's activities to restrict/control access and land use, including use of fences, signs, monuments, and periodic surveillance (e.g., annual site surveillance and adverse event surveillance).

If the LTC license or LA/RC is used, all of the above should be conditions in the LTC license or LA/RC. For the LTC license option, the licensee should prepare a Long-Term Control Plan that describes the details of how the licensee will implement the LTC license conditions.

- A discussion of the durability of the institutional control(s);

  Explain how the controls selected are durable based on the risk-informed graded approach.

  Note that NRC considers both the LTC license and LA/RC to be durable institutional controls.

Duration of the Institutional Controls

- A description of the duration of the institutional control(s), the basis for the duration, the conditions that will end the institutional control(s) and the activities that will be undertaken to end the institutional control(s).

  For the LTC license and LA/RC, discuss that the duration of these controls is as long as needed, but could be permanent for a site with long half-life radionuclides, such as uranium and thorium. However, the LTC license would be renewed at least every 5 years for the purpose of evaluating continued effectiveness and maintaining institutional and public awareness and information transfer. The appropriate renewal time period would be determined when establishing the LTC license for a specific site and could be adjusted in the future.

  Under the LTC license, further flexibility is provided for a licensee to request, in the future, approval for removing the residual radioactivity, terminating the license, and releasing the site for unrestricted use. For this approach, a licensee would submit a decommissioning plan for NRC review, as is currently done, and decommission the site in accordance with NRC's decommissioning regulations. NRC would assure that the site was properly decommissioned and suitable for unrestricted release, before terminating the LTC license. NRC would also allow a request to terminate the LTC license and release

the site with restrictions using another acceptable type of legally enforceable or, if needed, durable institutional control and independent third party arrangement, if approved by NRC.

Records Retention and Availability

- A description of the records pertaining to the institutional controls, how and where will they will be maintained, and how the public will have access to the records.

  For the LTC license, identify both historical and new records to be retained by the licensee that are necessary for the licensee to provide effective long-term protection. This includes the decommissioning plan, final status survey report, LTC license, long-term control plan, and all correspondence under the LTC license. Identify the location and methods used for retention of records by the licensee. Note that NRC will retain all licensing records as part of its agency recordkeeping system and that these records will be available to the public in the future, as they are today.

  For the LA/RC, identify both historical and new records to be retained by the site owner that are necessary for the site owner to provide effective long-term protection, including the decommissioning plan, final status survey report, legal agreement (site owner at time of license termination), restrictive covenant, and correspondence between NRC and the site owner. Note that NRC has the primary responsibility for maintaining records and making those available to the public, as part of its Agency recordkeeping system. In accordance with the legal agreement, the licensee or site owner would be required to record the restrictive covenant with the appropriate recordation body responsible for maintaining records related to land ownership (e.g., Registrar of Deeds) in the jurisdiction where the site is located. These recordkeeping responsibilities should be outlined in the legal agreement and restrictive covenant.

Detriments Associated With Institutional Controls

- A description of any detriments or potential drawbacks associated with the maintenance of the institutional control(s). Detriments could result from restricted use of the land, independent of the type of legal instrument used for institutional controls. Include any applicable stakeholder inputs or advice, if provided.

  For the LTC license, describe any detriments to using the LTC license option. For example, describe potential impacts on sale of property or value of property due to the NRC license or perceptions that NRC could potentially require further cleanup in the future (i.e., lack of finality).

EVALUATION FINDINGS: EVALUATION CRITERIA

The staff should determine whether the information summarized in “Information to be Submitted,” above satisfies the criteria summarized below. The application of the criteria below

is dependent on the circumstances of the case. In each case, the staff should consult with the Office of the General Counsel on the application of the criteria and the sufficiency of the licensee's proposal.

A. For legally enforceable institutional controls on privately owned land:

Proprietary institutional controls on privately owned land, including LA/RC, should:

- Be enforceable against any owner of the affected property and any person that subsequently acquires the property or acquires any rights to use the property.
- Be enforceable by entities, other than the landowner, that have the legal authority to enforce the restriction. For LA/RC, the legal authority to enforce the restriction would be with the NRC.
- Be developed based on considerations of how durable the controls need to be.
- Include provisions to replace the entity with authority to enforce the restriction.
- Indicate actions the entity with authority to enforce the restrictions may take.
- Remain in place for the duration of the time they are needed.
- Have appropriate funds set aside.
- Be appropriately recorded, including in the deed and in land records, as appropriate.
- Include a legal opinion by an attorney specializing in real estate law, who is knowledgeable in the particular State and local land use laws, that demonstrates:
  - The property law of the particular State and locality in which the land is located ensures that the particular instrument selected will accomplish its intended purpose.
  - The restrictions have been reviewed and their validity affirmed for the locality.
  - The owner of the affected property (i.e., the possessor of the land) can be compelled to abide by the terms of the land use restriction.
  - The restrictions are binding on future owners (possessors) of the land (i.e., they should "run with the land").
- Include a legal opinion that the entity with the right to restrict the land's use and the responsibility to enforce the restriction has the legal authority to do so and is someone other than the owner or possessor of the land in question.
- Include a demonstration that the entity (or entities) with authority to enforce the restrictions have the knowledge, capability, and willingness to do so, and are appropriate for the specific situation.
- Include a demonstration that the institutional control is durable enough to provide an adequate level of protection of public health and safety and the environment for the amount of residual

radioactivity remaining on the site. Use the risk-informed graded approach described in Appendix M of this Volume.

- Include a provision to replace the entity with authority to enforce the restriction if that entity is no longer willing or able to enforce the restriction.
- Clearly state the actions that the parties with authority to enforce the restrictions may take to keep the restrictions functioning (e.g., monitoring of deed compliance, control and maintenance of physical barriers).
- Include a demonstration that the restrictions will remain in place for the duration that they are needed, including periodic re-recording of the restrictions.
- If restrictions will end, the conditions that would end the restriction must be clearly stated, and the procedures for canceling or amending the restriction should be readily available. There should be no provisions in the restriction or in the land use law of the local jurisdiction that would cause the restrictions to end while they are still needed to protect the public.
- Identify corrective actions to be taken in case the restrictions need to be broken. For example, a no-excavation restriction may need to be broken if a water main under the site bursts and must be repaired.
- Include a demonstration that the information about restrictions is recorded in the deed and in land records and will contain:
  - a legal description of the property affected;
  - the name or names of the current owner or owners of the property as reflected in public land records;
  - identification of the parties that can enforce the restriction (i.e., own the rights to restrict use of the land);
  - the reason for the restriction, the nature of the radiation hazard, including the estimated dose if institutional controls fail, and that this restriction is established as a condition of license termination by NRC pursuant to 10 CFR 20.1403;
  - a statement describing the nature of the restriction, limitation, or control created by the restriction;
  - the duration of the restriction;
  - permission to install and maintain physical controls, if any are used; and,
  - the location of copies of the important records related to the decommissioning of the site and license termination under restricted conditions.
- For LA/RC, identify the reasons that the LA/RC is an appropriate option for institutional controls, given the criteria in “Area and Type of Institutional Controls” in Section 17.7.3.

B. For legally enforceable institutional controls on government owned land:

NRC may accept government ownership of land as a method to enforce controls on land use and to meet the legally enforceable institutional control requirements in 10 CFR 20.1403(b) and (e). Government ownership will generally be acceptable when the dose to an average member of the critical group could exceed 1.0 mSv (100 mrem) per year (but be less than 5.0 mSv (500 mrem) per year) if the institutional controls were no longer in effect. In reviewing restrictions involving government ownership of land, NRC staff should ensure that the restriction will remain in place for the entire time they are needed and that the nature of the controls and restrictions on the land are clearly stated in a publicly available legal record. Depending on the government entity involved, consider as appropriate the items under part A, above.

C. For institutional controls based on sovereign or police powers:

Institutional controls that are based on sovereign or police powers generally consist of zoning or other restrictive requirements. The permissibility and effectiveness of governmental controls at a particular site will depend on the applicable State and local law.

Institutional controls based on sovereign or police powers should:

- Include a legal opinion by an attorney specializing in real estate law who is knowledgeable in the particular State and local land use laws that verifies the following:
  - — Zoning and other restrictive requirements have been reviewed and their validity affirmed.
  - — They are binding on present and future owners of the land.
- Include a demonstration that the government agency imposing the zoning or restriction will assume responsibility for enforcing the restriction.
- Include a demonstration that the restrictions will remain in place for the entire time that they are needed or the conditions that can cause them to be changed.
- Include a demonstration that the restrictions or zoning requirements are clear to current and future owners of the land, local and State governments, and others, as appropriate, through public documents, notification, placement in land records, and so forth. Such documentation should include an indication of the activities allowable and the residual radioactivity remaining onsite.

D. For institutional controls based on NRC LTC license:

For the LTC license, identify the reason that the LTC license is an appropriate option for durable institutional controls, given the criteria in Section 17.7.3.

17.7.4 SITE MAINTENANCE AND LONG-TERM MONITORING

The purpose of the review of the information about the licensee's long-term monitoring and site maintenance program is to ensure that: (1) adequate arrangements have been made to ensure that the site will be maintained in accordance with the institutional controls described above, and that (2) the licensee has an adequate arrangement to ensure that an independent third party can assume and carry out responsibilities for any necessary control, monitoring, and maintenance of the site after NRC has terminated the license. Criteria for evaluating the licensee's mechanism to ensure that sufficient funds are available to allow an independent third party to assume and carry out responsibilities for any necessary control, monitoring, and maintenance of the site after NRC has terminated the license, are addressed in Part II of Volume 3 of this NUREG series.

ACCEPTANCE CRITERIA: INFORMATION TO BE SUBMITTED

The information supplied by the licensee should be sufficient to allow the staff to fully understand what arrangements for long-term monitoring and site maintenance have been provided by the licensee. This should include descriptions of how the site maintenance arrangements will ensure that the site will be managed per the institutional controls described above and how an independent third party will assume and carry out responsibilities for any necessary control and maintenance of the site after NRC has terminated the license.

The licensee should describe the long-term monitoring and maintenance activities. Under the LTC license, these would be required by the license conditions. Note that a Long-Term Control Plan would be developed before license amendment for the LTC license option, which would include the detailed plans and procedures for restrictions on access and use, long-term monitoring, and maintenance. For the LA/RC option, any monitoring and maintenance activities would be required by the provisions of the LA/RC. Note that the LA/RC option should be used only if there are no complex monitoring and maintenance activities that would require expertise to carry out. The staff's review should verify that the following information is included in the discussion of the site maintenance program in the facility DP:

Long-term Monitoring

- A description and basis for the long-term monitoring program, using the risk-informed graded approach. This approach consists of combining the prohibited access and land uses that could lead to non-compliance (see Section 17.7.3) with the human and natural disruptive processes for engineered barriers (see Section 17.7.3 of this volume and Section 3.5.2 of Volume 2) to form one list of disruptive human and natural processes which could lead to non-compliance and should be the focus of monitoring and maintenance.

  For these disruptive processes, identify how each would be monitored, including type of monitoring (e.g., visual surveillance of fence integrity, visual surveillance for indicators of disruptive erosion such as gullies; radiological monitoring of groundwater or surface water; visual surveillance of disruptive vegetation intrusion into an engineered barrier/cover) and how each type would be used to detect indicators or precursors of the

disruptive process, either in the environment surrounding the engineered barrier or the engineered barrier itself. Also, include and justify the location, frequency, and duration of monitoring. Duration of monitoring should be determined by considering several site-specific factors such as nature of disruptive processes; time needed to reduce uncertainty in barrier performance; and barrier degradation rates. Thus, duration and amount of monitoring should be risk-informed. For example, little or no long-term monitoring might be needed for lower risk sites, sites without disruptive processes important to compliance, or sites with low uncertainty in the engineered barrier performance over the time needed. In contrast, monitoring would be needed for higher risk sites, sites with disruptive processes, or if there is high uncertainty with engineered barrier performance.

Maintenance

- A description of the site maintenance program and the basis for concluding that the program is adequate to control and maintain the site.

  The following risk-informed approach should be used for determining the maintenance that is needed, which consists of identifying the disruptive process important to compliance, describing the maintenance that would provide corrective actions to mitigate the disruptive process, and how monitoring information would be used to identify the need and appropriate type of maintenance.

  The risk-informed approach for maintenance also would be applied to engineered barriers, if they are used. For higher risk sites where robust barriers are designed so their performance does not rely on active ongoing maintenance, monitoring and maintenance should still be planned, particularly, for disruptive events that could lead to non-compliance or where there is higher uncertainty. This approach provides added confidence through redundancy and defense-in-depth, as described in Appendix M for the total system.

  For the LTC license and LA/RC, the maintenance activities would be conditions of the LTC license or LA/RC. For the LTC license, the detailed plans and procedures to implement the conditions would be included in the Long-Term Control Plan.

- A demonstration that an appropriately qualified entity has been provided to control and maintain the site.

  Under the LTC license, the entity could be the licensee or a contractor to the licensee. Describe the qualifications of the personnel that are necessary to conduct the planned LTC activities.

- If the licensee plans on using a contractor, a description of the arrangement or contract with the entity charged with carrying out the actions necessary to maintain control at the site.

- If the licensee plans on using a contractor, a demonstration that the contract or arrangement will remain in effect for as long as feasible, and include provisions for renewing or replacing the contract.
- A description of the plans for corrective actions that may be undertaken in the event the institutional control(s) fail.
- A description of the plans for corrective actions that may be undertaken in the event the site maintenance and control program fails.

  Identify reasonably foreseeable events (e.g., forced entry through fences or disruption of cap material) that could cause a failure of access and land use controls. Describe the corrective actions the licensee would take and the requirement that NRC would be notified of the events and planned corrective actions.

- A description of licensee reporting to NRC and State and local officials, including an annual report and event corrective actions reports, as needed. The annual report should describe licensee surveillance and routine maintenance. Event corrective action reports would identify the adverse event that occurred and the licensee's planned corrective actions. Follow- up reports would include a summary of the results of the corrective actions taken, an analysis of lessons learned from the event, and plans to prevent similar future events from occurring.

Enforcing Institutional Controls

- A description of the entities enforcing, and their authority to enforce, the institutional control(s);

  For the LTC license, specify that NRC will have jurisdiction for oversight of licensee activities and can take enforcement actions, if needed, under its licensing authority from the AEA. NRC's general role under the LTC license is to assure that the controls are maintained and remain protective over time. Also note that NRC activities would include review, inspection, license renewal, and enforcement.

  For the LA/RC, specify that NRC is responsible for (1) assuring that the site owner is complying with the LA/RC, and (2) taking actions to enforce the LA and RC (e.g., legal action in the courts), if the conditions of these legal tools are not met. The LA/RC, when written for a specific site, would describe the methods and frequency in which NRC (as the enforcing party) would monitor the site to verify the effectiveness of controls. Outline how the NRC would enforce the restrictions, and if the LA or RC were breached, what steps NRC would take to restore these instruments (and the land use restrictions, monitoring, or reporting actions they contain).

- A description of the activities that the entity with the authority to enforce the institutional controls may undertake to enforce the institutional controls;

This is not applicable for the LTC license option. Under the LA/RC option, the legal agreement and restrictive covenant should outline the activities in which NRC may undertake to enforce the controls.

- A description of the manner in which independent oversight of the entity charged with maintaining the site will be conducted and what entity will conduct the oversight.

  For the LTC license and LA/RC, the above item is not applicable, because NRC is the entity that will conduct the oversight.

- A description of the periodic site inspections that will be performed by the third party, including the frequency of the inspections.

  This is not applicable for the LTC license option. Under the LA/RC option, the legal agreement and restrictive covenant should outline any necessary details of the periodic site inspections NRC will perform, including the frequency of the inspections.

- A description of the manner in which the entity with the authority to enforce the institutional control(s) will be replaced if that entity is no longer willing or able to enforce the institutional control(s) (this may not be needed for Federal or State entities);

  For the LTC license and LA/RC, the above item is not applicable, because NRC is the enforcing party.

Sufficient Financial Assurance

For the purposes of a LTC license and LA/RC, "sufficient" financial assurance, pursuant to 10 CFR 20.1403(c), is an amount that will (1) enable an independent third party to assume and carry out responsibilities for any necessary control and maintenance of the site, (2) provide for trust fund expenses, (3) provide for NRC fees applicable to the site, and (4) provide a 25% contingency factor. The financial assurance instrument used will be a trust fund with sufficient capital to cover the cost estimate. The cost estimate, trust agreement, and the trustee must be approved by NRC.

To develop the cost estimate, refer to NUREG-1757, Volume 3, which contains guidance on developing the cost estimate for long-term site control and maintenance. Once the amount is estimated, the licensee must provide sufficient funds to produce an annual average income that covers the annual surveillance, control, and maintenance/repair costs, NRC fees, and trustee expenses. By analogy to uranium mill tailings funds, a 1% rate of return may be used by the licensee to determine the minimum funding level. This rate would contribute to the LTR requirement for sufficient funds for a site with long-lived radionuclides needing control over a long time period. It is also justified because the current licensee responsible for the contamination should fund the long-term control so that no additional costs will be passed on to future site owners/licensees.

The cost estimate should include costs for at least the following activities:

- site surveillance of access and land use restrictions;
- maintenance;
- radiological monitoring of surface and groundwater, if needed and non-radiological monitoring of processes
- reporting; and
- records retention.

For the LTC license, the cost estimate should also include NRC oversight fees. The fees given below are in 2005 dollars and should be adjusted for inflation. To adjust for inflation, use the ratio of the cost of professional staff hours found in 10 CFR 170.20. In 2005, the staff-hour cost for NMSS was $197 per hour. In 2005, NRC fees in 2005 dollars are as follows:

- a fee of $10,000 for one inspection and one report each year; and
- $20,000 every 5 years for 5 year license renewal, inspection, and report.

For the LA/RC option, the cost estimate should include the above NRC oversight fees for periodic inspections (at a frequency/interval based on site-specific considerations). The cost estimate should also include fees for NRC review of the property laws in the jurisdiction where the site is located at the time site ownership changes (or at least every five years), to assure that the local laws still support the enforceability of the restrictive covenant.

Finally, the estimate should include reasonable trustee fees and expenses.

NUREG-1757 Volume 3 provides for a contingency factor of 25% to be added to the cost estimate. This contingency should be retained to buffer against potential market losses and to provide for unexpected costs. If the contingency proves insufficient, the licensee should add funds to the trust. As a matter of fairness, particularly in light of the long term existence of the fund, if the balance substantially exceeds the amount needed to produce sufficient annual income, a provision, to return excess funds to the licensee with NRC's approval, should be included in the trust.

Under the LTC license, further flexibility is provided for a future licensee to request approval for removing the residual radioactivity, terminating the license, and releasing the site for unrestricted use. For this approach, a licensee would submit a decommissioning plan for NRC review, as is currently done, and decommission the site in accordance with NRC's decommissioning regulations. NRC would assure that the site was properly decommissioned and suitable for unrestricted release, before terminating the LTC license. The trust fund does not have to include sufficient funds to clean the site to unrestricted release; the future site owner would need to independently cover this cost. NRC would also allow a request to terminate the LTC license and release the site with restrictions using another acceptable type of legally

enforceable and, if needed, durable institutional control and independent third party arrangement, if approved by NRC.

Independent Third Party

- a description of the authority granted to the third party (including NRC under the LTC license or LA/RC options) to perform, or have performed, any necessary maintenance activities;
- unless the entity is a government entity, a demonstration that the third party is not the entity holding the financial assurance mechanism (this is not applicable for the LTC license or LA/RC options as NRC is the beneficiary of the financial assurance mechanism);
- a demonstration that sufficient records evidencing to official actions and financial payments made by the third party (including NRC under the LTC license or LA/RC) are open to public inspection.

EVALUATION FINDINGS: EVALUATION CRITERIA

The staff should determine whether the information summarized under "Information to be Submitted," above satisfies the criteria summarized below. The application of the criteria below is dependent on the circumstances of the case. In each case, the staff should consult with the Office of the General Counsel on the application of the criteria and the sufficiency of the licensee's proposal.

The entity to control and maintain the site may be the former licensee, the landowner, a governmental agency, an organization, a corporation or company, or occasionally a private individual. Control and maintenance of a site does not necessarily have to be carried out by an independent third party. The entity should be capable of carrying out its responsibilities and should be appropriate given the nature of the restrictions in place. The entity could be a contractor to the entity that holds the rights to restrict use of the property. Note that government control and/or ownership is generally appropriate for higher risk sites involving large quantities of uranium and thorium contamination and for those sites where the potential dose to the public could exceed 1.0 mSv/y (100 mrem/y) if institutional controls fail. See Appendix M for the risk-informed graded approach.

The maintenance and control program includes detailed descriptions of: (1) the repair/replacement and maintenance program for the site; (2) if appropriate, an environmental monitoring program, including the duration of the monitoring, who will be informed of the results, action levels and what action will be taken if the action levels are exceeded; and (3) the mechanism to detect and mitigate the loss of site controls; the mechanism to, if necessary, inform local emergency responders of the loss of controls.

An arrangement or contract is in place to carry out any actions necessary to maintain the controls so that the annual dose to the average member of the critical group does not exceed 0.25 mSv (25 mrem). The arrangement or contract should be for as long a time as is feasible, and there

should be provisions for renewing or replacing the contract to be consistent with the duration of the restrictions. The arrangement may include oversight of the entity by a government entity or the courts.

A mechanism is in place to replace the entity controlling/maintaining the site if that becomes necessary. Replacement may be specified in the agreement with the conditions under which a government, the courts, or other entity can replace the entity.

The entity is authorized to either perform the necessary work to maintain the controls or to contract for the performance of the work. The entity would need the authority to contract for the necessary work, review and approve the adequacy of the work performed, replace contractors if necessary, and authorize payment for the work.

The entity performing the site control and maintenance should not hold the funds itself; that is to say, the entity should not serve as the provider of financial assurance (e.g., escrow agent, trustee, issuer of letter of credit). However, if the entity is a government, the licensee may elect to allow the government to hold the funds.

A demonstration that sufficient records evidencing the official actions of and financial payments made by the entity are open to public inspection.

The entity has the responsibility to perform periodic rechecks of the site no less frequently than every 5 years [if required by 10 CFR 20.1403(e)(2)(iii)] to ensure that the institutional controls continue to function. The periodic rechecks should include an onsite inspection to verify that prohibited activities are not being conducted and that markers, notices, and other physical controls remain in place.

Under the LTC license option, NRC would review and renew the LTC license every five years. Under the LA/RC option, NRC would review the property laws in the jurisdiction where the site is located at the time site ownership changes (or at least every five years), to assure that the laws of the jurisdiction where the site is located still support the enforceability of the restrictive covenant.

17.7.5 OBTAINING PUBLIC ADVICE

The purpose of the review of the license's description of activities undertaken to obtain advice from the public on institutional controls is to determine if the advice of individuals and institutions in the community that may be affected by the decommissioning has been sought, evaluated, and as appropriate, incorporated into the licensee's decisions following an analysis of the advice.

ACCEPTANCE CRITERIA: INFORMATION TO BE SUBMITTED

The information supplied by the licensee should be sufficient to allow the staff to determine whether the licensee has adequately sought, managed, and, as appropriate, incorporated, advice from individuals and institutions that may be affected by the decommissioning alternative proposed by the licensee.

10 CFR 20.1403(d)(1) requires that licensees proposing to decommission a site by restricting use of the site shall seek advice from affected parties on whether:

- The provisions for institutional controls will provide reasonable assurance that the TEDE distinguishable from background radiation will not exceed 0.25 mSv/y (25 mrem/y).
- The provisions for institutional controls will be enforceable.
- The provisions for institutional controls will not impose an undue burden on the community or other affected parties.
- Sufficient financial assurance has been provided to allow an independent third party to carry out any necessary control and maintenance activities at the site after license termination.

The staff's review should verify that the following information is included in the discussion of how advice was sought, obtained, evaluated, and as appropriate, incorporated for each of the issues identified above:

- a description of how individuals and institutions that may be affected by the decommissioning were identified and informed of the opportunity to provide advice to the licensee;
- a description of the manner in which the licensee obtained advice from these individuals or institutions;
- a description of how the licensee provided for participation by a broad cross-section of community interests in obtaining the advice;
- a description of how the licensee provided for a comprehensive, collective discussion of the issues by the participants represented;
- a copy of the publicly available summary of the results of discussions, including individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants;
- a description of how this summary has been made available to the public; and
- a description of how the licensee evaluated the advice, and the rationale for incorporating, or not incorporating, the advice from affected members of the community into the DP.

EVALUATION FINDINGS: EVALUATION CRITERIA

The staff should verify that the information summarized under "Information to be Submitted," above, is included in the licensee's description of how advice was solicited, obtained, evaluated and as appropriate, incorporated into the licensee's decisions and DP. The staff should verify that the manner in which advice was sought and obtained and the activities associated with obtaining this advice are consistent with the criteria in Sections 17.7.5. and M.6 of this volume.

17.7.6 DOSE MODELING AND ALARA DEMONSTRATION

The purpose of the review of the licensee's estimates of doses from the site after termination of the license to verify that the dose to the average member of the critical group will not exceed 0.25 mSv/y (25 mrem/y) with the institutional controls in place required by 10 CFR 20.1403(b) and that the doses are as low as reasonably achievable. The staff's review should also verify that, if institutional controls are no longer in place, there is reasonable assurance that the dose to the average member of the critical group from residual radioactive material at the site will not exceed either 1.0 mSv/y (100 mrem/y), or 5.0 mSv/y (500 mrem/y) required by 10 CFR 20.1403(e), provided that the licensee:

- demonstrates that further reductions in residual radioactivity necessary to comply with the 1.0 mSv/y (100 mrem/y) requirement are not technically achievable, would be prohibitively expensive, or would result in net public or environmental harm;
- makes provisions for durable institutional controls; and
- provides sufficient financial assurance to allow an independent third party to carry out rechecks at the site no less frequently than every five years and to assume and carry out responsibilities for any necessary control and maintenance of the controls at the site.

ACCEPTANCE CRITERIA: INFORMATION TO BE SUBMITTED

The information supplied by the licensee should be sufficient to allow the staff to determine whether the residual radioactive material at the site will not result in a TEDE that exceeds 0.25 mSv/y (25 mrem/y) with institutional controls in place and is ALARA, or that if institutional controls are no longer in place that there is reasonable assurance that the TEDE to the average member of the critical group will not exceed either 1.0 mSv/y (100 mrem/y) or 5.0 mSv/y (500 mrem/y), with conditions. The information should also demonstrate that the financial assurance mechanism(s) are adequate for the site (See Section 17.7.4). Finally, the information should be adequate to allow the staff to determine if the institutional controls and site maintenance activities are adequate.

In conducting dose assessments, the licensee should identify realistic exposure scenarios assuming past, present, and reasonably foreseeable (i.e., that are likely within the next 100 years) land uses (as described in Chapter 5 of Volume 2 of this NUREG series). Note that the 100 years described here is only a timeframe for estimating future land uses; the licensee must evaluate

doses that could occur over the 1000-year time period specified in the LTR. Included in the assumption that the institutional controls are no longer in place, the licensee should assume that there is no maintenance and no repair of engineered barriers (if used), and as a result, should analyze how the engineered barrier might degrade over time, for example, due to erosion or biointrusion.

If a licensee proposes that a portion of its site be released for unrestricted use, then the total dose from all portions of the site must meet the applicable dose criteria. Therefore, dose assessments for both restricted and unrestricted use portions of the site are needed and also must take into consideration the impact of the other portion of the site — impacts of the restricted use portion on the unrestricted use portion (e.g., the potential for future contaminated groundwater to migrate into the unrestricted area) and impacts of the unrestricted portion on the restricted use portion.

The staff's review should verify that the following information is included in the dose modeling/ALARA demonstration subsection of the restricted use section of the DP:

- a summary of the dose to the average member of the critical group with institutional controls in place, as well as the estimated doses if they are no longer in place;
- a summary of the evaluation performed pursuant to Chapter 6 and Appendix N in Volume 2 of this NUREG series demonstrating that these doses are ALARA. ALARA analyses should also use the more realistic scenario approach to identify reasonably foreseeable land uses;
- if the estimated dose to the average member of the critical group could exceed 1.0 mSv/y (100 mrem/y), but would be less than 5.0 mSv/y (500 mrem/y):
  - — a demonstration that further reductions in residual radioactivity necessary to comply with the 1.0 mSv/y (100 mrem/y) requirement are not technically achievable, would be prohibitively expensive, or would result in net public or environmental harm;
  - — provisions for durable institutional controls are in place; and
  - — sufficient financial assurance has been provided to allow an independent third party to carry out rechecks at the site no less frequently than every 5 years and to assume and carry out responsibilities for any necessary control and maintenance of the controls at the site.

EVALUATION FINDINGS: EVALUATION CRITERIA

The staff should verify that the information summarized under "Information to be Submitted," above, is included in the dose modeling/ALARA demonstration subsection of the restricted use section of the DP. The staff should verify that the dose to the average member of the critical group does not exceed 0.25 mSv/y (25 mrem/y) with institutional controls in place and that the licensee estimated the dose in accordance with Chapter 5 of Volume 2 of this NUREG series. The staff should verify that these doses are ALARA and that the licensee has made this evaluation in accordance with the criteria in Chapter 6 and Appendix N of Volume 2 of this NUREG series. The staff should verify that the dose to the average member of the critical group will not exceed

1.0 mSv/y (100 mrem/y), without institutional controls, and that the licensee has estimated the dose in accordance with Chapter 5 of Volume 2 of this NUREG series.

If the dose to the average member of the critical group could exceed 1.0 mSv/y (100 mrem/y), without institutional controls, the staff should verify that the dose will not exceed 5.0 mSv/y (500 mrem/y) and that the licensee has estimated the dose in accordance with Chapter 5 of Volume 2 of this NUREG series. The staff also should verify that the licensee has determined that further reductions in residual radioactivity necessary to comply with the 1.0 mSv/y (100 mrem/y) requirement are not technically achievable, would be prohibitively expensive or would result in net public or environmental harm in accordance with Chapter 6 and Appendix N of Volume 2 of this NUREG series. The staff should verify that the institutional controls provided by the licensee meet the criteria for a durable institutional controls (i.e., government ownership or control or responsibility as the third party). The staff should verify that the licensee has provided sufficient financial assurance to allow an independent third party to carry out rechecks at the site no less than every five years. The staff should verify that the amount of financial assurance is sufficient to assume and carry out responsibilities for any necessary control and maintenance of the controls at the site in accordance in Part II of Volume 3 of this NUREG series.

17.8 ALTERNATE CRITERIA

For certain difficult sites with unique decommissioning problems, 10 CFR 20.1404 includes a provision by which NRC may terminate a license using alternate dose criteria. NRC expects the use of alternate criteria to be limited to rare situations. This provision was included in 10 CFR 20.1404 because NRC believed that it was preferable to codify provisions for these difficult sites in the rule rather than require licensees to seek an exemption outside the rule. Under 10 CFR 20.1404, NRC may consider terminating a license under alternate criteria that are greater than 0.25 mSv/y (25 mrem/y) [but less than 1.0 mSv/y (100 mrem/y)] with restrictions in place, but NRC limits the conditions under which a licensee could apply to NRC for, or be granted use of, alternate criteria to unusual site-specific circumstances.

The guidance in Section 17.7 for restricted use sites, including the risk-informed graded approach and use of new institutional control options involving NRC (i.e., LTC license and LA/RC), also applies to selecting the appropriate institutional controls for sites proposing to decommission using alternate criteria in 10 CFR 20.1404.

The purpose of the review of the licensee's discussion of why it is requesting license termination under the alternate criteria provisions of 10 CFR 20.1404 is to determine if the licensee can demonstrate that the estimated doses to the public from all man-made sources other than medical will be less than 1.0 mSv/y (100 mrem/y) and are ALARA, that appropriate restrictions are in place at the site and that the licensee has sought, obtained, evaluated and, as appropriate addressed, advice from individuals and institutions that may be affected by the decommissioning, in accordance with the criteria in 10 CFR 20.1404.

M.1 INTRODUCTION

The requirements of 10 CFR 20.1403 and 10 CFR 20.1404 are briefly summarized in this overview. This overview is being included in this NUREG to provide the staff with an understanding of the philosophy and approach used by the Commission in promulgating these provisions of 10 CFR Part 20, Subpart E. Staff should refer to the appropriate sections of this guidance to evaluate licensee requests for license termination under these provisions. In addition, Section 17.7.5 of this Volume and Section M.6 of this Appendix contain guidance on seeking public advice on institutional controls which should be used to evaluate a licensee's program for compliance with 10 CFR 20.1403(d)(1–2) and 10 CFR 20.1404 (a)(4).

Prior to the promulgation of the License Termination Rule (LTR) (62 FR30958), U.S. Nuclear Regulatory Commission (NRC) regulations did not contain a provision for releasing sites for other than unrestricted use. Experience with decommissioning facilities has indicated that for certain sites, achieving the unrestricted use criterion might not be appropriate because: (1) there may be net public or environmental harm in achieving unrestricted use; (2) expected future use of the site would likely preclude unrestricted use; or (3) the cost of cleanup and waste disposal to achieve the unrestricted use criterion is excessive compared with achieving the same dose criterion by restricting the use of the site and eliminating exposure pathways.

Similarly, for certain difficult sites with unique decommissioning problems, 10 CFR 20.1404 includes a provision by which the NRC may terminate a license using alternate dose criteria. The NRC expects the use of alternate criteria to be limited to rare situations. This provision was included in 10 CFR 20.1404 because the NRC believed that it was preferable to codify provisions for these difficult sites in the rule rather than require licensees to seek an exemption process outside the rule.

NRC still considers unrestricted use to be the preferable method to decommission licensed facilities and terminate radioactive materials licenses. However, in recognition that there may be a limited number of sites where license termination with restrictions may be appropriate, the NRC included provisions for terminating the licenses for these few sites in the LTR.

M.1.1 RESTRICTED USE

License termination under restricted conditions will be permitted pursuant to 10 CFR 20.1403 if all the following requirements are met:

1. The licensee can demonstrate that further reductions in residual radioactivity necessary to release the site for unrestricted use: (1) would result in net public or environmental harm; or, (2) were not being made because the residual levels are as low as is reasonably achievable (ALARA) [10 CFR 20.1403(a)].

2. The licensee has made provisions for legally enforceable institutional controls that would limit dose to the average member of the critical group to 0.25 millisieverts per year (0.25 mSv/y) [25 millirem/year (25 mrem/y)] [10 CFR 20.1403(b)].

3. The licensee has provided sufficient financial assurance to enable an independent third party to assume and carry out responsibilities for any necessary control and maintenance of the site [10 CFR 20.1403(c)].

4. The licensee has submitted a decommissioning plan or a license termination plan to the NRC that indicates the licensee's intent to release the site under restricted conditions and describes how advice from individuals and institutions in the community who may be affected by the decommissioning has been sought and incorporated, as appropriate, following analysis of that advice [10 CFR 20.1403(d)]. In seeking this advice, the licensee would have conducted the activities for seeking advice required by 10 CFR 20.1403(d)(2), including providing for participation by a broad cross-section of community interests that may be affected by decommissioning; providing an opportunity for a comprehensive collective discussion of the institutional controls and financial assurance specified in 10 CFR 20.1403(d)(1) by the affected parties; and providing a publicly available summary of all such discussions.

5. The residual radioactivity levels have been reduced so that, if the institutional controls were no longer in effect, the annual dose to the average member of the critical group would not exceed 1.0 mSv/y (100 mrem/y) or, under certain conditions, would not exceed 5.0 mSv/y (500 mrem/y). If the 5.0 mSv/y (500 mrem/y) value is used, the licensee must: (1) demonstrate that achieving 1.0 mSv/y (100 mrem/y) is prohibitively expensive, not technically achievable, or would result in net public or environmental harm, (2) make provisions for durable institutional controls, and (3) provide sufficient financial assurance to allow an independent third party to carry out rechecks of the controls and maintenance at least every 5 years and carry out any necessary controls and maintenance [10 CFR 20.1403(e)].

The NRC staff will review and evaluate the decommissioning plan and will solicit public input to determine whether the above requirements are satisfied, pursuant to 10 CFR 20.1405. Once the NRC determines that they have been met, the NRC license is terminated and the NRC no

longer regulates or oversees the site, except in the circumstances indicated in 10 CFR 20.1401(c). Specifically, 10 CFR 20.1401(c) indicates that the NRC could require additional cleanup after license termination if it determines that, based on new information, the criteria in Subpart E of 10 CFR Part 20 for release of a site were not met and residual radioactivity remaining at the site could result in a significant threat to public health and safety. Please note that the Commission has explicitly chosen not to define what constitutes "new information" or "significant public risk," because this determination will be made on a case-by-case basis.

In some instances, a licensee planning license termination with restricted conditions under an approved decommissioning plan or license termination plan may find during remediation that the site can be cleaned up to a level that would not require restricted conditions. Additionally, a licensee that had planned unrestricted release may find during remediation that unrestricted release is not practical. In these instances, the licensee should submit an amended decommissioning plan or license termination plan to NRC as soon as possible.

The restricted conditions should be limited to the smallest portion of the site that is appropriate. However, all areas that will be subject to restricted conditions should be contained within one or occasionally two areas. Complicated checkerboard patterns of areas with restricted conditions should be avoided.

M.1.2 ALTERNATE CRITERIA

Under 10 CFR 20.1404, the NRC may consider terminating a license using alternate criteria that are greater than 0.25 mSv/y (25 mrem/y), with restrictions in place. However, licensees requesting license termination under the alternate criteria provisions of 10 CFR 20.1404 would still need to ensure that potential doses from residual radioactivity are less than 1.0 mSv/y (100 mrem/y) with restrictions in place. In addition, the NRC will limit the conditions under which a licensee could apply to the NRC for, or be granted use of, alternate criteria to unusual site-specific circumstances subject to the following provisions:

1. The licensee has provided assurance that public health and safety will continue to be protected and that it is unlikely that the dose from all man-made sources combined, other than medical, would be more than 1.0 mSv/y (100 mrem/y). A licensee proposing to use alternate criteria would have to provide a complete and comprehensive analysis of such possible sources of exposure.

2. The licensee has employed, to the extent practical, restrictions on site use for minimizing exposure at the site, using the provisions for institutional controls and financial assurance in 10 CFR 20.1403, including compliance with the dose "caps" required by 10 CFR 20.1403(e).

3. The licensee has reduced doses to ALARA levels, based on a comprehensive analysis of risks and benefits of all viable alternatives.

4. The licensee has sought advice from affected parties regarding the use of alternate criteria at the site. In seeking this advice, the licensee would have conducted the activities for seeking advice required by 10 CFR 20.1404(a)(4), including providing for participation by a broad cross-section of community interests that may be affected by decommissioning; providing an opportunity for a comprehensive collective discussion of the issues related to the alternate criteria by the affected parties; and providing a publicly available summary of all such discussions.[1] As part of this process, the licensee would submit a decommissioning plan indicating how advice of individuals and institutions in the community that may be affected by the decommissioning has been sought and addressed.

5. The licensee has obtained the specific approval of the Commission for the use of alternate criteria. The Commission will make its decision after considering the NRC staff's recommendations that would address any comments provided by the EPA and any public comments submitted regarding the decommissioning plan pursuant to 10 CFR 20.1405.

M.1.3 INSTITUTIONAL CONTROLS

Institutional controls are used to limit intruder access to, and/or use of, the site to ensure that the exposure from the residual radioactivity does not exceed the established criteria. Institutional controls include administrative mechanisms (e.g., land use restrictions) and may include, but not be limited to, physical controls (e.g., signs, markers, landscaping, and fences) to control access to the site and minimize disturbances to engineered barriers. There must be sufficient financial assurance to ensure adequate control and maintenance of the site. As discussed below, they must be legally enforceable and the entity charged with their enforcement must have the capability, authority, and willingness to enforce the institutional controls. If the institutional control includes physical controls, they must include measures to monitor their performance and to provide for their maintenance or replacement along with sufficient financial assurance to provide for the necessary monitoring, maintenance or replacement.

Institutional controls address a variety of restrictions and need to be tailored to each site situation. Restrictions may include prohibitions on farming, industrial, recreational, or residential use. Prohibitions on excavation and water use may also be warranted. Institutional controls are usually characterized as "proprietary" or "governmental." Generally, a layering of different restrictions and mechanisms are needed to provide for durable and effective institutional controls.

Institutional controls based on property rights involve a party that owns rights that restrict the use of, or access to, the property and are referred to as "proprietary institutional controls."

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[1] Licensees are required by 10 CFR 20.1403 to obtain advice from institutions and individuals that may be affected by the decommissioning on specific issues related to institutional controls and financial assurance. However, 10 CFR 20.1404 provides for a much broader discussion of the issues associated with the use of alternate criteria, and, as such, licensees must obtain advice on essentially any issue associated with the use of alternate criteria.

Institutional controls based on property rights apply to land owned by individuals or private institutions and land owned by governments.

One example of such an institutional control is an environmental covenant. The Uniform Environmental Covenants Act (UECA), is a model law that was approved by the National Conference of Commissioners on Uniform State Laws in 2003. If enacted in a State, the UECA would establish requirements for an environmental covenant, a new valid real estate document that can control the future use of a site when real estate is transferred from one person to another. UECA includes provisions absent from most existing State statutes, which may help to overcome obstacles that lead to the ineffectiveness of other land use controls. The environmental covenants created under UECA would be based upon traditional property law principles and would be recorded in the local land records and thereby bind successive owners of the property. State and local governments would have clear rights to enforce the land use restrictions. UECA ensures that a covenant will survive despite tax lien foreclosure, adverse possession, marketable title statutes, and other common law doctrines which might otherwise inadvertently extinguish an intended land use control. UECA also provides detailed provisions on dealing with recorded interests that have priority over the new covenant.

Institutional controls that involve a government using its sovereign or police powers to impose restrictions on citizens or sites under its jurisdiction to limit the use and occupation of privately owned lands are referred to as "governmental institutional controls." Among the more common governmental institutional controls are zoning, well-use restrictions, and building permit requirements.

Zoning is a legal designation placed on land by a local government that restricts the types of uses on a particular property. Overlay zoning consists of zones drawn on a municipality's existing zoning map that provides protection not explicitly stated under existing zoning requirements. Since zoning is subject to change, zoning generally should be used in combination with other restrictions.

Governments, most often local, can place restrictions on private property prohibiting or limiting use. Such government-imposed restrictions could include prohibiting construction of wells for water use, restricting the use of other potential water supplies, issuing permits for certain activities including use of wells for drinking water or construction or use of buildings, and establishing county or State ordinances and property law regulations.

At some sites, institutional controls may include physical controls (e.g., fences, markers, earthen covers, radiological monitoring, and the maintenance of those controls). Physical controls alone do not meet the requirement in 10 CFR 20.1403(b) for legally enforceable institutional controls because they lack a mechanism for legal enforcement. Physical controls and their maintenance can be used to meet the requirement in 10 CFR 20.1403(b) only when they are used in combination with an instrument that permits legal enforcement of the physical control.

In addition to requiring that the institutional controls function to limit the dose to 0.25 mSv/y (25 mrem/y) in 10 CFR 20.1403(b), Subpart E also contains (in 10 CFR 20.1403(e)) two levels of protection based on potential exposure if the institutional controls become ineffective. Based on those two levels, the institutional controls and the parties enforcing the controls need to meet the following criteria:

1. If the annual dose to the average member of the critical group would not exceed 1.0 mSv/y (100 mrem/y) if the institutional controls were no longer in effect, a private individual, organization, or Federal, State or local government may be acceptable as the entity responsible for enforcing the institutional control[2] depending on the circumstances at the site; or

2. If the annual dose could exceed 1.0 mSv/y (100 mrem/y) but be less than 5.0 mSv/y (500 mrem/y), if the institutional controls were no longer in effect, 10 CFR 20.1403(e) requires that a more durable institutional control be used. To meet the requirement in 10 CFR 20.1403(e), an institutional control that involves government ownership of land would be generally acceptable. On privately owned land, a Federal, State or local government as the entity responsible for enforcing the restriction could also be acceptable, depending on the circumstances at the site.

Finally, restrictions will need to remain in place for the duration that they are needed, up to 1000 years. The duration may be a definite specified duration or an indefinite duration. Definite durations are for a specified number of years (for example, the number of years until radiological decay or other processes have reduced the concentration to a level corresponding to an annual dose to the average member of the critical group of less than 0.25 mSv/y (25 mrem/y) without the restrictions). Indefinite durations might end when some measurable event has occurred (for example, when natural processes have adequately reduced the risk of exposure to the residual radioactivity).

The NRC staff will review and evaluate the decommissioning plan and will solicit public input to determine whether the above requirements are satisfied, pursuant to 10 CFR 20.1405.

M.1.4 INSTITUTIONAL CONTROL IMPLEMENTATION ISSUES

NRC and licensees have had difficulty implementing the LTR requirements for license termination under restricted conditions. For example, States have not been agreeable to becoming the independent third party to act as a backup to an owner and often oppose the restricted use approach. Similarly, NRC's efforts to make arrangements for DOE to take

[2] The Commission has stated (see Section B.3.3 of the "Statements of Consideration" for 10 CFR Part 20, Subpart E, "Radiological Criteria for License Termination") that stringent institutional controls would be needed for sites involving large quantities of uranium and thorium contamination. Typically, these would involve legally enforceable deed restrictions and/or controls backed up by State and local government control or ownership, engineered barriers, and as appropriate, Federal ownership.

ownership of commercial sites and provide the necessary access and land use controls or maintenance under the provisions of Section 151(b) of the Nuclear Waste Policy Act of 1982 have not been successful. Finally, for sites with long half-life radionuclides such as uranium and thorium, long-term effectiveness of institutional controls is recognized as a significant challenge given many examples of institutional control failure even after short periods of time.

In response to these difficulties that caused decommissioning delays, NRC evaluated the institutional control issues and developed new policies that should help resolve the issues. These evaluations and new policies are described in the LTR Analysis (SECY-03-0069), and a May 2004 Regulatory Issue Summary, RIS-2004-08.

M.2 RISK-INFORMED GRADED APPROACH TO INSTITUTIONAL CONTROLS

The first of the three new policies is a risk-informed graded approach to selecting institutional controls under the LTR, so that licensees can have flexibility to arrange the appropriate level of controls. The risk-informed graded approach consists of risk framework and associated grades of institutional controls. The general risk framework is defined by the hazard level and likelihood of hazard occurrence. The hazard level is established in the LTR (10 CFR 20.1403(e)(ii)) as the dose level of 1.0 mSv/y (100 mrem/y), calculated assuming institutional controls are not in effect. This dose level is the public dose limit. Sites with calculated doses above the public dose limit, but below 5.0 mSv/y (500 mrem/y), are considered higher risk sites. Those sites below the public dose limit are considered lower risk sites. In addition, higher risk sites are those with longer hazard duration (e.g., longer dose persistence or longer half-life, greater than 100 years). The LTR also defines the general grades of controls: sites below the 1.0 mSv/y (100 mrem/y) dose level require legally enforceable institutional controls, and sites above the 1.0 mSv/y (100 mrem/y) dose level require both legally enforceable and durable institutional controls. Thus, the LTR requires that institutional controls provide more reliable or sustainable protection over the time period needed (i.e., durable) for higher risk sites that could exceed the public dose limit assuming no restrictions. Durable institutional controls are also appropriate for long-lived radionuclides regardless of the dose limit. Therefore, the hazard magnitude and duration criteria for a higher risk site define when durable institutional controls are needed. Table M.1 illustrates this risk-informed graded approach and gives examples.

Specific grading of institutional controls can be selected within the two general grades defined above. This approach recognizes that the site-specific factors affecting risk can be highly variable from site to site. As a result, specific grading recognizes the need for flexibility to tailor institutional controls to achieve the desired effectiveness. Specific grading involves evaluating and balancing numerous site-specific factors such as: (a) physical characteristics of the site that limit future land use; (b) land uses that could be adverse to performance/compliance and therefore should be prohibited; (c) land uses that are acceptable and could result in productive reuse of the site; (d) dose assessment results; e) engineered barriers and related maintenance; (f) monitoring controls and maintenance; (g) jurisdictional limitations on enforceability and

long-term effectiveness of institutional controls; and h) advice from affected parties, such as local governments and the public.

The graded approach has important benefits. For the public, protection is increased, especially over the long term. The approach clearly identifies when durable controls might be needed and specific controls would be designed to mitigate site-specific risks that are significant to maintaining safety. For licensees and NRC, clearer guidance is provided for licensees to select institutional controls and NRC to review licensees' proposed controls. Licensees also have the flexibility to select appropriate controls that could be less costly and easier to arrange.

Table M.1 NRC'S Risk-Informed Graded Approach for Institutional Controls to Restrict Site Use

Lower Risk **Lower Hazard Level [0.25–1.0 mSv/y (25–100 mrem/y)]** **Shorter Hazard Duration – Lower Likelihood of IC Failure** **Shorter Dose Persistence or Half-Life (less than 100 years)**	**Higher Risk** **Higher Hazard Level [1.0–5.0 mSv/y (100–500 mrem/y)]** **Longer Hazard Duration – Higher Likelihood of IC Failure** **Longer Dose Persistence or Half-Life (greater than 100 years) ***
General Grade Legally enforceable institutional controls Specific Grade Tailor specific type of institutional controls and land use restrictions to site-specific circumstances using scenario analyses from dose assessments Examples Single conventional "deed restriction," such as a restrictive covenant (less control) Layered/redundant controls such as restrictive covenant, deed notice, and State registry (more control) (Note that either the NRC Long-Term Control license or legal agreement/restrictive covenant could be used if other types of conventional institutional controls cannot be established.)	General Grade Durable and legally enforceable institutional controls with 5-year review Specific Grade Tailor specific type of institutional controls and land use restrictions to site-specific circumstances using scenario analyses from dose assessments Examples Layered/redundant controls that include State government control (durable) Conventional institutional control with NRC monitoring and enforcement after license termination using legal agreement and restrictive covenant (durable) Conventional institutional control with NRC monitoring and enforcement after license termination using regulatory authority under 10 CFR 20.1401(c) (more durable) State or Federal government ownership and control (NWPA §151(b)) (most durable) NRC Long-Term Control license (most durable)
* It may be appropriate to treat sites with longer half-life radionuclide contamination, but with doses close to 0.25 mSv/y (25 mrem/y) assuming no controls, as "Lower Risk" sites.	

M.3 LONG-TERM CONTROL LICENSE OPTION

NRC staff recommended to the Commission, in SECY-03-0069, that a new type of possession-only specific license for long-term control be established as one option for resolving the LTR institutional control issue at sites where restricted use or alternate criteria could be used. This option should not be considered a guaranteed option, but would be used as a last resort (see Section 17.7 of this volume). This new type of possession-only license is referred to in this guidance as a long-term control (LTC) license to clearly distinguish it from the NRC's existing possession-only licenses for storage. The existing possession-only license is typically used at NRC licensed sites in the operating or decommissioning phases. In contrast, the LTC license is for use as an institutional control in the long-term control phase after completion of decommissioning. A licensee may propose use of an LTC license only if the licensee cannot otherwise establish acceptable institutional controls or independent third party arrangements. Attachment 1 of SECY-03-0069 provides a description and evaluation of the staff's recommended option of possession-only license for long-term control. On November 17, 2003, the Commission approved this LTR recommendation (SRM-SECY-03-0069).

M.3.1 PURPOSE OF LTC LICENSE

The primary purpose of NRC's LTC license is to provide the legally enforceable and durable institutional controls required by 10 CFR 20.1403(b) to ensure the long-term protection of the public health, safety, and the environment. Therefore, the LTC license is for long-term control of a restricted use site after decommissioning is completed. The LTC license is not for the purpose of storage of radioactive materials. It also should not be considered a guaranteed option, but would be a last resort under the criteria in 10 CFR 20.1403(b). With use of an LTC license, the licensee must still meet all the restricted use requirements of the LTR, to ensure protection of the public health and safety.

The conditions of the LTC license would specify the necessary controls to limit site access and land use that the licensee must monitor and maintain and that NRC would inspect and enforce, if necessary. The LTC license also would specify other required long-term control activities to be conducted by the licensee, such as surveillance, maintenance, reporting, records retention, and stakeholder involvement (see guidance below). Detailed plans to implement the LTC license conditions would be given in a Long-Term Control and Maintenance Plan that the licensee would prepare and NRC would approve during decommissioning and before the LTC license is established.

M.3.2 ROLES AND RESPONSIBILITIES

The licensee has the primary responsibility for long-term protection of the public health, safety, and the environment by implementing and then maintaining the effectiveness of the controls required by the LTC license. The licensee would maintain the required site access and land use controls, as well as engineered barriers, using periodic surveillance, maintenance, and

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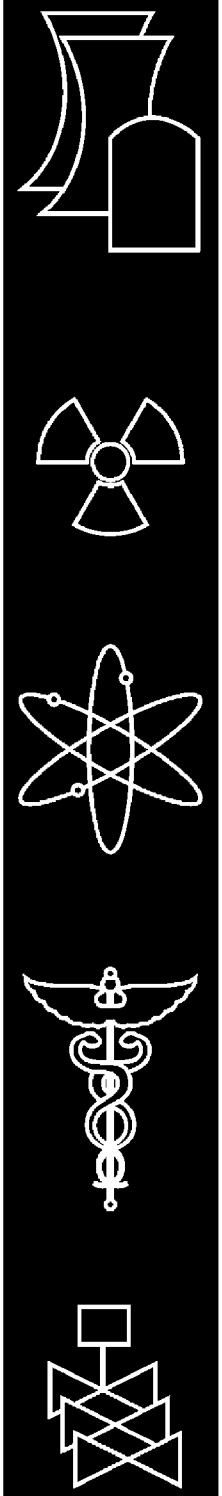

Consolidated Decommissioning Guidance

Characterization, Survey, and Determination of Radiological Criteria

Final Report

U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555-0001

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Consolidated Decommissioning Guidance

Characterization, Survey, and Determination of Radiological Criteria

Final Report

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Prepared by
D.W. Schmidt, K.L. Banovac, J.T. Buckley,
D.W. Esh, R.L. Johnson, J.J. Kottan,
C.A. McKenney, T.G. McLaughlin,
S. Schneider

Division of Waste Management and Environmental Protection
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ABSTRACT

As part of its redesign of the materials license program, the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Material Safety and Safeguards (NMSS) has consolidated and updated numerous decommissioning guidance documents into a three-volume NUREG. Specifically, the three volumes address the following topics:

(1) "Decommissioning Process for Materials Licensees";

(2) "Characterization, Survey, and Determination of Radiological Criteria"; and

(3) "Financial Assurance, Recordkeeping, and Timeliness."

This three-volume NUREG series replaces NUREG-1727 (NMSS Decommissioning Standard Review Plan) and NUREG/BR-0241 (NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees). This NUREG series is intended for use by NRC staff, licensees, and others.

Volume 2 of the NUREG series, entitled, "Consolidated Decommissioning Guidance: Characterization, Survey, and Determination of Radiological Criteria," provides guidance on compliance with the radiological criteria for license termination (License Termination Rule (LTR)) in 10 CFR Part 20, Subpart E. This guidance takes a risk-informed, performance-based approach to the demonstration of compliance. The approaches to license termination described in this guidance will help to identify the information (subject matter and level of detail) needed to terminate a license by considering the specific circumstances of the wide range of NRC licensees. Licensees should use this guidance in preparing decommissioning plans, license termination plans, final status surveys, and other technical decommissioning reports for NRC submittal. NRC staff will use the guidance in reviewing these documents and related license amendment requests.

Volume 2 is applicable to all licensees subject to the LTR.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in this NUREG are covered by the requirements of 10 CFR Parts 19, 20, 30, 33, 34, 35, 36, 39, 40, 51, 60, 61, 63, 70, 72, and 150 which were approved by the Office of Management and Budget, approval numbers 3150–0044, 0014, 0017, 0015, 0007, 0010, 0158, 0130, 0020, 0021, 0127, 0135, 0199, 0009, 0132, and 0032.

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Subpart D, which incorporates, where applicable, the requirements of 40 CFR Part 190. For example, in reviewing the appropriateness of proposed DCGLs or number of samples per survey unit for an unrestricted site, NRC staff would use the limit of 0.25 mSv/y (25 mrem/y), and not a State's limit of 0.2 mSv/y (20 mrem/y). Thus, any requests for additional information would therefore also be based on compliance with the limit of 0.25 mSv/y (25 mrem/y). Because of differences in scenarios, models, and parameters, licensees should note that the lowest dose standard may not result in the lowest acceptable concentration of residual radioactivity.

3.5 USE OF ENGINEERED BARRIERS

The purpose of this section is to provide guidance to licensees in considering the use of engineered barriers, including a risk-informed graded approach for selecting engineered barriers; engineered barrier analysis process; technical basis for engineered barrier performance; and potential performance and degradation mechanisms. This section also supports Section 17.7.3 of Volume 1 by giving guidance on the information to be submitted in a decommissioning plan for the engineered barrier analysis and technical basis for engineered barrier performance.

In the Commission's view, engineered barriers, are distinct and separate from institutional controls (NRC 2002). Used in the general sense, an engineered barrier could be one of a broad range of barriers with varying degrees of durability, robustness, and isolation capability. Generally, engineered barriers are passive, man-made structures or devices intended to enhance a facility's ability to meet the dose criteria in the LTR. Engineered barriers are usually designed to inhibit water from contacting waste, limit releases of radionuclides (e.g., through groundwater, biointrusion, erosion), or to mitigate doses to inadvertent intruders. Institutional controls are used to limit inadvertent intruder access to, and/or use of, the site to ensure that the exposure from the residual radioactivity does not exceed the established criteria. Institutional controls include legal mechanisms (e.g., land use restrictions) and may include, but are not limited to, physical controls (e.g., signs, markers, landscaping, and fences) to control access to the site and minimize disturbances to engineered barriers.

The functionality and robustness of barriers would be determined using the risk-informed graded approach described in Section 3.5.1 and evaluated on a site-specific basis for each licensee application. However, the general framework that a licensee should consider would not vary from licensee to licensee, only the depth and breadth of information supplied to demonstrate the performance of the engineered barriers may vary. The guidance that follows provides the general framework a licensee should consider for use of engineered barriers in the decommissioning process.

It is expected that engineered barriers will most frequently be used for restricted use sites. However, there may be infrequent cases where engineered barriers are used as one component of a decommissioning approach to achieve unrestricted use of a site. These cases should be infrequent because of the uncertainty associated with the long-term performance of engineered systems without monitoring and maintenance and because the goal should be to achieve unrestricted use without relying on engineered barriers. If an engineered barrier is used at an

unrestricted use site, only the passive performance of the barrier to mitigate radiological impacts may be credited (i.e., performance of the barrier without monitoring, inspection, and maintenance) in the dose assessment to demonstrate compliance with the LTR dose criteria. The assessment of performance of the engineered barriers should consider the reasonableness of a breach and the potential degradation of the barriers over time because monitoring and maintenance are assumed to not be active. In addition, other reasonably foreseeable disruptive conditions from humans or natural events and processes should be evaluated, and uncertainty in projecting the passive performance of the barriers must be considered. The dose assessment for demonstrating compliance with the unrestricted use criteria of the LTR, for a site using engineered barriers, should be based on the limiting scenario for the passive performance of the barrier.

Because of the wide range of residual radioactivity encountered at decommissioning sites licensed by NRC, the LTR and NRC's decommissioning guidance are not prescriptive as to the criteria for, or acceptability of, site-specific engineered barriers. Therefore, the licensee has flexibility in the methods used to demonstrate compliance with performance-based criteria of Part 20, Subpart E. Because of this flexibility and because engineered barrier designs are site-specific, it is very important for the licensee to clearly and completely document how the licensee has designed the engineered barriers and the monitoring and maintenance program for the site-specific conditions to maintain performance of the engineered barriers for as long as necessary.

The guidance that follows provides the framework for applying engineered barriers to achieve decommissioning at a site. These five sections are directed towards licensees pursuing restricted use, since it is envisioned that this is the situation where engineered barriers will most frequently be used. The guidance is directed towards designing new engineered barriers; however, it is recognized that some sites may have in-situ engineered features that are part of the existing site being decommissioned, for which the licensee wants to take credit. In these situations, elements of Sections 3.5.2 and 3.5.3 may be most helpful. The guidance is intended to strike a balance between providing adequate direction without being overly prescriptive. Because the application of engineered barriers is site specific as a result of different radiological source terms, different exposure environments, and different natural systems, some elements of the guidance may not be applicable to every site.

In summary, NRC proposes that the following assumptions be used when applying engineered barriers to achieve decommissioning at a site:

- Engineered barriers are distinct and separate from institutional controls.
- Engineered barriers are passive, man-made structures at unrestricted use sites. Engineered barriers may be active (e.g., with monitoring and maintenance) or passive at restricted use sites.
- Engineered barrier evaluation is completed on a case-by-case basis using a risk-informed approach.

3.5.1 RISK-INFORMED GRADED APPROACH TO ENGINEERED BARRIERS

Initially, the general need for an engineered barrier(s) at a specific decommissioning site should be determined by considering if barrier(s) would be needed for compliance with the LTR dose criteria (e.g., mitigates the impact of natural processes such as erosion and infiltration). Once the general need is determined, a risk-informed graded approach should be used for selecting, designing, and providing a technical basis for the engineered barriers at a specific site. The risk-informed graded approach to engineered barriers is similar to the risk-informed graded approach for institutional controls described in Section M.2 of Appendix M of Volume 1 that consists of a general risk framework and associated grades of institutional controls. The same risk framework is used for both institutional controls and engineered barriers and is defined by the hazard level and likelihood of hazard occurrence. The underlying philosophy is that robust engineered barriers and additional basis for engineered barrier performance should be provided for higher risk sites (compared to lower risk sites). As described in Section M.2 of Appendix M of Volume 1, higher risk sites are those sites where the hazards are large (>1.0 mSv/y (100 mrem/y)) when institutional controls are not in place or when the hazard from the material is long-lived (e.g., >100 years), resulting in a longer performance period with higher likelihood of disruption and introducing greater uncertainty in assessing performance over long temporal scales. Generally, "robust" means more substantial, reliable, and sustainable for the time period needed without reliance on ongoing active maintenance. The term "robust" is similar to the term "durable" used for institutional controls at higher risk sites (see Section M.2 of Appendix M of Volume 1). Section 3.5.6 provides a detailed example of the application of the risk-informed graded approach to engineered barriers for erosion protection.

Robust engineered barriers are also needed for sites where the hazards are being significantly mitigated by the functioning of a barrier (s) (i.e., risk reduction). "Significantly mitigated" is site specific and can vary due to differences in the source and other features of the site (see example). In general, an engineered barrier that reduces the hazard more than a factor of 5 would likely be

(Example) Site A and Site B both contain soil contaminated with equal concentrations of Sr-90. The primary exposure pathway is from leaching of the contamination to the groundwater pathway. Both sites design an engineered cap to limit infiltration for the next 100 years. Site A has a thick unsaturated zone composed of a clayey soil. The estimated travel time to the groundwater, constrained by observations of past releases of Sr-90, is at least 200 years. Site B has a thin unsaturated zone composed of a sandy soil and the estimated travel time to the groundwater is 60 years. There is no additional data to constrain the numerical estimate of the travel time at Site B.

Conclusion: Site B would need more technical basis for the performance of their engineered cap compared to Site A, because they would have less risk reduction from the natural system and their travel time estimate (which is directly tied to risk via radioactive decay) is more uncertain.

considered to be significant. The basis for this factor is that in many circumstances the uncertainty in the risk for restricted use sites can approach or exceed this value.

Although robust engineered barriers would generally be appropriate for higher risk restricted use sites, there is flexibility to also use robust engineered barriers as an approach to not rely on ongoing active maintenance at lower risk restricted use sites. Such an approach might simplify institutional controls and maintenance and thereby reduce costs for a licensee. In some limited cases, a robust engineered barrier also could be used at an unrestricted use site because the robust barrier has been designed so that its performance does not rely on active ongoing maintenance.

The concept of passive performance of an engineered system is not unique to decommissioning of a radiologically contaminated site. There are many long-lived man-made structures that have not benefitted from continual monitoring and maintenance. However, passive performance of an engineered system can not be assumed. As indicated in the sections that follow, passive performance must be justified through design, experimentation, analysis, and support, and uncertainty in projecting performance, particularly over periods of time that exceed the experience base, must be considered.

Specific grading of engineered barriers recognizes that the site-specific factors affecting risk can be highly variable from site to site. As a result, specific grading provides the flexibility to design barriers to achieve the desired functionality and robustness appropriate for a specific site.

Uncertainty related to engineered barrier performance over a long-temporal scale is also contextual in that the length of experience in the use of that type of barrier should be considered relative to how long-lived the contamination is. In general, hundreds to thousands of years would be considered long temporal scales for the application of engineered barriers to decommissioning, because it is almost certain that site-specific experience for the performance of an engineered system does not extend beyond tens of decades. Section 3.5.2 provides guidance on how the barrier analysis process should be used to determine the performance of the engineered barriers. The risk-informed graded approach to engineered barriers is linked to the sections on effective barrier analysis (Section 3.5.2) and the technical basis for engineered barrier performance (Section 3.5.3), as well as Section 17.7.4 of Volume 1, on maintenance and monitoring. For example, where there is a demonstration that the engineered barriers have been designed to be robust and not reliant on ongoing active maintenance and repair, the amount of information and resources needed to support maintenance would be considerably reduced.

The robustness of an engineered barrier and the amount of technical basis provided for an engineered barrier should be consistent with the level of risk for a site (i.e., lower or higher risk) and the amount of risk-reduction provided by the barrier.

More robust engineered barriers and more technical basis would be needed for higher risk sites or where hazards at a site are significantly mitigated by the barrier.

Engineered barriers should be designed with the goal of remaining effective over the time period needed to achieve compliance, especially for long-lived radionuclides. The following items should be considered in designing engineered barriers for decommissioning sites:

- Designs should simplify long-term control and minimize the reliance on active ongoing maintenance and associated costs, especially for sites with long-lived radionuclides.
- Designs should mitigate potential future failures of the engineered barrier over the period needed to achieve compliance and the resulting need for and high cost of major repairs or replacement of major portions of the engineered barrier.
- Designs for sites with long-lived radionuclides should place more reliance on natural materials and less reliance on synthetic materials that are less proven over the long-term. For sites with short-lived radionuclides, synthetic materials may be more advantageous because of less variability in the performance of the materials.
- The determination of adequate financial assurance should consider the cost of monitoring, routine maintenance, and the need for potential major repairs of the engineered barrier over the time period of compliance.

3.5.2 ENGINEERED BARRIER ANALYSIS PROCESS

Note that this section is directed towards licensees pursuing restricted use. Licensees using engineered barriers for unrestricted use may find parts of this section useful, but should only credit the passive performance (without monitoring, maintenance, and inspection) for mitigating radiological impacts.

In order to implement a risk-informed graded approach, an accurate assessment of the performance of the engineered barriers should be provided. To determine compliance with Subpart E for restricted use, a licensee should complete, but not be limited to, an analysis of the following:

1. The contribution of engineered barriers towards compliance with the criteria of 10 CFR 20.1403 with institutional controls in place (including maintenance).

2. The contribution of engineered barriers towards compliance with the criteria of 10 CFR 20.1403 assuming loss of institutional controls (including loss of maintenance) such that the barrier may degrade over time.

The first analysis would typically evaluate a public receptor located at the site boundary prevented from accessing the site by the active institutional controls. The performance of the engineered barriers could include the benefit of active monitoring and maintenance to mitigate degradation while the institutional controls are in place and the dose limit would be 0.25 mSv/y (25 mrem/y).

The second analysis, that assumes loss of institutional controls, would typically include evaluating a reasonably foreseeable inadvertent intruder potentially located on the site. The dose limit applied to this receptor is 1.0 mSv/y (100 mrem/y) [or 5.0 mSv/y (500 mrem/y)]. The performance of the engineered barriers should consider the likelihood of a breach by an inadvertent intruder and the potential degradation of the barriers over time because monitoring and maintenance are assumed to not be active. In addition, other reasonably foreseeable disruptive conditions from humans or natural events and processes should be evaluated. In some cases, the intruder may disrupt the engineered system that could result in higher doses through a different pathway (e.g., an agricultural intruder disrupts an engineered cap with plowing but does not disrupt the contamination directly.) Disruption of the cap could result in increased infiltration and higher groundwater pathway doses.

"Reasonably foreseeable disruptive conditions from humans or natural events and processes" should be interpreted as those processes and events expected to have a probable or likely occurrence over the analysis period. The intent of performance assessments is to provide reasonable assurance, considering uncertainties in engineered and natural systems over long time periods, that the actual performance of the disposal facility will comport with its design. Natural or human processes and events are possible stressors to the engineered barrier design. Unlikely processes or events would not be expected to have a significant influence on risk because of the low probability of occurrence.

The potential impact to engineered barriers from reasonably foreseeable disruptive conditions from humans or natural events and processes can vary by site and by barrier. In some circumstances it may be reasonable to take no credit for the engineered barriers. For example, a hypothetical site installs a geomembrane to control infiltration at a restricted use site. For the analysis of loss of institutional controls, it would be reasonable to assume no performance credit for the geomembrane because it could be easily removed or damaged by near surface processes and this type of barrier is subject to discrete failures. As a second example, a site in a rural setting uses a large, thick earthen cover of low gradation. Complete removal of the earthen cover under these conditions, while possible, would not be reasonably foreseeable considering the cost and limited benefits. Realistic scenarios for future site use for this example (e.g., residential or farming) would dictate the reasonably foreseeable disruptive conditions from humans would commonly be construction of a foundation and a well for a residence that disrupts a portion of the cap, or farming of the site which would result in plowing of the top layers of the cap and resultant potential impacts from the rooting of vegetation and increased infiltration.

In regard to engineered barrier degradation, the licensee should address the two cases where maintenance is either in place or lost, because the assumption for loss of institutional controls includes the loss of maintenance of engineered barriers and physical controls such as fences or signs. It should be noted, however, that for those cases where an erosion control cover is designed in accordance with the uranium mill tailings guidance in NUREG–1623, a case might be made for a durable, long-lived engineered barrier that does not rely upon ongoing active maintenance (i.e., maintenance needed to assure that the design will meet specified longevity requirements) and associated future costs in order to maintain erosional stability of the site. For

this case, a licensee may be able to demonstrate that no significant degradation of the erosion control cover is expected.

The barrier analysis process should be used to determine how much performance is being provided by the engineered barrier (i.e., risk reduction). To accomplish this, a licensee should perform analysis with the engineered system present and functioning. However for unrestricted use or when evaluating the loss of institutional controls (active monitoring and maintenance not performed), the barriers may degrade over time. An assumption of instantaneous and complete failure of a barrier is not required. The goal is to clearly identify the expected benefit of the engineered barriers quantitatively in terms of dose reduction. The analysis should also address the uncertainty in the expected performance of the barriers. For example, a comparison could be made of the doses without engineered barriers present to the doses with engineered barriers performing as designed and expected, as well as more pessimistic performance and more optimistic performance. The assumption to model a degraded barrier is generally more realistic than the assumption of the absence of a barrier, and actually may lead to higher doses in some situations; for example, partial failure of a cover or partial failure of a grout wall system can focus water flow and can create a "bathtub" effect. Thus, simple on-off analyses (i.e., where the barrier is either assumed completely present or completely absent) should be used cautiously.

Caution should also be used when analyzing systems with multiple engineered barriers. When multiple barriers are present, the performance of one barrier may mask the potential contribution to performance of another barrier or may degrade its contribution. In these situations, the analysis may need to evaluate various combinations of barriers to determine the individual and cumulative contribution (positive or negative) to performance of the barriers. In particular, characteristics of one barrier that challenge or impair the performance of another barrier should be carefully assessed (e.g. increased infiltration resulting from elimination of vegetation by inert covers or the clogging of a drainage layer with a resultant hydraulic head over the waste). The type of analysis performed should be determined on a case-by-case basis. For the complex and higher risk decommissioning sites and those sites with long-lived radionuclides, the use of probabilistic analysis should be strongly considered, because deterministic analysis may not be able to adequately address the uncertainty in the calculations. However for simpler, lower risk sites and sites with short-lived radionuclides, deterministic analysis with sensitivity analysis may be sufficient. As indicated in Section 3.5.6.1, deterministic methods should be used for selection of the design flood for the development of long-term erosion controls.

In summary, the analysis of engineered barriers should identify and evaluate those conditions or processes that are adverse to performance and result in non-compliance. The following analysis should be provided:

- Analysis with institutional controls taking credit for monitoring and maintenance.
- Analysis assuming loss of institutional controls not taking credit for monitoring and maintenance.
- Analysis assuming loss of institutional controls (or unrestricted use) considering disruptive natural processes as well as reasonably foreseeable human disruptive processes to the barriers.

3.5.3 TECHNICAL BASIS FOR ENGINEERED BARRIER PERFORMANCE

Significant uncertainty exists concerning predicting the service life and long-term degradation rates of most engineered barriers. This section provides guidance on the main elements that should be provided to support the assessment of the performance of the engineered barriers in Section 3.5.2, including:

- The design, features, and functionality of the engineered barriers should be fully-described.
- Technical basis that the barriers will meet the dose criteria, considering the degradation mechanisms, should be provided including consideration of combined and synergistic effects resulting from the real world conditions expected for the barriers (Section 3.5.4).
- Uncertainty in parameters and models used in the assessment of barrier performance and the design of engineered barriers.
- The suitability of numerical models for the estimation of engineered barrier performance should be provided.
- Parametric or component sensitivity analysis should be performed to identify how much degradation of the engineered barrier would result in non-compliance (see Section 3.5.2).
- Model support should be provided for the engineered barrier performance (e.g., analogs, experiments, simple engineering calculations to demonstrate reasonableness of the results).
- Quality assurance and quality control (QA/QC) should be provided for the design and analysis of engineered barriers.

Analysis can be used to understand the impact of uncertainty. For example, 1/4 loss of a cover may not result in non-compliance, but loss of 3/4 of a cover would. Then determine if reasonably foreseeable natural and human processes might cause a loss of 3/4 of a cover. This analysis approach may be an additional way to deal with the uncertainty due to lack of long-term cover degradation data.

Many engineered barriers are not amenable to model validation in the true sense, therefore multiple lines of evidence are recommended. Model support can come in many different forms, including but not limited to: analogs, laboratory experiments, field experiments, formal and informal expert judgement, and engineering calculations to demonstrate reasonableness of the results (e.g., hand calculations when numerical models are used). The level of model support should be commensurate with the risk significance of the engineered barriers to achieving site decommissioning (see Section 3.5.1). If the level of performance needed for an engineered barrier is consistent with past experience at similar sites, and the engineered barriers have similar design and quality assurance, then the model support could be considerably less than for an engineered barrier with performance objectives that significantly exceed engineering experience. When considering engineering experience, care must be taken to ensure that the environmental

conditions for the relevant degradation mechanisms are reasonably similar, since many degradation mechanisms can be very sensitive to the environmental exposure conditions.

For engineered barriers that must have very long-term performance (e.g., thousands of years), natural analogs should be considered. The greatest uncertainties stem from extrapolating the results of short-term tests and observations to long-term performance. Standard engineering approaches frequently implicitly assume that the initial conditions persist, however the actual application of a barrier more appropriately could be viewed as a evolving component of a larger, dynamic ecosystem (Waugh, 1997). For some types of engineered barriers, natural analogs might provide information as to the possible long-term changes to an engineered system, and can be thought of as a long-term, uncontrolled experiment. Evidence from natural analogs can help demonstrate that there are real world complements to the postulated numerical predictions. It is important that the functionality of an engineered barrier is considered when developing analogs. The example of earthen mounds constructed by the Native Americans, provided below, provides a reasonable analog for the physical stability of an engineered cap. It does not provide analog information for the ability of engineered caps to limit infiltration or the release of radionuclides. Analog information is uncertain for a variety of reasons, such as unknown past environmental conditions. Therefore, analog information should not be envisioned as providing proof of future engineered system performance, but rather it provides confidence that the engineered system is likely to perform as designed.

Experience is limited for the long-term performance of *some* engineered barriers. However, *other* barriers do have suitable analogs such that the multi-faceted approach to designing, testing, assessing, implementing, supporting, and evaluating engineered barriers provided in this guidance should result in protection of public health and safety. There are a number of analogs to engineered covers that have shown sustained durability, even for thousands of years (discussed in more detail below). In addition, some cementitious materials used by the Romans, for example, are intact after more than a thousand years of exposure to the environment. In the United States, cements in the Erie Canal and used in colonial settlements are two to three hundred years old.

An example of a natural analog, in this case with respect to the durability of earthen covers, but not with respect to limiting infiltration or waste releases in the groundwater pathway, may be the various earthen mounds constructed by Native Americans that have survived for periods of 1000–5000 years. Archaeologists have dated the mounds by excavating bones and artifacts from the mounds and determining the age of the object or the date of its burial. Information on the mounds is readily available by visiting State or national parks associated with the mounds. Also, there is considerable information and reference material available on the internet. Examples of Native American mounds that have survived relatively intact for very long periods of time are shown in Table 3.1.

Table 3.1 Examples of Surviving Native American Mounds

Mound	Location	Approximate Age (years)
Grave Creek Mounds	Moundsville, WV	2500
Hopewell Culture Mounds	Chillicothe, OH	2000
Cahokia Mounds	Collinsville, IL	1000
Poverty Point Mounds	Epps, LA	3500
Watson Break Mounds	Monroe, LA	5500

The mounds vary in size with some being more than 23 m (75 ft) high and more than 100 m (300 ft) long. Mounds of this size reasonably approximate the size of engineered caps that may be installed at decommissioning sites. Therefore, long-term stability of these analog sites provides additional confidence and assurance that wastes may be effectively stabilized for very long periods of time. It should be noted that stability in this context refers to erosional stability and not the ability of the mounds to limit infiltration, which is unknown. More importantly, by examining the causes for failures of any damaged burial mounds (where only portions of the mounds remain and can be examined effectively), guidance for earthen cover designs could be developed. Understanding of the long-term performance of analog systems may allow for additional safety factors to be used in current designs. For example, additional protection, such as rock layers, may be used to further reduce erosion. It should also be noted that the use of archaeological bases for guidance is consistent with previous approaches. In NUREG/CR-2642, "Weathering and Long-Term Protection for Long-Term Stabilization," riprap durability procedures were based in part on examinations of ancient Native American ruins and petroglyphs that were approximately 1000 years old. Riprap durability reviews performed by the staff have included examinations of the weathering of very old grave markers and comparison of photographs taken almost 150 years apart.

When evaluating analogs, it is important to note that the structures that have persisted are most likely the most durable structures. That is why it is important to consider analogs that have persisted as well as those that may have experienced damage or failure. An additional complicating factor is that the initial conditions and past exposure environment for the analogs are not known and may only be estimated. However, developing an understanding of analogs increases the likelihood that a design may be implemented with sustainable long-term performance. It should be reiterated that natural analogs should be only one element of the technical basis for the long-term performance of engineered barriers.

Monitoring and maintenance might be needed in order to verify the effectiveness, durability, and service life of the engineered barriers. This monitoring involves both the environmental system surrounding the engineered facility that could be disruptive and the facility itself (See the risk-informed approach to monitoring in Section 17.7.4 of Volume 1). Non-destructive monitoring

technologies that included designed and emplaced sensors are preferred to conventional post-failure monitoring. Novel ideas such as introduction of special dyes and/or tracers within the engineered system may facilitate identification of impending failures. The identification of these and other measurable performance indicators within a monitoring strategy coupled with any needed repair or remediation can be very important in extending the effective service life of these facilities and reducing risk. To the extent practicable, engineered barriers should be designed to support and simplify monitoring and maintenance.

3.5.4 DEGRADATION MECHANISMS AND FUNCTIONALITY OF COMMON ENGINEERED BARRIERS

The purpose of this section is to identify for licensee consideration, the common engineered barriers, the degradation mechanisms for the common barrier types and materials, and typical functionality for these barriers. It is envisioned that this information may help staff or licensees select and design appropriate engineered barriers and understand the considerations that are needed for assessing long-term barrier degradation, so that the overall decommissioning process can be more efficient.

3.5.4.1 Common Barriers

The common barriers provided are those that may be encountered at a decommissioning site. Because technology evolves and a site may have unique considerations, this list should not be viewed as comprehensive. Engineered waste forms are not explicitly listed as a common barrier for decommissioning, because in most instances a decommissioning site is dealing with contamination of environmental media and not explicit engineering of a waste form. The assessment of engineered waste forms has been addressed in low-level waste disposal and that guidance should be considered with respect to waste forms used in decommissioning (NRC, 1991). Lists of common barriers that may be used at decommissioning sites and their primary functionality are:

- Engineered Caps — Multi-layered and composite engineered caps are typically used to limit infiltration, provide for shielding between the contamination and potential receptors, eliminate exposure scenarios, and to limit erosion. Caps for infiltration control are typically either a resistive type or a water balance type.
- Geomembranes — Geomembranes are synthetic materials use primarily to limit infiltration to the contamination.
- Concrete/cement/grout — Engineered cementitious materials are typically used to stabilize contamination, provide a chemically favorable environment for retention of radionuclides, limit water contact, prevent erosion, provide shielding, and limit potential intruder contact with the contamination.

- Vertical barriers — Vertical barriers may be soil-bentonite, soil-cement-bentonite, cement-bentonite, sheet pile (steel or high-density polyethylene), and clay barriers and are primarily used to control the horizontal migration of groundwater.
- Permeable reactive wall — A contaminant plume is channeled between impervious vertical walls, referred to as the funnel, and flows naturally through a permeable reactive barrier gate, where the pollutants are treated in situ during the flow process.
- Interceptor trenches — Used to intercept and collect contaminant releases. Typically only applicable with monitoring and maintenance.
- Chemical barriers — Chemical barriers are used to modify subsurface environmental conditions (e.g., pH, Eh) to limit the solubility of radionuclides or to provide a more favorable geochemical environment for sorption. A good example are engineered cementitious materials (see above). Because of the diverse type of chemical barriers that could be applied, the degradation mechanisms and typical levels of functionality are not provided in the following sections but would need to be evaluated on a case-by-case basis.

3.5.4.2 Degradation Mechanisms

The degradation mechanisms provided may not be comprehensive due to the large variability in conditions and processes from site to site, but they should represent the main degradation mechanisms typically encountered. Degradation mechanisms depend on both the barrier and site-specific conditions. When evaluating degradation mechanisms, careful consideration should be given that the environmental conditions assumed or used in an analysis of long-term performance are representative of the in-situ conditions expected for the engineered barrier.

The main degradation mechanisms are described below for the different engineered barriers.

Degradation of Cement-Based Engineered Barriers

The major environmental degradation processes that affect cement-based engineered barriers are sulfate attack, corrosion of reinforcing steel/carbonation, alkali/aggregate reactions and leaching by acidic subsurface water. Other degradation mechanisms include freeze-thaw deterioration, and microbiological attack. Degradation mechanisms can also be due to poor design and construction of cement-based structures, and can include differential settlement of the structures; stress concentrations; seismic effects; and insufficient structural engineering design. To avoid these latter degradation mechanisms, the structures need to be properly designed, and constructed under strict QA/QC procedures to ensure that their design objectives have been met. Discussions that follow will not address these design and construction-related degradation issues of cement-based materials.

Sulfate Attack

Sulfate attack on concrete can be severe, resulting in cracking of the concrete, and in some cases, its disintegration. Naturally-occurring sulfates of sodium, potassium, calcium and magnesium are sometimes found in subsurface water and soils. Sulfate attack has occurred in several regions of the U.S., particularly in arid regions such as the Northern Plains and the Southwest States. Localized sources of sulfates in groundwater include mine workings, mine tailings, blast furnace slag waste piles, and chemical waste ponds. Water used in irrigation can also be a potential source of sulfate attack due to the gradual accumulation of sulfates in the soils. The main cause of sulfate degradation of cement-based materials is the formation of ettringite in the reaction process. This results in the mechanical expansion and subsequent deterioration of concrete. Another degradation process involves the formation of gypsum which replaces the calcium hydroxide in concrete resulting in expansive stresses and deterioration.

Corrosion of Reinforcing Steel

Cement concrete normally provides a high-alkaline environment which passivates the steel. However the corrosion of steel embedded in concrete has been a serious problem due to the presence of chloride ions. Although chloride ions are common in nature, and small amounts are intentionally added in the mix ingredients of concrete to accelerate set times, the principal sources of chloride ions which cause problems in concrete are from deicing salts, sea water, and chloride ions in surface runoff. Corrosion of reinforcing steel can, in some cases, occur in the absence of chloride ions. This happens in the case of carbonation which results in a reduction of alkalinity of the concrete, thereby depassivating the steel and facilitating corrosion.

Alkali-Aggregate Reactions

Alkali-aggregate reactions are usually internally contained in concrete, and are not dependent on the diffusion of an aggressive solution into the cement-based material. For appreciable amounts of swelling to occur due to this process, a source of water is required. Almost all aggregates react to some extent with alkalies in cement. It is when the reaction results in the formation of expansive products (e.g., gypsum) that serious cracking of the concrete occurs. Expansive alkali-aggregate reactions are known to occur when siliceous (i.e., alkali-silica reactions) and dolomitic (i.e., alkali-carbonate reactions) limestone aggregates are used. In addition, the rate of expansive reaction is also influenced by the size of the aggregates. Alkali-silica reactions are the most common with the majority of the reported instances in the western states. Alkali-carbonate reactions have occurred in some Midwestern and Eastern states.

Leaching

Buried concrete, in contact with percolating subsurface water, can undergo deterioration by the dissolution of the common constituents of cement paste, the alkali salts and sodium hydroxide. Leaching can reduce the pH of the concrete, as well as make it more porous for subsurface water. The rate and extent of the leaching is dependent on the acidity of the water since leaching

increases as the pH decreases. The potential leaching capabilities of subsurface water can be related to their Langelier Index. The Langelier Index is related to the total dissolved solids (TDS), total alkalinity, pH and calcium content of the water. A positive index indicates that calcium carbonate will be precipitated, while a negative index indicates lime deficient water capable of dissolving calcium from the hardened cement paste.

Freeze-Thaw Attack

Freezing and thawing damage in cement- based materials occurs when a water-saturated concrete is exposed to prolonged cycles of freezing and thawing. Structures most susceptible to freeze- thaw damage are surfaces of the structures where flowing or ponding water can remain in contact with the concrete structure for extended periods of time. Several precautions should be taken to avoid freeze-thaw damage, including the following: precluding ponded water from the concrete structure, incorporating entrained air, placing properly, consolidating, and curing.

Microbiological Attack

Sulfate-producing bacteria are capable of oxidizing elemental sulfur and sulfides to sulfuric acid under aerobic conditions, which in turn degrade cementitious materials. Some bacteria can attack cement-based materials by transforming ammonia into nitrites or nitrates, or by producing lactic acid or butyric acid. In the normal design life (e.g., 40 years) of conventional cement-based materials, bacterial action does not seem to be a major cause of deterioration. However, for cement-based materials' chemical durability over hundreds of years, the impacts of bacterial activity need to be assessed, though they may be difficult to predict.

Cracking of Concrete

Cracking can originate within concrete due to a number of mechanisms. During placement, if the evaporation rate is great enough, the concrete surface can develop tensile stresses sufficient to crack the concrete. These plastic-shrinkage cracks typically extend through the entire concrete member. Cracking can also be caused by settlement of the concrete member, by flexural stresses, and thermal effects. The continued removal of water by the hydration process will generate a chemical-shrinkage stress that can initiate autogenous shrinkage cracks. Subsequent drying due to ambient conditions will also generate shrinkage stress which generates drying-shrinkage cracks. Absent environmental conditions which may cause concrete-material degradation, cracking can be the most severe degradation mechanism affecting concrete. Transport through cracks in concrete will only be of consequence, if the cracks extend throughout the concrete member. Relatively large amounts of water can be transported through a crack depending on the total potential water-head across the crack, and the crack aperture and density.

Degradation of Engineered Caps

Engineered caps or covers are commonly designed to eliminate or significantly limit infiltration of subsurface water into the waste, but may also be designed to limit gaseous release, provide shielding, or reduce the likelihood of contact with the waste. From an infiltration management perspective, engineered caps are based on either resistive or water balance concepts. Caps based on resistive concepts use impermeable layers to prevent water from contacting the waste. Caps based on water balance concepts attempt to mimic natural systems to evaporate or transpire water from the system.

Resistive engineered cap designs have a wide range of configurations ranging from a one-layer system of vegetated soils, to complex multi-layered designs composed of soils and geosynthetics. Soil materials can include vegetative soils, permeable sand and gravel drainage layers, low hydraulic conductivity clay soils, and filter soils to preclude the migration of fines from soils overlying drainage layers which cause the drainage layers to clog. Geosynthetic materials include geomembranes and geosynthetic clay layers. Composite barriers use both soils and geomembranes/geosynthetic clay layers. Geomembranes are essentially impermeable PVC or polystyrenes layers, while geosynthetic clay layers are composed of a thin layer of bentonite between two geosynthetic textiles which may be used in conjunction with geomembranes. The effectiveness of these engineered caps lies in its ability to significantly limit infiltration of subsurface water into the waste. The ability to drain infiltrating water away from the buried waste, and its ability to release generated gas is a function of the waste stability, the degree of settlement, and slope stability of the cap system. Degradation mechanisms unique to engineered cap materials, other than those specific to inadequate design, construction, QA/QC issues, follow in later sections.

Water balance, or evapotranspiration covers attempt to manipulate the water balance of the source zone by enhancing soil water storage and evapotranspiration. The performance of evapotranspiration covers depends on many factors, especially the climatology, soil hydrology, and plant ecology at a site. Water balance covers may be used in a variety of settings, but may be most effective in arid or semi-arid climates with high potential evapotranspiration.

Compacted Clay Barrier

The function of the clay barrier layer in the engineered cap is to prevent and block infiltration of subsurface water through the cover into the waste. In order to meet this function, the clay must always remain close to saturation. The compacted clay layer is frequently specified to have a saturated hydraulic conductivity of 1E-07 cm/sec or less. The longevity and effectiveness of the engineered cap are influenced by the ability of the clay layer to retain low permeability characteristics. However laboratory and field studies have shown that dessication (severe drying) cracks can form quickly in compacted clay. These cracks, which do not completely self heal, can penetrate the entire thickness of the clay layer, and are not filled by soil from overlying layers in the time frame of available field studies (less than 10 years). The cause for extensive dessication of the clay is thought to be due to vertical water vapor transport. Unanticipated

ecological processes (e.g., biointrusion), compaction either dry or wet of optimum, freeze-thaw cracking, and differential settlement can result in the degradation of clay and other resistive barriers.

Drainage and Filter Soil Layers

A common degradation mechanism affecting these drainage and filter components of the engineered cap system is the potential clogging of these materials by finer soil particles from overlying soils including colloidal or biological materials. Clogging of drainage/filter soil layers can greatly reduce the permeability of these materials, and render them unable to perform their intended function to drain subsurface water.

Composite Soil Caps

Composite caps are comprised of a combination of a compacted clay layer, geosynthetic clay layer and geomembrane. In general, composite caps have performed well in the time frame of available field studies (10+years). Geomembranes protect clay barriers/geosynthetic clay layers by eliminating or significantly reducing vertical water vapor migration. Degradation mechanisms of geomembranes include: puncture by granular soils and construction equipment; behavior of "waves" or fabric wrinkles due to temperature and overburden stresses; long-term degradation of geomembranes under the influence of UV light, chemicals and radiation effects; the potential for slippage between geomembranes and adjacent materials; and material embrittlement over time. Some degradation mechanisms, such as exposure to UV light, can be managed with effective QA/QC. Geosynthetic clay layers are sometimes used instead of compacted clay, and seem to perform better with respect to water flow, chemical degradation due to cation exchange, and mass transport (i.e., diffusion and retardation). As with geomembranes however, geosynthetic clay layers have inherent problems due to installation activities (e.g., puncturing and degradation by construction equipment). Geosynthetic clay layers can experience dessication cracking similar to clay layers. In addition, recent research seems to indicate that there exists the potential for cation exchange between commonly available calcium-laden fluids and the sodium in the geosynthetic clay layer bentonite, thus rendering the geosynthetic clay layer incapable of functioning as a low-permeability barrier layer in engineered-cap systems [(James et al., 1997), (Melchoir, 1997), (Lin and Benson, 2000)]. Research is being conducted to more carefully study these degradation mechanisms.

Degradation of Water Balance Caps

The effectiveness of a water balance cap is dependent on the development of a design that is effective over the range of expected natural and ecological conditions. Natural and ecological conditions are inherently variable over the timeframe of most decommissioning analyses. As discussed in Section 3.5.5, water balance caps have been analyzed in great detail at a number of sites. With effective design and development, water balance caps may be very effective, especially in arid and semi-arid climates. In humid climates, water balance caps may be effective at managing a substantial fraction of the infiltration but not achieve design goals.

Infiltration can commonly exceed evapotranspiration in humid climates or in colder climates where a large fraction of infiltration may occur as snowmelt when evapotranspiration is low. Therefore, one of the major lessons learned, albeit not related to physical degradation, is that design of a water balance cap must consider natural and ecological variability over the period of performance.

Degradation mechanisms associated with water balance caps include unanticipated ecological consequences, evolution of soil properties (e.g., soil development), and effects of disturbance (e.g., fire, land use) on plant ecology. An example of unanticipated ecological consequences is the development of deeper rooted plant species that result in pathways for moisture below the design zone for moisture storage and removal.

Degradation of Erosion Control Caps

Degradation of erosion control caps is discussed in Section 3.5.6.4.

Degradation of Permeable Reactive Barriers

Permeable reactive barriers are in-situ constructed walls below the land surface that intercept contaminated groundwater which is funneled through it. Reactive materials in the wall can sorb chemicals and radioactive species on their surfaces and/or precipitate contaminants dissolved in the flowing water. In some cases nutrients and oxygen in a permeable reactive barrier help microbes in the soil to precipitate contaminants and radioactive species. Experience with permeable reactive barriers seem to indicate that not all of them are performing well, often due to poor placement in the ground-water flow field. Material properties, such as grain size of reactive zeolites can be changed in the construction process, thereby reducing the hydraulic conductivity. There seems to be a decrease of barrier performance due to loss of reactivity and permeability over relatively short periods of time (in less than 5 years a number of systems have experienced challenges associated with diversion of water around the permeable reactive barrier due to insufficient permeability).

Degradation of Vertical Barriers

Various types of subsurface vertical barriers are in use. Their primary purpose is to impede or preclude horizontal ground-water flow. These vertical barriers are placed at depths up to 60 m (200 ft), and often vary in thickness from 0.6–1.2 m (2–4 feet). The barriers must extend down to an impermeable natural horizontal barrier such as a clay zone to effectively impede ground-water flow from below. These barriers are often designed as temporary or semi-permanent remediation techniques to isolate contaminated fluids from migrating to uncontaminated surrounding groundwater. Some soil-bentonite mixtures are not able to withstand attack by chemicals such as strong acids, bases, salt solutions and certain organic chemicals. This hastens the deterioration of the barrier. Verification that the vertical wall forms a continuous barrier is critical to the function of this technology. Although it may be difficult to identify flaws in the continuity, and/or gaps in the wall, monitoring is essential to verify their performance. Although

vertical walls have been used for decades, the process of designing the proper mix of wall materials to contain specific contaminants is less well developed.

3.5.4.3 Potential Levels of Functionality and Uncertainty

The purpose of this section is to give some general information to help licensees initially consider the use of engineered barriers. As discussed in Sections 3.5.2 and 3.5.3, licensees are responsible for developing acceptable technical bases and conducting analyses of engineered barriers propose for a specific site.

The ranges of functionality or performance for different barriers and the associated uncertainty are based on a broad consideration of observations and analysis throughout the national and international community. Potential ranges of functionality are levels of performance that can likely be supported by technical basis and analyses, not solely based on demonstrated field experience. As the time scales get longer, past direct observation of the performance of engineered barriers that can be cited as basis becomes less likely, and therefore, performance for longer times becomes more uncertain and more based on inference. The functionality provided here can be thought of as the level of performance believed to be reasonably achievable with proper design, analysis (Section 3.5.2), technical basis (Section 3.5.3), and implementation (quality) given current understanding and engineering practice. The ranges provided for potential functionality, help provide direction as to when less technical basis may be needed (assume less than typical performance) compared to more technical basis (credit is taken for more than typical performance). The level of uncertainty should be considered in developing a monitoring and maintenance plan. Barriers with less uncertainty might need less reliance on monitoring and maintenance. In contrast, barriers with higher uncertainty, may need substantial monitoring and maintenance until uncertainties are reduced.

NRC's discussion in this draft section is an initial attempt using readily available information to provide some insights on potential functionality and uncertainty. This section could be expanded based on future studies and inputs from other programs involved with engineered barriers. Therefore, we invite suggestions and information that could further develop this section.

Typical levels of functionality or performance of the main engineered barriers are as follows.

Cement-Based Engineered Barriers

The performance of cement-based materials to isolate radioactive can be divided into two categories:

1. Hydrologic effectiveness or physical containment of the wastes to preclude water contacting the waste.

2. Chemical effectiveness or the ability of the high pH characteristics of the intact and degraded concrete to limit transport of the radionuclides to the accessible environment.

Absent environmental concrete degradation factors such as sulfate attack, chloride corrosion, etc., full depth cracking of the concrete member can be the most severe degradation mechanism causing contact of water with the waste and the subsequent release of radionuclides. Accordingly, the effectiveness of cement-based physical barrier structures need to be monitored for hydrologic effectiveness and the projected service life for the structure should be revised based on analysis of the monitoring data. Assuming adequate design, construction practices and excellent QA/QC followed by a competent monitoring program, service life of tens of years to a few hundred years appears feasible.

In the case of chemical containment of wastes, the duration needed for chemical effectiveness of cement-based materials is dependent on the source term and specific radionuclide time frames (approximately 10 half-life periods). The timeframe of performance is difficult to predict, but could extend a significant period of time beyond the physical containment period (e.g., possibly thousands of years, likely hundreds of years). The longevity of chemical effectiveness is strongly related to the bulk hydraulic properties of the material and the quantity of cement present, because chemical species of the cement matrix are removed from the system by the exchange of pore fluids and also possibly by diffusion.

A cementitious barrier used to limit potential intruder contact with waste, with proper design, construction practices, and QA/QC could be expected to be effective for hundreds of years if it remains unexposed to aggressive environmental conditions (e.g., high sulfate, excessive freeze-thaw cycles). Performance of this type of barrier may be enhanced with appropriate monitoring, repair, and remediation strategies.

Engineered Caps

Based on recent research, extensive dessication of clay barriers in soil caps has compromised the ability of clay barriers to retain low permeability characteristics and preclude infiltration of water through the cover and into the waste (Albright, 2004). Conversely, composite caps composed of a combination of compacted clay buried at sufficient depth, geomembranes and geosynthetic clay liners have performed well in the timeframes of available field studies (10+ years). Monitoring of caps composed of compacted clay barriers and composites can verify the effective lifetimes of these facilities. Given the good performance of composite covers, it is more probable that their functionality will be superior to compacted clay barriers. Current experience provides evidence of hydrologic functionality of tens of years for composite caps appear to be feasible. Longer hydrologic functionality may be feasible with the proper development and implementation of the elements provided in the previous sections, and with continued research. Existing uncertainty in long-term functionality could be reduced by additional technical basis, analyses, testing, and field experience. Geomembranes do not have the experience base of common natural materials or a man-made material like cement, which has been used for hundreds to thousands of years. Therefore, until the experience base is developed, a cautious approach is needed for the long-term performance of novel materials in engineered barriers.

Water balance caps have been studied in the field on large scales, as discussed in Section 3.5.5. When well-designed, constructed, and monitored they have performed well in arid and semi-arid climates. Because they attempt to mimic natural processes, the level of performance achieved over the long-term would be expected to exceed that of resistive infiltration barriers. Whereas a resistive cap is subject to failure by fast pathways (likely to be more discrete, either it is functioning or it is not), a water balance cap is more likely to have different degrees of performance (likely to be more gradual, based on exceeding the design capacity for water management). Water balance caps have been shown in the field to perform well on the order of ten years, and in theory may have some passive performance over the very long term (e.g., thousands of years).

Engineered caps developed for erosion control could have effectiveness that can exceed 1000 years. However, erosion control designs may not be adequate to preclude excessive infiltration. Section 3.5.6 provides a detailed example including some of the design considerations.

Aside from the depth to waste, most engineered caps would not provide a substantial barrier to common practices assumed in intruder analysis (e.g., home construction, well installation).

Permeable Reactive Barriers

There has been limited experience with permeable reactive barriers, approximately 15 years. Effective lifetimes of these barriers, from the literature, appear to be limited to less than 10 years.

Vertical Barriers

As noted previously, it is difficult to identify flaws in the continuity and gaps in constructed vertical walls. In addition, some of these walls are not able to withstand chemicals such as strong acids, bases, and certain organic materials. Moreover, the process of designing a proper mix of wall materials to contain specific contaminants (hazardous chemicals and radionuclides) is less well developed. Accordingly, effective service life of these structures would range in the low single digits of years and performance should be demonstrated by field testing.

3.5.5 SUMMARY OF EXISTING GUIDANCE AND REFERENCE INFORMATION

Table 3.2 provides a summary of existing guidance and reference information that may have some relevance to the application of engineered barriers at decommissioning sites. Early contact with NRC staff is encouraged to discuss which portions of these referenced reports may be appropriate for the site and for the intended purpose of the engineered barriers. Guidance for design of engineered disposal cells for uranium mill tailings sites is provided in NUREG-1620 and NUREG-1623. For sites considering engineered disposal cells for long-term stability

(e.g., erosion control), this guidance may be somewhat useful. However, the standards in 10 CFR Part 40, Appendix A, applicable to uranium mills are more prescriptive than the performance-based dose criteria of Part 20, Subpart E. Licensees using the uranium mill guidance should also consider how the guidance can be adapted for applicability to compliance with Part 20, Subpart E. As discussed below, in some cases traditional designs have not performed particularly well with respect to infiltration.

A variety of programs have evaluated and continue to evaluate engineered barrier technology for waste containment. A comprehensive summary of engineered barrier research is not attempted in this document. However, some good examples of programs to understand, design, and support engineered barrier performance applicable to decommissioning sites include:

- The NRC has conducted research at the U.S. Department of Agriculture (USDA) facilities in Beltsville, Maryland, on engineered covers for low-level waste facilities (O'Donnell et al., 1994).
- The Environmental Protection Agency, through the Alternative Cover Assessment Program (ACAP), has supported the field-scale evaluation of engineered covers.
- The Department of Energy (DOE), through the Alternative Landfill Cover Demonstration (ALCD) completed a large-scale field demonstration comparing six landfill cover designs.
- DOE has instrumented engineered covers at some Uranium Mill Tailings Remedial Action (UMTRA) sites to understand and evaluate their performance.

EPA's ACAP evaluated 27 test covers at 12 sites in eight states to characterize the field hydrology of water balance and conventional covers (Albright et al., 2004). The evaluation included 12 conventional covers (7 composite and 5 clay) and 15 water balance covers (9 monolithic and 6 capillary barriers). Nine of the sites had side-by-side comparisons of conventional and alternative covers. Large-scale lysimeters (approximately 10 m by 20 m (30 ft by 70 ft) areal extent) were installed and instrumented to collect detailed water balance information. The main lessons learned for water balance covers were: (1) Percolation rates in semi-arid and sub-humid climates can be very low (<1 mm/yr), provided that there is adequate storage capacity and that the vegetation effectively removes stored water each year, (2) There is a need to better understand the phenology of plants and the response to meteorological and geotechnical conditions, and (3) Low percolation rates may not be achieved at sites with water balance covers, in particular at humid sites, but the water balance covers may still provide some performance benefit. The main lessons learned for composite covers were: (1) Composite covers may be effective at limiting percolation to less than 1 mm/yr while the geomembranes or geosynthetics are intact, and (2) Clay covers are prone to damage over very short periods of time and can transmit percolation at much higher rates than anticipated. The ACAP program provides an excellent example of developing the technical basis for engineered barrier performance.

DOE's ALCD evaluated six cover designs at Sandia National Laboratory in Albuquerque, NM, to obtain large-scale water balance field data subjected to identical field and climatic conditions (Dywer, 2003). The covers evaluated included a RCRA Subtitle D cover, a Geosynthetic Clay Layer cover, a RCRA Subtitle C cover, an Anisotropic Barrier cover, a Capillary Barrier cover,

and an Evapotranspiration cover. The RCRA Subtitle D cover had the highest percolation rate (above the 1 mm/yr goal), and the geosynthetic clay layer cover had the second highest average percolation rate. Various damage processes, such as desiccation cracking, led to preferential flow through the RCRA Subtitle D cover. The field data from this project was interpreted to suggest the geosynthetic clay layer cover performance was suspect in this application, potentially due to dessication and ion exchange. The other four cover types all had average annual fluxes less than 0.2 mm/yr (0.01 in/yr).

UMTRA disposal cell covers have been developed over the past 20 years at a variety of sites with different climates. From an erosion control and stability perspective, these covers have required little to no maintenance to prevent erosional release of radioactive materials. At some covers, DOE has removed vegetation, however these actions have primarily been undertaken because of concerns with the impact of the vegetation on water management (e.g., infiltration) and not due to concerns with cover stability. For example, at the Burrell, Pennsylvania, disposal cell, herbicide spraying was used to control plant encroachment (DOE, 1999). However, after additional data collection and analysis it was determined by DOE that this aspect of the long term surveillance and monitoring program was unnecessary and could be discontinued without negative impact on cover performance. DOE has instrumented some of the covers to understand and evaluate their performance. There have been lessons learned from the information that has been collected. In particular, some covers based on resistive type designs (e.g., impermeable layers) similar to unlined RCRA subtitle D have been found to have not achieved the design values for hydraulic conductivity measured in the laboratory and therefore appear to have much higher infiltration rates than anticipated (Waugh, 2004). In fact, at a number of sites the in-situ hydraulic conductivity was measured to be more than two orders of magnitude higher than the design target. However, monitoring data from evapotranspiration type covers suggests that design infiltration rates have been achieved. Lessons learned included that seemingly subtle differences in soil types, sources, and compaction can result in significant differences in performance.

The programs cited above and the documents listed below are not intended to be comprehensive, rather they are intended to provide appropriate examples of studies undertaken to understand and support engineered barrier performance. The examples provided above focused on engineered covers, which are only one type of barrier addressed in this guidance. The documents listed below provide information on a variety of different barriers.

Table 3.2 Summary of Existing Key Documents Related to Engineered Barriers

Document	Brief Summary
NUREG-1573, "A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities, Recommendations of NRC's Performance Assessment Working Group," U.S. Nuclear Regulatory Commission, Washington, DC, October 2000.	Provides general information pertinent to modeling and assessment of engineered barriers. Provides a bibliography of reports related to engineered barriers.
NUREG/CR-5432, "Recommendations to the NRC for Soil Cover Systems Over Uranium Mill Tailings and Low-Level Radioactive Wastes — Identification and Ranking of Soils for Disposal Facility Covers," U.S. Nuclear Regulatory Commission, Washington, DC, February 1991.	Discusses (1) selecting soil materials, (2) laboratory and field tests for covers, and (3) construction methods.
NUREG/CR-5542, "Models for Estimation of Service Life of Concrete Barriers in Low-Level Radioactive Waste Disposal," U.S. Nuclear Regulatory Commission, Washington, DC, September 1990.	Provides primarily empirically based models for typical concrete formulations to estimate degradation rates.
NUREG-1623, "Design of Erosion Protection for Long-Term Stabilization," U.S. Nuclear Regulatory Commission, Washington, DC, September 2002.	Provides guidance on methods to achieve erosion controls for long-term stabilization. Provides a list of key references including the technical work supporting the guidance.
NUREG -1620, Rev. 1, "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act," U.S. Nuclear Regulatory Commission, Washington, DC, June 2003.	Provides information regarding NRC staff areas of review and the bases for acceptability of a uranium mill reclamation design.
NUREG-1532, "Final Technical Evaluation Report for the Proposed Revised Reclamation Plan for the Atlas Corporation Moab Mill," U.S. Nuclear Regulatory Commission, Washington, DC, March 1997.	Section 4 provides an example of the staff review of a reclamation design and discusses staff bases for acceptability of rock riprap erosion protection and input parameters used for those designs.

Table 3.2 Summary of Existing Key Documents Related to Engineered Barriers (continued)

Document	Brief Summary
NISTIR 89-4086, NUREG/CR-5466, "Service Life of Concrete," National Institute of Standards and Technology (NIST) Gaithersburg, MD, 1995.	Examines degradation processes in cement-based materials and discusses considerations of their occurrence, extent of potential damage, and mechanisms.
NISTIR 7026, "Condition Assessment of Concrete Nuclear Structures Considered for Entombment," National Institute of Standards and Technology (NIST), Gaithersburg, MD, 2003.	Provides assessment of cement-based engineered barrier structures based on characterization of intact concrete and crack properties. Material property uncertainties are incorporated into a Monte Carlo simulation.
NISTIR 6747, "Validation and Modification of the 4SIGHT Computer Program" National Institute of Standards and Technology (NIST) Gaithersburg, MD, 2001.	Discusses the validation and verification of the fluid transport mechanisms incorporated in the concrete degradation code 4SIGHT using reference and laboratory data.
NISTIR 6519, "Effect of Drying Shrinkage Cracks and Flexural Cracks on Concrete Bulk Permeability," National Institute of Standards and Technology (NIST) Gaithersburg, MD, 2000.	Discusses a model for predicting both the width and spacing of flexural and drying-shrinkage cracks to estimate composite (intact and cracked) concrete structure permeability.
NISTIR 5612, "4SIGHT, Manual: A Computer Program for Modeling Degradation of Underground LLW Concrete Vaults, " National Institute of Standards and Technology (NIST) Gaithersburg, MD, 1995.	User Manual for numerical computer modeling of concrete degradation, 4SIGHT, to facilitate assessment of concrete vaults for isolating radioactive waste in Low Level Waste (LLW) disposal applications.
"Barrier Containment Technologies for Environmental Remediation Applications," edited by Ralph R. Rumer and Michael E. Ryan, John Wiley and Sons, 1995.	Review and evaluation of knowledge and practices of containment technologies suitable for remediation. Identifies areas where practical improvements could be developed. NOTE: It is expected that this document will be superseded by a more recent document on waste containment practices to be published in Fall 2005.

Table 3.2 Summary of Existing Key Documents Related to Engineered Barriers (continued)

Document	Brief Summary
National Research Council, National Academy of Sciences, "Barrier Technologies for Environmental Management," Summary of a Workshop, 1997.	Papers presented in the Workshop on the use of Engineered Barriers to prevent the spread of contaminants and its migration.
"Field Water Balance of Landfill Final Covers," Albright, W, Benson, C., Gee, G., Roesler, A., Abichou, T., Apiwantragon, P., Lyles, B., and Rock, S., Journal of Environmental Quality, 33(6), 2317-2332, 2004.	Results of large-scale field research study to assess the ability of landfill final covers to control infiltration into underlying waste. A comprehensive current publication summarizing ACAP experience.
"Assessment and Recommendations for Improving the Performance of Waste Containment Systems," U.S. EPA, EPA/600/R-02/099, 2002.	Discusses issues related to the design, construction and performance of waste containment systems used in landfills, surface impoundments and waste piles and in the remediation of contaminated sites.
National Research Council, National Academy of Sciences, "Research Needs in Subsurface Science," 2000.	Examines gaps in the understanding of the performance of subsurface facilities and recommends research needs in the area.
Waugh, W.J., "Design, Performance, and Sustainability of Engineered Covers for Uranium Mill Tailings," Proceedings of Long-term Performance Monitoring of Metals and Radionuclides in the Subsurface: Strategies, Tools, and Case Studies. U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Geological Survey, Nuclear Regulatory Commission, April 21-22, 2004, Reston, VA, 2004.	Provides information on experiences with cover designs for DOE's UMTRA Project sites of conventional and alternative covers.
Dwyer, Stephen F., "Water Balance Measurements and Computer Simulations of Landfill Covers," PhD Dissertation, University of New Mexico, 2003.	Provides a comprehensive summary of data collection, analysis, and computer simulations associated with DOE's ALCD program. Also includes a summary of measurements of infiltration at various sites with engineered covers.

Table 3.2 Summary of Existing Key Documents Related to Engineered Barriers (continued)

Document	Brief Summary
O'Donnell, E., R. Ridky, and R. Schulz. "Control of water infiltration into near-surface, low-level waste-disposal units in humid regions," In-situ Remediation: Scientific Basis for Current and Future Technologies, G. Gee and N.R. Wing eds., Battelle Press, Columbus, OH, 295-324, 1994.	Summary of NRC sponsored research at USDA, Beltsville, MD, on engineered covers for low-level waste facilities.
Interstate Technology & Regulatory Council, "Technical and Regulatory Guidance for Design, Installation, and Monitoring of Alternative Final Landfill Covers," Washington, DC, 2003.	Guidance document primarily written for decision makers associated with the plan development, review, and implementation of alternative covers. Focuses on the decisions and facilitating the decision processes related to the design, evaluation, construction, and post-closure care associated with alternative covers.
Interstate Technology & Regulatory Council, "Permeable Reactive Barriers: Lessons Learned/New Directions," Washington, DC, 2005.	Summary of current understanding and experience with permeable reactive barriers, including numerous case studies.
National Research Council, National Academy of Sciences, "Long-Term Institutional Management of U.S. DOE Legacy Waste Sites," 2000.	Discusses long-term management of DOE's waste sites and identifies characteristics and design criteria for effective long-term institutional management.

Appendix P provides an example of a graded approach to the development and implementation of erosion protection covers. The graded approach has been developed to ensure stability of waste for extended periods of time. In other words, by ensuring stability of the waste and designing for the largest event expected over the analysis period, risk from erosional releases can be mitigated. The graded approach is used to manage the uncertainty associated with the timing and magnitude of future events that may cause erosional releases. A risk-informed approach for the development of erosion protection covers would be based on the risk associated with erosional releases and not a stability criteria. In the risk-informed approach, the erosion protection cover may not be designed to achieve stability of the system for the largest event. Rather, the erosion protection cover may be designed to achieve radiological dose criteria, given the timing and magnitude of future events. The risk-informed approach would integrate the impact of all event sizes on the erosion control design and evaluate the resultant radiological doses.

6 ALARA ANALYSES

This chapter is applicable to Decommissioning Groups 2–7. Licensees in Decommissioning Groups 2 and 3 may only have to refer to the discussion of good housekeeping practices in the text box in Section 6.3.

6.1 SAFETY EVALUATION REVIEW PROCEDURES

AREAS OF REVIEW

NRC staff should review the information supplied by the licensee or responsible party to determine if the licensee has developed a DP that ensures that doses to the average member of the critical group are as low as is reasonably achievable (ALARA). Information submitted should include (a) a cost-benefit analysis(or qualitative arguments) for the preferred option of removing residual radioactivity to a level that meets or exceeds the applicable limit and (b) a description of the licensee's preferred method for showing compliance with the ALARA requirement at the time of decommissioning.

REVIEW PROCEDURES

Acceptance Review

NRC staff should review the DP to ensure that, at a minimum, the DP contains the information summarized under "Areas of Review," above. NRC staff should review the ALARA portion of the DP without assessing the technical accuracy or completeness of the information contained therein. The adequacy of the information should be assessed during the detailed technical review. NRC staff should review the DP table of contents and the individual descriptions under "Areas of Review," above, to ensure that the licensee or responsible party has included this information in the DP and to determine if the level of detail of the information appears to be adequate for the staff to perform a detailed technical review.

Safety Evaluation

The material supporting the optimized DP to be reviewed is technical in nature, and specific detailed technical analysis may be necessary. NRC staff should evaluate the licensee's dose estimates for various alternatives using the appropriate guidance in Chapter 5 of this volume. NRC staff should evaluate the licensee's cost estimates using the guidance in Section 4.1 from NUREG–1757, Volume 3.

6.2 ACCEPTANCE CRITERIA

REGULATORY REQUIREMENTS

10 CFR 20.1402, 20.1403(a), 20.1403(e), and 20.1404(a)(3)

REGULATORY GUIDANCE

Appendix N of this NUREG report

INFORMATION TO BE SUBMITTED

The information supplied by the licensee should be sufficient to allow NRC staff to fully understand the basis for the licensee's conclusion that projected dose limit/residual radioactivity concentrations (hereafter, the decommissioning goal) are ALARA. The decommissioning goal should be established at the point that the incremental benefits equal the incremental costs. NRC staff review should verify that the following information is included in the description of the development of the decommissioning goal:

- a description of how the licensee will achieve a decommissioning goal below the dose limit,
- a quantitative cost benefit analysis,
- a description of how costs were estimated, and
- a demonstration that the doses to the average member of the critical group are ALARA.

This information to be submitted is also included as part of the master DP Checklist provided in this NUREG report (see Section VII from Appendix D of Volume 1).

6.3 EVALUATION CRITERIA

Good Housekeeping

For ALARA during decommissioning, all licensees should use typical good practice efforts such as floor and wall washing, removal of readily removable radioactivity in buildings or in soil areas, and other good housekeeping practices. In addition, licensees should provide a description in the FSSR of how these practices were employed to achieve the final activity levels.

NRC staff review should verify that the qualitative descriptions provide reasonable assurance that the activities and decommissioning goal should result in doses that are ALARA.
In light of the conservatism in the building surface and surface soil generic screening levels developed by NRC staff, the NRC staff presumes, absent information to the contrary, that licensees who remediate building surfaces or soil to the generic screening levels do not need to provide analyses to demonstrate that these screening levels are ALARA. In addition, both the "Statements of Consideration" for Subpart E and the Final Generic Impact Statement (NUREG–1496) provide that an ALARA analysis for unrestricted release of soil need not be done. See Example 3 in Section N.1.4 in Appendix N of this volume.

For those situations in which a licensee prepares cost-benefit analyses, NRC staff should ensure that the analyses are developed using the methodology described in Appendix N and applied as described in the following text.

CALCULATION OF BENEFITS

Appendix N of this volume discusses five different possible benefits: (1) collective dose averted, (2) regulatory costs avoided, (3) changes in land values, (4) esthetics, and (5) reduction in public opposition. Numerical estimates will generally only be available for the first three benefits, if they are appropriate. Qualitative analysis of the benefits can be done especially if the costs are large (e.g., no matter what the change in land value is, the costs will exceed the benefits). In most comparisons between alternatives in the same class (e.g., both alternatives result in unrestricted release), the only important benefit should be the collective dose averted. In comparisons between restricted and unrestricted release, the other benefits can become important.

The collective dose averted is generalized as the incremental dose difference between the licensee's approach (hereafter, preferred option) and the alternative under analysis. Therefore, NRC staff needs to ensure that the licensee has calculated the benefits correctly by using the correct population density, area, and averted dose. This may require technical analysis of the dose modeling, and the NRC license reviewer should use Chapter 5 for these cases. If the licensee has used discounting, NRC staff should ensure that the proper rates were used. The licensee is not required to discount because the discount reduces the benefits of adverting dose in later time periods.

For compliance with 10 CFR 20.1403(a), one acceptable method of compliance is to demonstrate that cleanup to the unrestricted release criteria is beyond ALARA considerations. In this case, a beneficial estimate should include costs that would be avoided if the site were to be released for unrestricted use, including calculation of site control and maintenance costs and should include estimation of the additional regulatory costs associated with termination of a restricted site (e.g., development of an environmental impact statement, public meetings).

NRC staff should ensure that the licensee has properly documented the basis for any estimates of changes in land values. Acceptable sources of such estimates include real estate agents familiar with the local area and the issues involved or governmental assessors (e.g., county, State).

CALCULATION OF COSTS

NRC staff should verify that the licensee has adequately estimated the effective monetary costs of the incremental remediation by using the equations in Appendix N of this volume. To review the calculated monetary costs of the incremental remediation, NRC staff should use Section 4.1 of NUREG–1757, Volume 3, with the following changes (this may require calculating total cost estimates for the preferred option and each alternative):

- The cost estimate should be based on actual costs expected to be incurred by decommissioning the facility and should not assume that the work will be performed by an independent third-party contractor.
- The cost estimate *does* take credit for (a) any salvage value that might be realized from the sale of potential assets during or after decommissioning or (b) any tax reduction that might result from payment of decommissioning costs and/or site control and maintenance costs.
- The decommissioning cost estimates should reflect the actual situation rather than maximized assumptions.

For each of the cost terms (e.g., disposal costs, worker fatalities) the incremental difference between the preferred and the alternate options may be negative (i.e., the alternative "costs" less than the preferred option).

NRC staff should verify that the licensee's proposed demonstration that doses to the average member of the critical group are ALARA. There are two approaches to demonstrate compliance with the ALARA requirement at the end of decommissioning: (1) a predetermined acceptable dose limit or concentration guideline(s) or (2) an acceptable preferred option and decommissioning goal with organizational oversight and review during decommissioning. Both options have their own advantages and disadvantages. Establishment of the compliance method needs to be made by the licensee, with the staff reviewing the applicability, given the site-specific information.

PREDETERMINED COMPLIANCE MEASURE

Under the predetermined compliance measure, the licensee would agree to meet the dose calculated for the preferred option or the radiological concentrations associated with this dose. This could be met by either establishing deterministic concentration limits for the site or agreeing to use a specified dose scenario with associated parameters and assumptions. If the licensee's final survey results meet the self-imposed concentration limits (or dose limit), the licensee has met the ALARA requirement.

PERFORMANCE-BASED COMPLIANCE

Performance-based compliance allows a licensee to adjust its ALARA assessment during decommissioning to deal with actual site conditions experienced and actual costs incurred. The philosophy behind this compliance measure is very similar to how ALARA is handled during routine operations. The licensee's DP needs to meet all of the following criteria to use this approach:

- The preferred option, based on valid assumptions, would result in reducing residual activity to ALARA levels, as described above.

- The licensee has established decommissioning guidelines (either dose or concentrations) based on the DP's analysis.
- The licensee has a documented method to review the effectiveness of the remediation activities. This method should include all of the following:
  - An ALARA committee or RSO, for small licensees, similar to operations requirements.
  - An establishment of appropriate review frequency established.
  - An acceptable set of criteria on the scope of activities/commitments that the ALARA committee can change.
  - A commitment for acceptable documentation of ALARA findings that result in the licensee making changes in its remediation activities or decommissioning guidelines.
  - A commitment to provide annually to NRC, all necessary page changes to the DP because of ALARA findings.

At the end of remediation, a licensee using the performance-based approach should meet the following criteria:

- The final survey results satisfy the appropriate dose limit(s).
- Any substantial weaknesses in the ALARA program that were found during licensee audits or NRC inspections have been resolved.
- Any deviation from the decommissioning goal presented in the DP is properly justified by the ALARA committee findings. For long-term projects, these should be reviewed annually by the NRC license reviewer or inspection staff.

Appendix N

ALARA Analyses

In order to terminate a license, a licensee should demonstrate that the dose criteria in Subpart E have been met, and should demonstrate whether it is feasible to further reduce the levels of residual radioactivity to levels below those necessary to meet the dose criteria (i.e., to levels that are ALARA). This section describes methods acceptable to NRC staff for determining when it is feasible to further reduce the concentrations of residual radioactivity to below the concentrations necessary to meet the dose criteria. This section does not apply to, nor replace guidance for, operational ALARA programs. This guidance does involve the same principle as the operational ALARA guidance:

> "'Reasonably achievable' is judged by considering the state of technology and the economics of improvements in relation to all the benefits from these improvements. (However, a comprehensive consideration of risks and benefits will include risks from nonradiological hazards. An action taken to reduce radiation risks should not result in a significantly larger risk from other hazards.) NRC Regulatory Guide 8.8, Revision 3 (1978)." [Quotes in original.]

For ALARA during decommissioning, all licensees should use typical good-practice efforts such as floor and wall washing, removal of readily removable radioactivity in buildings or in soil areas, and other good housekeeping practices. In addition, licensees should provide a description in the FSSR of how these practices were employed to achieve the final activity levels.

In light of the conservatism in the building surface and surface soil generic screening levels developed by NRC, NRC staff presumes, absent information to the contrary, that licensees who remediate building surfaces or soil to the generic screening levels do not need to provide analyses to demonstrate that these screening levels are ALARA. In addition, if residual radioactivity cannot be detected, it may be assumed that it has been reduced to levels that are ALARA. Therefore, the licensee may not need to conduct an explicit analysis to meet the ALARA requirement.

Areas that have been released under then-existing requirements would not have to be reevaluated under 10 CFR 20.1401(c). According to 10 CFR 20.1401(c), NRC would require additional cleanup following license termination only if it determines, based on new information, that the criteria of Subpart E were not met and that residual radioactivity remaining at the site could result in significant threat to public health and safety. Because ALARA represents an optimization technique below dose criteria, it is not considered reasonable to reopen consideration of a previously released area, where radioactive materials were handled that meets the appropriate dose criterion.

In general, a method for determining whether levels of residual radioactivity are ALARA would have the following characteristics.

- **The method is simple**. The method for most licensee applications should be simple, because the effort needed for very sophisticated models cannot generally be justified. In an ALARA analysis of a remediation action, the primary benefit (i.e., the collective radiation dose that

may actually be averted in the future) is uncertain because of future land uses, the number of people that may actually occupy a site, and the types of exposure scenarios are all uncertain. These uncertainties mean that the future collective dose cannot be known with precision. Because of the inherent limitation on the ability to precisely determine the future collective dose at a particular site, it is not useful to perform a complex analysis when a simple analysis can be appropriate. Licensees may use more complex or site-specific analyses if more appropriate for their specific situations (e.g., restricted release analyses, situations that include a number of unquantifiable benefits and costs).

- **The method is not biased and uses appropriate dose modeling to relate concentrations to dose**. The determination of ALARA should not be biased. This is different from demonstrating compliance with a dose limit. The analyses for dose assessments and surveys for compliance with the dose criteria described in this volume include a reasonably conservative bias for demonstrating compliance. Unlike a demonstration of compliance, an ALARA analysis is an optimization technique that seeks the proper balance between costs and benefits below the dose limit. To achieve a proper balance, each factor in the ALARA analysis should be determined with as little bias as possible. If the ALARA analysis were intentionally biased, it would likely cause a misallocation of resources and could deprive society of the benefits from other uses of the resources. Thus, the ALARA analysis should provide an unbiased analysis of the remediation action, which can both avert future dose (a benefit to society) and cost money (a potential detriment because it can deprive future generations of the return on the investment of this money). Sections N.1.1 and N.1.2 discuss the methods that should be used in estimating benefits and detriments, or costs, including scenarios, models, and parameters for relating concentration to dose at a site. The Office of Management and Budget guidance to Federal agencies that implements the President's Executive Order 12866 "Regulatory Planning and Review," in Title 3 of the 1993 Compilation of the U.S. Code of Federal Regulations, January 1, 1994 (page 638), provides guidance on balancing benefits and detriments for analyzing the potential benefits of Federal regulations (Office of Management and Budget, "Economic Analysis of Federal Regulations under Executive Order 12866," January 11, 1996).
- **The method is usable as a planning tool for remediation**. Before starting a remediation action, the licensee should be able to determine generally what concentration of residual radioactivity would require a remediation action to meet the ALARA requirement. It would be inefficient if the licensee could not tell whether the area would pass the ALARA test until after the remediation. Establishing ALARA post-remediation would also likely result in it being less likely for a licensee to remediate below the dose limit(s) because of the additional manpower start-up costs associated with performing additional remediation.
- **As much as possible, the method uses the results of surveys conducted for other purposes**. The demonstration that the ALARA requirement has been met should not require surveys beyond those already performed for other purposes, such as the characterization survey and the FSS. It would be inefficient (and unnecessary) to collect additional sets of measurements to demonstrate that remediation actions were taken wherever appropriate to meet the ALARA requirement if measurements undertaken for other purposes could be used.

N.1 Benefits and Costs for ALARA Analyses

Subpart E contains specific requirements for a demonstration that residual radioactivity has been reduced to a level that is ALARA (10 CFR 20.1402, 20.1403(a), 20.1403(e), and 20.1404(a)(3)). A simplified method for demonstrating compliance with the ALARA requirement is described below. Licensees may use more complex or site-specific analyses if more appropriate for their specific situation. In general, more complex analyses should follow the general concepts presented here. Evaluation of more complex analyses should be handled on a case-by-case basis and early involvement of the appropriate regulatory agencies and members of the public is suggested.

Sometimes it is very difficult or impossible to place a monetary value on an impact. A best effort should be made to assign a monetary value to the impact, because there may be no other way to compare benefits to costs. However, there may be situations for which a credible monetary value cannot be developed. In these situations, a qualitative treatment may be the most appropriate. Qualitative analyses should be evaluated on their merits on a case-by-case basis.

The simplified method presented here is to estimate when a remediation action is cost-effective using generalized estimates for the remedial action. If the desired beneficial effects (benefits) from the remediation action are greater than the undesirable effects or "costs" of the action, the remediation action being evaluated is cost-effective and should be performed. Conversely, if the benefits are less than the costs, the levels of residual radioactivity are already ALARA without taking the remediation action. An example of various benefits and costs are listed in Table N.1. Other than Collective Dose Averted, the additional benefits listed are generally only important in comparisons between alternatives that address whether restricted release can be pursued by the licensee. The value of any benefit or cost can be negative in some cases.

Table N.1 Possible Benefits and Costs Related to Decommissioning

Possible Benefits	Possible Costs
Collective Dose Averted	Remediation Costs
Regulatory Costs Avoided	Additional Occupational/Public Dose
Changes in Land Values	Occupational Nonradiological Risks
Esthetics	Transportation Direct Costs and Implied Risks
Reduction in Public Opposition	Environmental Impacts
	Loss of Economic Use of Site/Facility

In order to compare the benefits and costs of a remediation action, it is necessary to use a comparable unit of measure. The unit of measure used here is the dollar; if possible, then all benefits and costs are given a monetary value. Benefits and costs can be calculated as described in Sections N.1.1 and N.1.2.

The method should be applied during remediation planning, prior to the start of remediation, but after some or all of the characterization work is done. The method should be used only to determine whether and where particular remediation actions should be taken to meet the ALARA requirement.

If the licensee has already decided to perform a remediation action, there is no need to analyze whether the action was necessary to meet the ALARA requirement. The analysis described in this section is needed only to justify *not* taking a remediation action. For example, if a licensee plans to wash room surfaces (either to meet the dose limit or as a good-practice procedure), there is no need to analyze whether the remediation action of washing is necessary to meet the ALARA requirement.

N.1.1 Calculation of Benefits

Collective Dose Averted

In the simplest form of the analysis, the only benefit estimated from a reduction in the level of residual radioactivity is the monetary value of the collective averted dose to future occupants of the site. The collective averted dose should be based on the same exposure scenario(s) used for the compliance calculations. Additional considerations related to ground water residual radioactivity are discussed in Section N.1.6.

The benefit from collective averted dose, B_{AD}, is calculated by determining the present worth of the future collective averted dose and multiplying it by a factor to convert the dose to monetary value:

$$B_{AD} = \$2000 \times PW(AD_{collective}) \qquad \textbf{(N–1)}$$

where B_{AD} = benefit from an averted dose for a remediation action, in current U.S. dollars

\$2000 = value in dollars of a person-rem averted (see NUREG/BR–0058, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," Revision 2, November 1995)

$PW(AD_{collective})$ = present worth of a future collective averted dose

An acceptable value for a collective dose is \$2000 per person-rem averted, discounted for a dose averted in the future. See Section 4.3.3 of "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," NUREG/BR–0058, Revision 2, November 1995. For doses averted within the first 100 years, a discount rate of 7 % should be used. For doses averted beyond 100 years, a 3 % discount rate should be used.

The present worth of the future collective averted dose can be estimated from Equation N–2, for relatively simple situations:

$$PW(AD_{collective}) = P_D \times A \times 0.025 \times F \times \frac{Conc}{DCGL_W} \times \frac{1 - e^{-(r+\lambda)N}}{r+\lambda} \qquad \textbf{(N–2)}$$

where P_D = population density for the critical group scenario in people/m^2;
A = area being evaluated in square meters (m^2)
0.025 = annual dose to an average member of the critical group from residual radioactivity at the Derived Concentration Guideline Level ($DCGL_W$) concentration in rem/y;
F = effectiveness, or fraction of the residual radioactivity removed by the remediation action;
$Conc$ = average concentration of residual radioactivity in the area being evaluated in units of activity per unit area for buildings or activity per unit volume for soils;
$DCGL_W$ = derived concentration guideline equivalent to the average concentration of residual radioactivity that would give a dose of 0.25 mSv/y (25 mrem/y) to the average member of the critical group, in the same units as *"Conc"*;
r = monetary discount rate in units per year;
λ = radiological decay constant for the radionuclide in units per year; and
N = number of years over which the collective dose will be calculated.

The present worth of the benefit calculated by Equation N–2, above, assumes that the peak dose occurs in the first year. This is almost always true for the building occupancy scenario, but not always true for the residential scenario where the peak dose can occur in later years. When the peak dose occurs in later years, Equation N–2 would overestimate the benefit. The licensee may perform a more exact calculation that avoids this overestimation of the benefit of remediation by calculating the dose during each year of the evaluation period and then calculating the present worth of each year's dose. A detailed derivation of Equation N–2 and some of the other equations are in Section N.5.

The $DCGL_W$ used should be the same as the $DCGL_W$ used to show compliance with the 0.25 mSv/y (25 mrem/y) dose limit. The population density, P_D, should be based on the dose scenario used to demonstrate compliance with the dose limit. Thus, for buildings, the licensee should estimate P_D for the building occupancy scenario. For soil, the P_D should be based on the residential scenario. The factor at the far right of the equation, which includes the exponential terms, accounts for both the present worth of the monetary value and radiological decay.

If more than one radionuclide is present, the total benefit from a collective averted dose, B_{AD}, is the sum of the collective averted dose for each radionuclide. When multiple radionuclides have a fixed concentration (i.e., secular equilibrium), residual radioactivity below the dose criteria is normally demonstrated by measuring one radionuclide and comparing its concentration to a

$DCGL_W$ that has been calculated to account for the dose from the other radionuclides. In this case, the adjusted $DCGL_W$ may be used with the concentration of the radionuclide being measured. The other case is where the ratio of the radionuclide concentrations is not fixed and varies from location to location within a survey unit; this benefit is the sum of the collective averted dose from each.

Regulatory Costs Avoided

This benefit usually manifests in ALARA analyses of restricted release versus unrestricted release decommissioning goals. By releasing the site with no restrictions, the licensee may avoid the various costs associated with restricted release. These can include (1) additional licensing fees to develop an Environmental Impact Statement, (2) financial assurance related to both the decommissioning fund [10 CFR 20.1403(c)] and the site restrictions [10 CFR 20.1403(d)(1)(ii)], (3) costs (including NRC-related) associated with public meetings or the community review committee [10 CFR 20.1403(d)(2)], and (4) future liability. When evaluating the ability of a licensee's proposal for restricted release according to 10 CFR 20.1403(a), avoiding these costs should be included in the benefits of the unrestricted release decommissioning alternative. These should not be included as costs related to the restricted release (see Section N.1.2).

Changes in Land Values

The licensee should account for any expected change in the value of the site or facility caused by the different decommissioning options. This may be difficult to quantify.

Esthetics/Reduction in Public Opposition

These can be very difficult to quantify. The licensee may wish to evaluate the effect of the available decommissioning options with respect to the overall esthetics (including the decommissioning activities themselves) of the site and surrounding area. Another factor the licensee may wish to consider is the potential reduction in opposition, if there is any, to the decommissioning activities/goal the license is attempting to propose.

N.1.2 Calculation of Costs

The licensee should evaluate the costs of the selected alternative remediation actions being evaluated. When performing a fairly simple evaluation, the costs generally include the monetary costs of: (1) the remediation action being evaluated, (2) transportation and disposal of the waste generated by the action, (3) workplace accidents that occur because of the remediation action, (4) traffic fatalities resulting from transporting the waste generated by the action, (5) doses received by workers performing the remediation action, and (6) doses to the public from excavation, transport, and disposal of the waste. Other costs that are appropriate for the specific case may also be included.

The total cost, $Cost_T$, which is balanced against the benefits, has several components.

$$Cost_T = Cost_R + Cost_{WD} + Cost_{ACC} + Cost_{TF} + Cost_{WDose} + Cost_{PDose} + Cost_{other} \quad \textbf{(N–3)}$$

where $Cost_R$ = monetary cost of the remediation action (may include "mobilization" costs);
$Cost_{WD}$ = monetary cost for transport and disposal of the waste generated by the action;
$Cost_{ACC}$ = monetary cost of worker accidents during the remediation action;
$Cost_{TF}$ = monetary cost of traffic fatalities during transporting of the waste;
$Cost_{WDose}$ = monetary cost of dose received by workers performing the remediation action and transporting waste to the disposal facility;
$Cost_{PDose}$ = monetary cost of the dose to the public from excavation, transport, and disposal of the waste; and
$Cost_{other}$ = other costs as appropriate for the particular situation.

All the costs described below do not necessarily have to be calculated. For example, if one or two of the costs can be shown to be in excess of the benefit and if none of the other costs are negative, the remediation action will be unnecessary. However, some of these costs may in fact be negative (i.e., the alternative may cost less than the preferred option) in some comparisons between alternate decommissioning options, and thus, all costs may need to be evaluated.

Remedial Action Costs

Calculation of the incremental remedial action costs include the standard manpower and mechanical costs. The licensee can account for any additional licensing fees from NRC (e.g., if the option to meet the ALARA goal requires another year of remediation). Lower concentrations may change sampling/survey requirements. Increased survey costs can be considered in the remedial action but note that this is the incremental costs of surveying below the dose limit. Survey costs related to evaluating compliance at the dose limit are not part of the ALARA analysis.

Transport and Disposal of the Waste

The cost of waste transport and disposal, $Cost_{WD}$, may be evaluated according to Equation N–4.

$$Cost_{WD} = V_A \times Cost_V \quad \textbf{(N–4)}$$

where V_A = volume of waste produced, remediated in units of m^3; and
$Cost_V$ = cost of waste disposal per unit volume, including transportation cost, in units of $\$/m^3$.

Nonradiological Risks

The cost of nonradiological workplace accidents, $Cost_{ACC}$, may be evaluated using Equation N–5.

$$Cost_{ACC} = \$3{,}000{,}000 \times F_W \times T_A \quad \textbf{(N–5)}$$

where \$3,000,000 = monetary value of a fatality equivalent to \$2000/person-rem (see pages 11–12 of "Reassessment of NRC's Dollar per Person-Rem Conversion Factor Policy," NUREG–1530, December 1995);
F_W = workplace fatality rate in fatalities/hour worked; and
T_A = worker time required for remediation in units of worker-hours.

Transportation Risks

The cost of traffic fatalities incurred during the transportation of waste, $Cost_{TF}$, may be calculated similar to Equation N–6.

$$Cost_{TF} = \$3{,}000{,}000 \times \left(\frac{V_A}{V_{SHIP}} \right) \times F_T \times D_T \quad \textbf{(N–6)}$$

where V_A = volume of waste produced in units of m^3;
F_T = fatality rate per truck-kilometer traveled in units of fatalities/truck-km;
D_T = distance traveled in km; and
V_{SHIP} = volume of a truck shipment in m^3.

The actual parameters should depend on the site's planned method of waste transport. Some facilities may consider a mix of trucking and rail transport to get the waste to the disposal site. In these cases, the cost would be equivalent to the total fatalities likely from the rail transport and the limited trucking, not just the trucking alone.

Worker Dose Estimates

The cost of the remediation worker dose, $Cost_{WDose}$, can be calculated as shown in Equation N–7.

$$Cost_{WDose} = \$2000 \times D_R \times T \quad \textbf{(N–7)}$$

where D_R = total effective dose equivalent (TEDE) rate to remediation workers in units of rems/hr; and
T = time worked (site labor) to remediate the area in units of person-hour.

The cost of worker dose usually should not be discounted because the dose is all incurred close to the time of license termination.

Loss of Economic Use of Property

A cost in the "other" category could include the fair market rental value or economic use for the site during the time the additional remediation work is being performed. These costs are usually associated with locations such as laboratories, hospital rooms, and industrial sites, etc. This cost may be added to the costs in Equation N–3.

Environmental Impacts

Another cost that could fall into the other category would be a remediation action that may damage an ecologically valuable area or cause some other adverse environmental impact. These impacts should be included as costs of the remediation action.

Default Parameters

For performing these calculations, acceptable values for some of the parameters are shown in Table N.2.

Table N.2 Acceptable Parameter Values for Use in ALARA Analyses

Parameter	Value	Reference and comments
Workplace accident fatality rate, F_W	4.2×10^{-8}/hr	NUREG–1496, "Final Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," and NUREG–1496, July 1997, Volume 2, Appendix B, Table A.1
Transportation fatal accident rate, F_T	Trucks: 3.8×10^{-8}/km	NUREG–1496, Volume 2, Appendix B, Table A.1
Dollars/person-rem	$2000	NUREG/BR–0058
Monetary discount rate, r	0.07/y for the first 100 years and 0.03/y thereafter, or 0.07 for buildings and 0.03 for soil	NUREG/BR–0058
Number of years of exposure, N	Buildings: 70 years Soil: 1000 years	NUREG–1496, Volume 2, Appendix B, Table A.1
Population density, P_D	Building: 0.09 person/m^2 Land: 0.0004 person/m^2	NUREG–1496, Volume 2, Appendix B, Table A.1
Excavation, monitoring, packaging, and handling soil	Soil: 1.62 person-hours/m^3 of soil	NUREG–1496, Volume 2, Appendix B, Table A.1
Waste shipment volume, V_{SHIP}	Truck: 13.6 m^3/shipment	NUREG–1496, Volume 2, Appendix B, Table A.1

N.1.3 Residual Radioactivity Levels that are ALARA

The residual radioactivity level that is ALARA is the concentration, *Conc*, at which the benefit from removal equals the cost of removal. If the total cost, $Cost_T$, is set equal to the present worth of the collective dose averted in Equation N–2, the ratio of the concentration, *Conc*, to the $DCGL_W$ can be determined (derivation shown in Section N.5).

$$\frac{Conc}{DCGL_W} = \frac{Cost_T}{\$2000 \times P_D \times 0.025 \times F \times A} \times \frac{r + \lambda}{1 - e^{-(r + \lambda)N}} \qquad \text{(N–8)}$$

All the terms in Equation N–8 are as defined previously.

Since P_D, N, and r are constants that have generic values for all locations on the site, the licensee only needs to determine the total cost, $Cost_T$, and the effectiveness, F, for a specific remediation action. If the concentration at a location exceeds *Conc*, it may be cost effective to remediate the location by a method whose total cost is $Cost_T$. Note that the concentration, *Conc*, that is ALARA can be higher or lower (more or less stringent) than the $DCGL_W$, although licensees should meet the $DCGL_W$.

N.1.4 Examples of Calculations

Example 1: Washing Building Surfaces

This example considers a building with cesium-137 residual radioactivity ($\lambda = 0.023$/y). The remediation action to be considered is washing a floor of 100 m^2 area. The licensee estimates that this may cost \$400 and may remove 20 % ($F = 0.2$) of the residual radioactivity. For buildings, generic parameters are: $P_D = 0.09$ person/m^2, $r = 0.07$/y, and $N = 70$ years. Using these values in Equation N–8:

$$\frac{Conc}{DCGL_W} = \frac{\$400}{\$2000 \times 0.2 \times 0.025 \times 0.09 \times 100\ m^2} \times \frac{0.07 + 0.023}{1 - e^{-(0.07 + 0.023)70}} \qquad \text{(N–9)}$$

$$\frac{Conc}{DCGL_W} = 0.41 \qquad \text{(N–10)}$$

To meet the ALARA requirement, the floor should be washed if the average concentration exceeds about 41 % of the $DCGL_W$. This is more stringent than the dose limit. This calculation shows that washing building surfaces is often necessary to meet the ALARA requirement. If the surfaces may be washed, there is no need for the licensee to perform the ALARA evaluation or to submit the evaluation to NRC. If the licensee decided not to wash the building surfaces, the licensee could submit this evaluation and demonstrate in the FSS that all surfaces have a concentration below 41 % of the $DCGL_W$.

Example 2: Scabbling Concrete in a Building

This example is the same as above except that it evaluates use of a scabbling tool that removes the top one-eighth of an inch of concrete. The licensee estimates the total cost of the scabbling may be \$5000 for the 100 m^2 floor and estimates that it may remove all the residual radioactivity so that $F = 1$. Using these values in Equation N–8 gives:

$$\frac{Conc}{DCGL_W} = \frac{\$5000}{\$2000 \times 1 \times 0.025 \times 0.09 \times 100\ m^2} \times \frac{0.07 + 0.023}{1 - e^{-(0.07 + 0.023)70}} \quad \text{(N–11)}$$

$$\frac{Conc}{DCGL_W} = 0.97 \quad \text{(N–12)}$$

The licensee could decide to scabble depending on the concentrations present. In lieu of scabbling, the licensee could provide this analysis and demonstrate that the floor concentration is less than 0.97 $DCGL_W$.

Example 3: Removing Surface Soil

In this example, soil with an area of 1000 m^2 is found to contain radium-226 (λ = 0.000433/y) residual radioactivity to a depth of 15 cm (6 in). The licensee estimates that the cost of removing the soil (F = 1) may be $100,000. For soil, the generic parameters are P_D = 0.0004 person/m^2, r = 0.03/y, and N = 1000 y. Using these values in Equation N–8 gives:

$$\frac{Conc}{DCGL_W} = \frac{\$100{,}000}{\$2000 \times 1 \times 0.025 \times 0.0004 \times 1000\ m^2} \times \frac{0.03 + 0.000433}{1 - e^{-(0.03 + 0.000433)1000}} \quad \text{(N–13)}$$

$$\frac{Conc}{DCGL_W} = 152 \quad \text{(N–14)}$$

Thus, meeting the dose limit would be limiting by a considerable margin. Based on these results, it would rarely be necessary to ship soil to a waste disposal facility to meet the ALARA requirement. The licensee could use this evaluation to justify not removing soil.

The advantage of the approach shown in these examples is that it allows the licensee to estimate a concentration at which a remediation action may be cost-effective prior to starting remediation and prior to planning the FSS. Thus, it is a useful planning tool that lets the licensee determine which remediation actions may be needed to meet the ALARA requirement.

N.1.5 When Mathematical Analyses Are Not Necessary

In certain circumstances, the results of an ALARA analysis are known on a generic basis and an analysis is not necessary. For residual radioactivity in soil at sites that may have unrestricted

release, generic analyses (see NUREG–1496, the examples in Sections 1.4, and other similar examples) show that shipping soil to a low-level waste disposal facility is unlikely to be cost effective for unrestricted release, largely because of the high costs of waste disposal. Therefore shipping soil to a low-level waste disposal facility generally does not have to be evaluated for unrestricted release. In addition, licensees who have remediated surface soil and surfaces to the NRC default screening criteria have remediated soil such that it meets the unrestricted use criteria in 10 CFR 20.1402, or if no residual radioactivity distinguishable from background, may be left at the site would not be required to demonstrate that these levels are ALARA.

Removal of loose residual radioactivity from buildings is almost always cost-effective except when very small quantities of radioactivity are involved. Therefore, loose residual radioactivity normally should be removed, and if it is removed, the analysis would not be needed.

N.1.6 Additional Considerations for Residual Radioactivity in Ground Water

The method described above is adequate for most situations and has minimal cost for analyses. However, other factors, as described below, should be included if the site may be released if it has residual radioactivity from site operations in ground water.

If there is residual radioactivity from site operations in ground water, it may be necessary to calculate the collective dose from consumption of the ground water. Default or generic ground-water models typically assume that potable aquifers have small volumes and cannot supply large populations. When this is the case, dose calculations for the site critical group may adequately represent the collective dose from ground water. However, when site-specific ground water modeling is used, and the residual radioactivity is diluted in an aquifer of large volume and there is also an "existing population deriving its drinking water from a downstream supply using a downstream supply" (see page 39075 of "Radiological Criteria for License Termination," Final Rule, *Federal Register*, Volume 62, 62 FR 39058, July 21, 1997), the collective dose for that population should be included in the ALARA calculation. The possibility of reducing the collective dose by remediation should be one of the items evaluated as one of the benefits, even if remediation would not affect the critical group's doses significantly. Another consideration for ground-water residual radioactivity would be the reduction of any potential costs incurred by other entities, such as a public water supply utility, to meet the requirements of the Safe Water Drinking Act, if the licensee's residual radioactivity levels would potentially lead to concentrations at the wellhead that would exceed the U.S. Environmental Protection Agency's Maximum Contaminant Levels.

N.2 Determination of "Net Public or Environmental Harm"

Subpart E, 10 CFR 20.1403(a) and 10 CFR 20.1403(e)(2)(i) address circumstances in which a licensee would be required to demonstrate that further remediation would cause net public or environmental harm. The calculation to demonstrate net public or environmental harm is a special case of the general ALARA calculation described above that compares the benefits in

dose reduction to the cost of doses, injuries, and fatalities incurred. The calculation does not consider the monetary costs for performing further remediation, $Cost_R$, or the costs of waste disposal, $Cost_{WD}$. Thus, if the benefit from averted dose B_{AD} is less than the sum of the costs of workplace accidents, $Cost_{ACC}$, the costs of transportation fatalities, $Cost_{TF}$, the costs of remediation worker dose, $Cost_{WDose}$, and the costs of any environmental degradation, $Cost_{ED}$, then there is net public or environmental harm. Thus, there is net public or environmental harm if:

$$Net\ harm\ if \quad B_{AD} < Cost_{ACC} + Cost_{TR} + Cost_{WDose} + Cost_{ED} \qquad \textbf{(N–15)}$$

In some cases it may be very difficult to assign a credible monetary value to environmental degradation. For example, environmental harm could be caused by an action such as remediation of a wetlands area. There may be no way to assign a monetary value to this action. In these cases it is acceptable to use qualitative arguments, which should be evaluated on a case-by-case basis.

N.3 Demonstration of "Not Technically Achievable"

Subpart E, 10 CFR 20.1403(e)(2)(i) addresses circumstances in which a licensee would be required to demonstrate that further reductions in residual radioactivity are not technically achievable. Remediation of residual radioactivity is almost always technically achievable even if not economically feasible. This provision allows for special cases that may not be foreseeable; thus, specific guidance on this provision cannot be provided. Instead, NRC staff will evaluate licensee submittals on a case-by-case basis.

N.4 Demonstration of "Prohibitively Expensive"

Subpart E, 10 CFR 20.1403(e)(2) addresses circumstances in which a licensee would be required to demonstrate that further reductions in residual radioactivity would be prohibitively expensive. This can be demonstrated by an analysis like the ALARA analysis described above, but using a value of $20,000 per person-rem when calculating the value of the averted dose. This value reflects NRC's statement in the final rule on radiological criteria for license termination that NRC considers it is appropriate that a remediation would be prohibitively expensive if the cost to avert dose were an order of magnitude more expensive than the cost recommended by NRC for an ALARA analysis (see page 39071 of "Radiological Criteria for License Termination," Final Rule, *Federal Register*, Volume 62, 62 FR 39058, July 21, 1997). However, NRC also stated that "...a lower factor may be appropriate in specific situations when the licensee could become financially incapable of carrying out decommissioning safely." Thus, values lower than $20,000 per person-rem may be used when remediation actions based on $20,000 per person-rem could cause the licensee to become financially incapable of safely carrying out the decommissioning.

N.5 Derivation of Main Equations to Calculate ALARA Concentrations

The ALARA analysis compares the monetary value of the desirable effects (benefits) of a remediation action (e.g., the monetary benefit of collective averted dose) with the monetary value of the undesirable effects (e.g., the costs of waste disposal). If the benefits of a remediation action would exceed the costs, the remediation action should be taken to meet the ALARA requirement.

The primary benefit from a remediation action is the collective dose averted in the future, i.e., the sum over time of the annual doses received by the exposed population. Assume:

$$\textit{If benefits} > \textit{costs, the remediation action should be taken.} \qquad \textbf{(N–16)}$$

1. A site has an area with residual radioactivity at concentration, *Conc*.
2. The concentration equivalent to 0.25 mSv/y (25 mrem/y) ($DCGL_W$) for the site has been determined (for soil or for building surfaces, as appropriate).
3. The residual radioactivity at a site has been adequately characterized so that the effectiveness of a remediation action can be estimated in terms of the fraction *F* of the residual radioactivity that the action may remove.
4. The peak dose rate occurs at time 0 and decreases thereafter by radiological decay.

The derived concentration guideline ($DCGL_W$) is the concentration of residual radioactivity that would result in a TEDE to an average member of the critical group of 0.25 mSv/y (25 mrem/y). Therefore, the annual dose *D* to the average member of the critical group from residual radioactivity at concentration *Conc* is:

$$D = 0.025\ rem/yr \times \frac{Conc}{DCGL_W} \qquad \textbf{(N–17)}$$

If a remediation action would remove a fraction, *F* , of the residual radioactivity present, the annual averted dose to the individual, $AD_{individual}$, is

$$AD_{individual}\ (rem/yr/person) = F \times 0.025\ rem/yr \times \frac{Conc}{DCGL_W} \qquad \textbf{(N-18)}$$

The annual collective averted dose, $AD_{collective}$, can be calculated by multiplying the individual averted dose, $AD_{individual}$, by the number of people expected to occupy the area, A, containing the residual radioactivity. The number of people in the area containing the residual radioactivity is the area, A, times the population density, P_D, for the site.

Thus:

$$AD_{collective} = F \times 0.025\ rem/yr \times \frac{Conc}{DCGL_W} \times A \times P_D \qquad \textbf{(N–19)}$$

The annual monetary benefit rate at time 0, B_0, from the averted collective dose in dollars per year can be calculated by multiplying the annual collective averted dose, $AD_{collective}$, by \$2000/person-rem (\$200,000/person-sievert):

$$B_0 = \$2000 \times F \times 0.025\ rem/yr \frac{Conc}{DCGL_W} \times A \times P_D \qquad \textbf{(N-20)}$$

The total monetary benefit of averted doses can be calculated by integrating the annual benefit over the exposure time in years, considering both the present worth of future benefits and radiological decay. It is the policy of the Office of Management and Budget (OMB) and NRC to use the present worth of both benefits and costs that occur in the future.

The equation for the present worth, P_{WB}, of a series of constant future annual benefits, B (in dollars per year), for N years at a monetary discount rate of r (per year) using continuous compounding is:

$$PW_B = B \times \frac{e^{rN} - 1}{r\ e^{rN}} \qquad \textbf{(N–21)}$$

The continuous compounding form of the present worth equation is used because it permits an easy formulation that includes radiological decay. If the annual benefit rate, B, is not constant but is decreasing from an original rate, B_0, because of radiological decay, the radiological decay

rate acts like an additional discount rate that can be added to the monetary discount rate of decrease so that the present worth of the annual benefits P_{WB} becomes:

$$PW_B = B_0 \times \frac{e^{(r+\lambda)N} - 1}{(r+\lambda)\, e^{(r+\lambda)N}} \quad \textbf{(N–22)}$$

Dividing the numerator and denominator of the right hand term by e(r + λ)*N* yields:

$$PW_B = B_0 \times \frac{1 - e^{-(r+\lambda)N}}{r+\lambda} \quad \textbf{(N–23)}$$

As $N \to \infty$, Equation N–23 has the limit:

$$PW_B = B_0 \times \frac{1}{r+\lambda} \quad \textbf{(N–24)}$$

When the discount rate, *r*, is zero and the radiological decay rate is very small so that $r + \lambda \to 0$, and Equation N–23 has the limit:

$$PW_B = B_0 \times N \quad \textbf{(N–25)}$$

The total benefit from the collective averted dose, B_{total} , is the present worth of the annual benefits. B_{total} can be calculated by combining Equations N–20 and N–23:

$$B_{total} = \$2000 \times F \times 0.025 \times \frac{Conc}{DCGL_W} \times A \times P_D \times \frac{1 - e^{-(r+\lambda)N}}{r+\lambda} \quad \textbf{(N–26)}$$

Now consider the total cost of a remediation action, $Cost_T$. The costs included in $Cost_T$ are (1) the direct cost of the remediation action itself, $Cost_{RA}$, (2) the cost of waste disposal

including its shipping cost, $Cost_{WD}$, (3) the monetary costs of workplace accidents during the remediation, $Cost_{ACC}$, (4) the monetary costs of transportation accidents during the shipping of waste, $Cost_{TF}$, (5) the monetary value of the dose that remediation workers receive, $Cost_{WD}$, and (6) other costs as appropriate for the specific site, $Cost_{other}$. Thus,

$$Cost_T = Cost_R + Cost_{WD} + Cost_{ACC} + Cost_{TF} + Cost_{WDose} + Cost_{other} \qquad \textbf{(N–27)}$$

What is of interest in this derivation is the concentration, *Conc*, at which the benefit, B_{total} , equals the total cost, $Cost_T$. Thus, in Equation N–26, $Cost_T$ can be substituted for B_{total} , and then Equation N–26 can be solved for the concentration, *Conc*, relative to the $DCGL_W$, as in Equation N–28.

$$\frac{Conc}{DCGL_W} = \frac{Cost_T}{\$2000 \times F \times 0.025 \times P_D \times A} \times \frac{r + \lambda}{1 - e^{-(r + \lambda)N}} \qquad \textbf{(N–28)}$$

Equation N–28 can be used to determine the concentration in an area for which a remediation action should be taken to meet the ALARA criterion. The equation appears complicated, but can be solved in a few minutes with a hand-held calculator, and it only has to be done once for each type of remediation action at a site. P_D, N, and r are constants. Generic values for P_D and N are given in Section N.1.2, or may be determined on a site-specific basis. Values for r are given in NUREG/BR–0058, Revision 2, and OMB policy (OMB 1996). The only site-specific information that the licensee needs is the total cost, $Cost_T$, and the effectiveness, F, for each remediation action being evaluated.

UNITED STATES NUCLEAR REGULATORY COMMISSION

Docket No. 04007102

IN RE PETITION FOR A HEARING on the SHIELDALLOY METALLURGICAL CORP. DECOMMISSIONING PLAN, pursuant to 10 C.F.R. § 2.309 and 42 U.S.C. § 2239(a)(1)(A)

PETITION FOR A HEARING
PART I OF III

Technical Contentions

Submitted by:

State of New Jersey,
Department of Environmental Protection

STUART RABNER
ATTORNEY GENERAL OF NEW JERSEY
R.J. Hughes Justice Complex
25 Market Street
P.O. Box 093
Trenton, New Jersey 08625-0093
(609) 292-1509

Andrew D. Reese
Kenneth W. Elwell
Deputy Attorneys General
On the Petition

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The New Jersey Department of Environmental Protection ("NJDEP") files this petition for a hearing pursuant to 10 C.F.R. § 2.309 and 42 U.S.C. § 2239(a)(1)(A) seeking a hearing on the decommissioning plan (Docket No. 04007102) ("DP") that was submitted by Shieldalloy Metallurgical Corporation (License No. SMB-743) ("Shieldalloy"). The NJDEP respectfully requests NRC to grant a hearing because Shieldalloy's proposed decommissioning of radioactive waste that will remain a radiological hazard for billions of years will not protect the public health and safety. Furthermore, the Long Term Control ("LTC") license sought by Shieldalloy is not permitted by law.

A State has standing in a proceeding that involves a "facility located within [the State's] boundaries." 10 C.F.R. § 2.309(d)(2)(i). Thus, when a State advises the NRC that a proceeding involves a facility within its borders, the NRC "shall not require a further demonstration of standing." Id. § 2.309(d)(2)(ii).

Contention 1

THE SOIL ON WHICH SHIELDALLOY PROPOSES TO SITE THE RADIOACTIVE WASTE WILL ALLOW RADIONUCLIDES TO CONTAMINATE THE GROUNDWATER.

10 C.F.R. § 2.309(f)(i) Provide a specific statement of the issue of law or fact to be raised or controverted.

Shieldalloy proposes to conduct onsite disposal of its radioactive waste on native soil without any protective liner. However, disposal of Radioactive waste should not be conducted in this area because the radionuclides will easily infiltrate the relatively thin layer of soil (the vadose zone) and enter the underlying groundwater. Malusis Report[1] page 4.

10 C.F.R. § 2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The LLRWPA requires "the permanent isolation of low-level radioactive waste pursuant to the requirements established by the Nuclear Regulatory Commission under applicable laws, or by an agreement State if such isolation occurs in such agreement State." 42 U.S.C. § 2021b(7). Thus, the LLRWPA requires the "permanent isolation" of radioactive waste.

Furthermore, NRC's paramount responsibility, as required by the AEA, is to regulate radiological material in a manner that protects the public health and safety. 42 U.S.C. §§ 2012(d), 2013(d), 2022(f)(3), (referring to § 2022(b)(2)), 2099,

[1] "Malusis Report" refers to the letter sent by Michael Malusis to Kenneth Elwell dated January 16, 2007.

2111(b)(1)(A), 2113(b)(1)(A), 2114(a)(1), 2201(b). The Supreme Court held that "[the] Commission's prime area of concern in the licensing context, . . . is national security, public health, and safety." Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n, 461 U.S. 190, 207 (1983).

The License Termination Rule ("LTR") requires the TEDE from residual radioactivity to not exceed either 100 mrem per year or 500 mrem per year, under certain circumstances, assuming that institutional controls fail. 10 C.F.R. § 20.1403(e). The LTR also requires the TEDE to be as low as reasonably achievable. Id.

10 C.F.R. § 2.309(f)(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding.

Shieldalloy has submitted a DP that proposes to conduct onsite disposal of its radioactive waste on native soil.

10 C.F.R. § 2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

NRC must determine whether the proposed onsite disposal is sufficient to maintain the required dose criteria for the duration of the radiological hazard. See 10 C.F.R. § 20.1403. NRC must also determine whether the cap is sufficient to protect the public health and safety and will permanently isolate the Radioactive waste. 42 42 U.S.C. §§ 2012(d), 2013(d), 2022(f)(3), (referring to § 2022(b)(2)), 2099, 2111(b)(1)(A), 2113(b)(1)(A), 2114(a)(1), 2021b(7).

10 C.F.R. § 2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue.

The DP proposes to dispose the Radioactive waste on native soil. However, the vadose zone in this area is relatively thin (2.5 meters) and consists of fine to coarse sand and gravel deposits, followed by a saturated zone layer consisting primarily of coarse sand with little to trace silt. Malusis Report page 4. The DP estimates the saturated hydraulic conductivity of the native vadose zone material at 0.017 m/yr (5.4×10^{-8} cm/s). DP rev. 1a page 39. However, this reported value is a gross underestimate, i.e., the value is representative of a clay-rich soil and is not remotely representative of a relatively clean sand/gravel layer. Malusis Report page 4. The true saturated hydraulic conductivity of this layer likely ranges between 10^{-1} and 10^{-3} cm/s based on the reported texture. Id. As a result, water that infiltrates through the waste material will also infiltrate easily through the vadose zone and into the underlying saturated zone, carrying those contaminants that leach from the waste mass. Id.

The hydraulic conductivity of the saturated zone is estimated at 16,000 m/yr (i.e., 0.05 cm/s), DP rev. 1a page 79, which is consistent with that expected for a coarse sand aquifer, Malusis Report page 4. These hydraulic properties, in addition to the relatively thin vadose zone layer and the absence of an

engineered liner system beneath the waste, are not favorable for long-term protection of the groundwater pathway. Id.; Gaffigan Dec. ¶ 11.

The DP appears to justify the onsite disposal under these conditions upon the ability of the vadose zone and saturated zone soils to provide attenuation (i.e., adsorption) of the radionuclides, since the distribution coefficients (K_d) assigned to the vadose zone and saturated zone layers are the same as those assigned to the waste material itself. Malusis Report page 4 (citing DP rev. 1a Table 17.5). Yet, Shieldalloy failed to perform any sorption tests to verify that the underlying soil formations exhibit adsorption capacity for the contaminants of concern. Malusis Report page 4. Moreover, the underlying soils consist primarily of sand, gravel, and little to trace silt. DP rev o Envt'l Report Page 3-13. As a result, the vadose zone and saturated zone materials are largely inert (i.e., do not participate in ion exchange reactions) and may provide little, if any, attenuation of inorganic contaminants (both radioactive and non-radioactive species) that leach from the waste mass. Malusis Report page 4; Spayd Report page 2. In this case, K_d would be close to zero. Malusis Report page 4. The lack of attenuation capacity is an additional concern regarding the long-term protectiveness of the groundwater. Id.

The DP excludes consideration of the groundwater on the basis that it is presently contaminated. DP § 5.2.2.2.4. This area is a relatively populated area. The DP fails to consider that current municipal supply wells are located less than one mile form the site and draw water from the same aquifer that Shieldalloy has contaminated. The wells are located upgradient of the site, but the presence of large volume irrigate wells in the immediate area, in conjunction with the constant pumping of the municipal wells, makes transport of the contamination towards and into the potable wells a real possibility. Gaffigan Dec. ¶ 18. SMC's consultant, TRC Environmental Company, has entered into an oversight document with the NJDEP to remediate the chemical contamination in the ground water, soil, sediment and soil. Id. TRC's goal is to remediate the ground water as quickly as possible, potentially within 20 years. Id.

Finally, Shieldalloy should have considered contamination of the Hudson Branch stream since it is fed by groundwater discharge in times of no or low precipitation. Malusis Report page 5; Spayd Report page 3. The stream flows through portions of the Shieldalloy facility and continues through residential and agricultural areas. DP rev o Envt'l Report page 3-17.

10 C.F.R. § 2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.

The DP estimates the saturated hydraulic conductivity of the native vadose zone material at 0.017 m/yr (5.4×10^{-8} cm/s). DP rev. 1a page 39. However, this reported value is a gross underestimate, i.e., the value is representative of a clay-rich soil and is not remotely representative of a relatively clean sand/gravel layer. Malusis Report page 4. The true saturated hydraulic conductivity of this layer likely ranges between 10^{-1} and 10^{-3} cm/s based on the reported texture. Id. As a result, water that infiltrates through the waste material will also infiltrate easily through the vadose zone and into the underlying saturated zone, carrying those contaminants that leach from the waste mass. Id.

The DP appears to justify the onsite disposal under these conditions upon the ability of the vadose zone and saturated zone soils to provide attenuation (i.e., adsorption) of the radionuclides, since the distribution coefficients (K_d) assigned to the vadose zone and saturated zone layers are the same as those assigned to the waste material itself. Malusis Report page 4 (citing DP rev. 1a Table 17.5). Yet, Shieldalloy failed to perform any sorption tests to verify that the underlying soil formations exhibit adsorption capacity for the contaminants of concern. Id. Moreover, the underlying soils consist primarily of sand, gravel, and little to trace silt. DP rev o Envt'l Report Page 3-13. As a result, the vadose zone and saturated zone materials are largely

inert (i.e., do not participate in ion exchange reactions) and may provide little, if any, attenuation of inorganic contaminants (both radioactive and non-radioactive species) that leach from the waste mass. Id. In this case, K_d would be close to zero. Malusis Report page 4.

The DP excludes consideration of the groundwater on the basis that it is presently contaminated. DP § 5.2.2.2.4. This area is a relatively populated area. The DP fails to consider that current municipal supply wells are located less than one mile form the site and draw water from the same aquifer that Shieldalloy has contaminated. The wells are located upgradient of the site, but the presence of large volume irrigate wells in the immediate area, in conjunction with the constant pumping of the municipal wells, makes transport of the contamination towards and into the potable wells a real possibility. Gaffigan Dec. ¶ 18. SMC's consultant, TRC Environmental Company, has entered into an oversight document with the NJDEP to remediate the chemical contamination in the ground water, soil, sediment and soil. Id. TRC's goal is to remediate the ground water as quickly as possible, potentially within 20 years. Id.

Finally, Shieldalloy should have considered contamination of the Hudson Branch stream since it is fed by groundwater discharge in times of no or low precipitation. Malusis Report page 5; Spayd Report page 3. The stream flows through portions of the

Shieldalloy facility and continues through residential and agricultural areas. DP rev o Envt'l Report page 3-17.

Because the Radioactive waste will likely leach contaminants, see Contention 2, and because the proposed cap will likely allow water infiltration, see Contention 3, the DP should be rejected because of the likelihood of groundwater contamination. Malusis Report pages 4-9.

Contention 2

THE DP FAILS TO ACKNOWLEDGE THE LEACHABILITY OF RADIONUCLIDES FROM THE SLAG DESPITE SHIELDALLOY'S OWN TESTS SHOWING THAT THE RADIOACTIVE WASTE WILL LEACH RADIONUCLIDES FROM RAINWATER.

10 C.F.R. § 2.309(f)(i) Provide a specific statement of the issue of law or fact to be raised or controverted.

The DP instead places heavy reliance on the argument that the Radioactive waste will resist leaching contaminants. Malusis Report page 5. However, Shieldalloy's own tests show that the Radioactive waste does leach contaminants. Id. page 6. Furthermore, because of the volume of Radioactive waste and the fact that no tests were performed on the baghouse dust, more tests should have been completed. Id. Also, the type of tests actually conducted may not provide an accurate representation of long-term leaching behavior, which should be required in this case because of the long half lives of the materials. Id.

10 C.F.R. § 2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The LLRWPA requires the "permanent isolation" of low-level radioactive waste. Furthermore, NRC's paramount responsibility, as required by the AEA, is to regulate radiological material in a manner that protects the public health and safety. Pac. Gas & Elec., 461 U.S. at 207.

The LTR requires the TEDE from residual radioactivity to not exceed either 100 mrem per year or 500 mrem per year, under certain circumstances, assuming that institutional controls fail. 10 C.F.R. § 20.1403(e). The LTR also requires the TEDE to be as low as reasonably achievable. Id.

10 C.F.R. § 2.309(f)(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding.

Shieldalloy has submitted a DP that relies upon the argument that the materials will resist leachability. DP rev. 1a page 41.

10 C.F.R. § 2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

NRC must determine whether the proposed onsite disposal is sufficient to meet the required dose criteria for the duration of the radiological hazard. See 10 C.F.R. § 20.1403. NRC must also determine whether the cap is sufficient to protect the public health and safety and will permanently isolate the Radioactive

waste. 42 U.S.C. §§ 2012(d), 2013(d), 2022(f)(3), (referring to § 2022(b)(2)), 2099, 2111(b)(1)(A), 2113(b)(1)(A), 2114(a)(1), 2021b(7). The DP relies heavily on their argument that the materials resist leaching. DP rev. 1a page 41.

10 C.F.R. § 2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue.

In each of the TCLP tests, the combined concentration of leached radium isotopes (i.e., Ra-226 and Ra-228 combined) easily exceeded the Maximum Contaminant Level (MCL) of 5 pCi/L established in the National Primary Drinking Water Regulations. Malusis Report page 6. The combined radium concentration in the leachant from the TCLP test on the slag was 6,660 pCi/L (more than 1,000 times the MCL), and the combined radium concentrations in the leachant from the two TCLP tests on the baghouse dust were 32.6 pCi/L and 19.39 pCi/L. Id. In addition, the EP Toxicity tests performed on the ferrocolumbium slag samples in 1987 indicate that the slag releases barium (Ba) at concentrations in excess of the drinking water MCL of 2 mg/L. Leached Ba concentrations from the two slag samples were 14 and 23 mg/L. Id.

While it is acknowledged that the population would not be directly exposed to undiluted leachate, the above results are sufficient to cause concern regarding potential degradation of the groundwater due to release of contaminants from the waste. There

are some significant overall limitations associated with the leaching tests that also warrant consideration. Id. First, no tests appear to have been conducted on the baghouse dust to evaluate the potential for leaching of non-radioactive contaminants (e.g., heavy metals) despite the fact that the baghouse dust represents approximately 20% of the radioactive waste volume to be disposed. Id. The contaminated soils and building materials were not analyzed for leachability of radionuclides. Gaffigan Dec. ¶ 13. Also TCLP leachate for the slag and baghouse dust was only analyzed for radionuclides. Id. The leachate should have also been analyzed for chemical contaminants pursuant to RCRA to determine if they are hazardous waste and possibly banned from land disposal. Id. Even if the results are below the limits for hazardous waste classification, the TCLP results will indicate if any of the materials are contaminated with metals or other contaminants that may be leachable and present a continuing source of ground water contamination. Id.

Second, the number of leaching tests performed is insufficient to assess potential variability in the leaching behavior of the waste materials and establish statistical confidence that the test results are representative of the waste mass as a whole. Malusis Report page 6. Only three samples of slag (for more than 30,000 cubic meters of a variety of slags) and two samples of baghouse dust (for more than 13,000 cubic meters of

dust) were subjected to TCLP and subsequent radionuclide analysis. Gaffigan Dec. ¶ 15.

Third, the leached concentrations reported may not represent equilibrium conditions. Id. The standard test durations for the TCLP and EP Toxicity tests are 18 and 24 hours, respectively. Id. No demonstration apparently has been performed to verify that these testing durations are sufficient to allow equilibrium conditions to be established between the liquid and solid phases (i.e., to allow the leaching process to reach completion). Id. Longer extraction times would result in higher leached concentrations if equilibrium had not been established in these tests. Id. Finally, tests such as the TCLP and EP Toxicity tests are single extraction tests and, alone, may not provide an accurate representation of long-term leaching behavior. Id.

Regarding test duration, a similar concern exists for the short-term batch tests used to determine K_d values for the waste mass. Id. pages 6 to 7.

Furthermore, the referenced report by Dave Raviv Associates in footnote 34 contains radiological analyses that do not conform to the requirements of reporting of radiological environmental data. Goodman Report[2] page 3. For example, the minimum detectable activities ("MDAs") should be reported for each analysis. Id. The

[2] "Goodman Report" refers to the memo from Jenny Goodman to Donna Gaffigan dated January 16, 2007.

MDAs for gross alpha and gross beta are not always below the requirements in the Environmental Protection Agency's Safe Drinking Water regulations. (40 CFR 141.25(c) (1) and (2)). The uranium concentrations reported are above that which would be expected in this area of the state. Goodman Report page 3. The concentration of uranium in the Kirkwood-Cohansy aquifer is typically 0.03 micrograms per liter (ug/L) according to the US Geological Geological Survey. Id. Uranium-238 concentrations in the report (Appendix 19.2) are three orders of magnitude above that level.[3] Id. Thus, the statement in the plan that the radionuclides are bound tightly to the slag and will not leach into the groundwater, is not supported by SMC's own groundwater data. Id.

As discussed above in Contention 1, radionuclides will easily infiltrate the relatively thin layer of the vadose zone. As discussed below in Contention 3, the cap will allow rainwater infiltration. Because the Radioactive waste will leach contaminants, the proposed disposal will likely cause groundwater contamination. Malusis Report pages 4-9.

10 C.F.R. § 2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.

The DP states that the materials will resist leachability. DP rev. 1a page 41. However, in each of the TCLP

[3] The mass concentration of total uranium is obtained by dividing the activity concentration of Uranium-238 (in picocuries per liter) by 0.3365.

tests, the combined concentration of leached radium isotopes (i.e., Ra-226 and Ra-228 combined) easily exceeded the Maximum Contaminant Level (MCL) of 5 pCi/L established in the National Primary Drinking Water Regulations. Malusis Report page 6; Gaffigan ¶ 16. The combined radium concentration in the leachant from the TCLP test on the slag was 6,660 pCi/L (more than 1,000 times the MCL), and the combined radium concentrations in the leachant from the two TCLP tests on the baghouse dust were 32.6 pCi/L and 19.39 pCi/L. Malusis Report page 6. In addition, the EP Toxicity tests performed on the ferrocolumbium slag samples in 1987 indicate that the slag releases barium (Ba) at concentrations in excess of the drinking water MCL of 2 mg/L. Leached Ba concentrations from the two slag samples were 14 and 23 mg/L. Id. While it is acknowledged that the population would not be directly exposed to undiluted leachate, the above results are sufficient to cause concern regarding potential degradation of the groundwater due to release of contaminants from the waste.

Contention 3

SHIELDALLOY'S CAP DESIGN IS FATALLY FLAWED BECAUSE IT WILL ALLOW RAINWATER TO EASILY INFILTRATE THE RADIOACTIVE WASTE.

10 C.F.R. § 2.309(f)(i) Provide a specific statement of the issue of law or fact to be raised or controverted.

The proposed cover system consisting of soil and crushed

stone is not protective of the public health because it will allow rainwater infiltration. Malusis Report pages 7 to 8.

10 C.F.R. § 2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The LLRWPA requires the "permanent isolation" of low-level radioactive waste. Furthermore, NRC's paramount responsibility, as required by the AEA, is to regulate radiological material in a manner that protects the public health and safety. Pac. Gas & Elec., 461 U.S. at 207.

The LTR requires the TEDE from residual radioactivity to not exceed either 100 mrem per year or 500 mrem per year, under certain circumstances, assuming that institutional controls fail. 10 C.F.R. § 20.1403(e). The LTR also requires the TEDE to be as low as reasonably achievable. Id.

10 C.F.R. § 2.309(f)(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding.

Shieldalloy has submitted a DP that proposes a LTC restricted use disposal design.

10 C.F.R. § 2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

NRC must determine whether the proposed onsite disposal is sufficient to maintain the required dose criteria for the duration of the radiological hazard. See 10 C.F.R. § 20.1403. NRC

must also determine whether the cap is sufficient to protect the public health and safety and will permanently isolate the Radioactive waste. 42 42 U.S.C. §§ 2012(d), 2013(d), 2022(f)(3), (referring to § 2022(b)(2)), 2099, 2111(b)(1)(A), 2113(b)(1)(A), 2114(a)(1), 2021b(7).

10 C.F.R. § 2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue.

The DP states that the cover "is designed to prevent rainwater infiltration into the consolidated material." DP rev. 1a page 41. However, this statement does not appear to have been justified to any reasonable extent. Malusis Report page 7. For example, a considerable amount of analysis has been performed to demonstrate that the crushed rock surface will provide long-term protection against erosive forces. Id. However, erosion protection is not sufficient to prevent infiltration and subsequent release of contaminants into the subsurface. Id. The plan currently appears to be devoid of consideration regarding the hydraulic performance of the cover. Id. No specifications have been provided for the index properties (i.e., grain size distribution, Atterberg limits, activity, etc.) and hydraulic conductivity of the soil layer, no evaluation of candidate borrow sources has been documented, and no specifications for placement of the soil layer are included. Id. In addition, no justification is provided for the use of a surface

runoff coefficient as high as 0.8 (i.e., 80 % of the precipitation runs off) or an evapotranspiration rate of 24 inches per year for a cover with a crushed rock surface and no vegetation. Id.; Spayd Report pages 1-2. Surface runoff likely will be a negligible component of the water balance for this cover. Malusis Report page 7.

NRC staff stated at the public meeting held in Newfield on December 5, 2006 that the barrier will be design to allow rainwater infiltration. Gaffigan Dec. ¶ 11. However, such a cap is not protective of the public health, especially when considering the leachability of the radioactive waste and ease of which the radionuclides will infiltrate the relatively thin layer of soil (the vadose zone) and enter the underlying groundwater. Malusis Report pages 4-9.

In addition to the above, other considerations such as slope stability, soil development, and root intrusion do not appear to have been considered in this plan. Id. Slope stability is a potential concern in the short- and long-term due to the proposed 3:1 side slopes, the lack of information provided regarding the cover soil requirements and the potential for at least a portion of the cover to be inundated based on the PMF scenario. Id.

Soil development and root intrusion have been shown to be problematic in UMTCRA-type covers such as that proposed in this plan and have the potential to cause an increase in hydraulic

conductivity of a soil cover by several orders of magnitude over the long term. Id. Soil development and root intrusion has been a common problem to landfills located in New Jersey. Disbrow Dec. ¶ 2.

Vegetation rooted in contaminated materials may contain elevated levels of uranium, thorium, radon, and radium. Exh. B page 2.

The climate of southern New Jersey is not favorable to the long-term isolation of the waste. Malusis Report page 8. Long-term hydrologic isolation of buried wastes at arid and semi-arid sites is favorable because of the relatively low precipitation, high potential evapotranspiration, and thick unsaturated soils. Id. However, these conditions are not present at the Newfield site. Id.

NUREG-1757 Vol.2, Section 3.5.3 states that a parametric or component sensitivity analysis should be provided to identify how much degradation of the engineered barrier would result. However, the DP fails to perform this analysis. Goodman Report page 2.

SMC did not provide natural analogs for the effectiveness of their engineered barrier. Id. NUREG-1757 uses Native American Mounds to demonstrate erosional stability, but states that the ability of the mounds to limit infiltration is unknown. Vol. 2 pages 3-14 to 3-15.

The DP contains conflicting information regarding the cap. Revision 1a states that a geomembrane liner will be used in the cap. DP rev. 1a pages 38, 64, 73, 74, note 184. Revision 1a states that a runoff coefficient of 1 is used with a geomembrane. DP rev. 1a page 73. Revision 1 of the DP states that the geomembrane is used to divert surface water, DP rev. 1 page 37 note 92, pages 60-61, limit the impact of burrowing animals, DP rev. 1 page 158, and is an integral part of the engineered barrier, DP rev. 1 pages 166, 177. However, the June 30, 2006 transmittal letter accompanying revision 1a of the DP states that the geomembrane has been removed. Page 7.

As discussed above in Contention 1, radionuclides will easily infiltrate the relatively thin layer of the vadose zone. As discussed be in Contention 2, Shieldalloy's own testing has found that the waste will will leach contaminants. Because the proposed cap will likely cause rainwater infiltration, groundwater contamination will also be likely where the waste will remain a radioactive hazard for billions of years. Malusis Report pages 4-9; Goodman Dec.[4] ¶ 2. In contrast, Shieldalloy contaminated the groundwater at the facility with chromium, trichloroethene and other contaminants during in a mere 50 years. Gaffigan Dec. ¶ 11.

[4] "Goodman Dec." refers to the Declaration of Jennifer Goodman, which is attached to the Goodman Report.

10 C.F.R. § 2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.

The DP states that the cover "is designed to prevent rainwater infiltration into the consolidated material." DP rev. 1a page 41. However, this statement does not appear to have been justified to any reasonable extent. Malusis Report page 7. The plan currently appears to be devoid of consideration regarding the hydraulic performance of the cover. Id. No specifications have been provided for the index properties (i.e., grain size distribution, Atterberg limits, activity, etc.) and hydraulic conductivity of the soil layer, no evaluation of candidate borrow sources has been documented, and no specifications for placement of the soil layer are included. Id. In addition, no justification is provided for the use of a surface runoff coefficient as high as 0.8 (i.e., 80 % of the precipitation runs off) or an evapotranspiration rate of 24 inches per year for a cover with a crushed rock surface and no vegetation. Id.; Spayd pages 1-2. Surface runoff likely will be a negligible component of the water balance for this cover. Malusis Report page 7.

In addition to the above, other considerations such as slope stability, soil development, and root intrusion do not appear to have been considered in this plan. Id. Slope stability is a potential concern in the short- and long-term due to the proposed 3:1 side slopes, the lack of information provided regarding the

cover soil requirements and the potential for at least a portion of the cover to be inundated based on the PMF scenario. Id. Soil development and root intrusion have been shown to be problematic in UMTCRA-type covers such as that proposed in this plan (e.g., see and have the potential to cause an increase in hydraulic conductivity of a soil cover by several orders of magnitude over the long term. Id. Soil development and root intrusion has been a common problem to landfills located in New Jersey. Disbrow Dec. ¶ 2.

Contention 4

BECAUSE SHIELDALLOY HAS FAILED TO FULLY CHARACTERIZE ITS FACILITY FOR RADIONUCLIDE CONTAMINATION, IT HAS FAILED TO PRESENT SUFFICIENT INFORMATION TO ASSESS WHETHER PORTIONS OF THE SITE MEET THE DOSE CRITERIA UNDER THE LICENSE TERMINATION RULE.

10 C.F.R. § 2.309(f)(i) Provide a specific statement of the issue of law or fact to be raised or controverted.

The DP contends that the facility is fully characterized for radionuclide contamination. DP rev. 1 Chapter 4. However, the characterization that was submitted (IT April, 1992 "Assessment of Environmental Radiologcial Conditions at the Newfield Facility") is not adequate. Goodman Report pages 3 to 5. Shieldalloy should be required to fully characterize the facility before it submits a DP so NRC can ensure that the site is classified correctly for the

final status survey so that it can be determined if the site is fully remediated and complies with the LTR.

10 C.F.R. § 2.309(f)(ii) Provide a brief explanation of the basis for the contention.

NUREG-1757 requires the final status survey to be submitted with the DP to allow the NRC to determine whether the survey is adequate for demonstrating compliance with the radiological criteria for license termination. Vol. 1 page 15-9. Shieldalloy has failed to conduct a full characterization survey of its facility. Exh. M.

10 C.F.R. § 2.309(f)(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding.

Shieldalloy has submitted a DP pursuant to the LTR.

10 C.F.R. § 2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

NRC is required to review the final status survey as part of the DP to determine if the facility will meet the radiological criteria in the LTR. NUREG-1757 Vol. 1 page 15-9

10 C.F.R. § 2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue.

The site has not been fully characterized to determine the levels of radioactivity above background. Goodman Report page 1. The soil samples were sporadic and the EPA protocol for further analysis of water samples was not followed properly. Id. The laboratory data was either not present, or had problems, like not meeting the required minimum detectable activities (MDA). Id. For example, there is no indication if soil samples were sealed for 21 days prior to analysis in order to reach secular equilibrium. Id. This could bias all the soil results low. Without adequate and full characterization of the site, the NRC and NJDEP cannot determine if any portion of the site meets the dose criterion for unrestricted use. Id.

Given the fact that SMC confirms that the Hudson branch is in need of remediation, other areas of the site should be sampled to ensure that radionuclides did not migrate from the areas that were licensed. Goodman report page 3.

SMC states definitively that the only areas within the SMC property lines where residual radioactivity exists in surface soils, other than the Storage Yard, are the concrete pads that housed the former AAF and Flex-Klean Baghouses, D-111 and D-102/112. DP rev. 1 page 28. This statement is premature considering there has been no final status survey of the property. Goodman Report § 4.4.2. We believe that in addition to Class 1 survey units, Class 2 and Class 3 survey units are imperative

considering the site has never been fully characterized and considering it is unknown where slag was used on site. Id.

The scale drawing and map of soil and water sampling results in Appendix B of the Environmental Report (Appendix 19.9 of the Plan) shows contamination above background levels in the Hudson's Branch and outside the fence line, to the north of the storage yard, and in areas where licensed material was never stored or used. These areas need to be addressed in the final status survey of the site prior to the license amendment. Goodman Report § 4.4.2.

There does not appear to be an accurate accounting of the locations of where slag may have been used as fill. Goodman Report § 4.5. There is not an accurate assessment of whether or not the slag was radioactive. Id. Considering this uncertain history, the entire site should be included in a final status survey. Id.

The DP states that subsurface radioactivity may be present at the site where slag was used as fill. DP rev. 1 page 29. While the DP states that these areas have not been well-characterized, it states that "they would have a nominal radionuclide content." Id. Pages 29-30. However, multiplying out the assumptions of the quantity of radioactive material that may be present as fill slag yields a concentration that is three orders of magnitude above New Jersey's cleanup standards, which would not be considered a nominal radionuclide content. Goodman Report § 4.5.

Sections 4.2.1 to 4.2.3, 4.4.1, and 4.5 to 4.7 of Goodman's

Report provide other DP deficiencies associated with the failure to properly characterize the site.

10 C.F.R. § 2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.

Chapter 4 of the DP purports to adequately describe the radiological status of the facility. However, the site has not been fully characterized to determine the levels of radioactivity above background. Goodman Report page 1. The previous section of this Petition describes the various deficiencies in Chapter 4 of the DP and sets forth the various ways in which the site was not fully characterized.

SMC states definitively that the only areas within the SMC property lines where residual radioactivity exists in surface soils, other than the Storage Yard, are the concrete pads that housed the former AAF and Flex-Klean Baghouses, D-111 and D-102/112. DP rev. 1 page 28. This statement is premature considering there has been no final status survey of the property. Goodman Report § 4.4.2. We believe that in addition to Class 1 survey units, Class 2 and Class 3 survey units are imperative considering the site has never been fully characterized and considering it is unknown where slag was used on site. Id.

The DP states that subsurface radioactivity may be present at the site where slag was used as fill. DP rev. 1 page 29. While the

DP states that these areas have not been well-characterized, it states that "they would have a nominal radionuclide content." Id. Pages 29-30. However, multiplying out the assumptions of the quantity of radioactive material that may be present as fill slag yields a concentration that is three orders of magnitude above New Jersey's cleanup standards, which would not be considered a nominal radionuclide content. Goodman Report § 4.5.

Contention 5

THE DP OBTAINS INACCURATE DOSE MODELING RESULTS BY IGNORING THE LIKELY SCENARIO OF GROUNDWATER CONTAMINATION AND IGNORING OTHER REASONABLE ASSUMPTIONS.

10 C.F.R. § 2.309(f)(i) Provide a specific statement of the issue of law or fact to be raised or controverted.

DP fails to assume likely scenarios in its modeling, such as contamination of groundwater. If this likely scenario is modeled, the radioactive doses would exceed the limits established by the License Termination Rule ("LTR"). See 10 C.F.R. § 20.1403(e). The DP also fails to assume other reasonable scenarios, which would further raise the radioactive doses.

10 C.F.R. § 2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The LTR requires residual radioactivity at the site to be reduced "so that if the institutional controls were no longer in

effect, there is reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group is as low as reasonably achievable and would not exceed either (1) 100 mrem (1 mSv) per year; or (2) 500 mrem (5 mSv)" under certain circumstances. 10 C.F.R. § 20.1403(e).

The DP completely excludes the likely scenario of radionuclides contaminating the groundwater. Goodman Report § 5.2.2.2.4. If this pathway is included in the modeling, with more reasonable parameters used for this type of cap, a TEDE of 1,718 mrem/yr at 800 years would result. Goodman Report page 11. This dose level is not protective of human health and exceeds the 500 mrem limit in the LTR. Id. Furthermore, the DP excludes other reasonable scenarios that would raise the TEDE even higher. Id. Pages 6 to 11.

10 C.F.R. § 2.309(f)(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding.

Shieldalloy has submitted a DP seeking to decommission its facility under the LTR. The LTR requires an applicant to ensure that the TEDE from residual radioactivity meet various criteria. 10 C.F.R. 20.1403. Thus, modeling must use accurate assumptions to ensure that the TEDE meets the criteria. However, the DP fails to use realistic assumptions.

10 C.F.R. § 2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

NRC must determine whether modeling will accurately ensure that the dose criteria in the LTR are met. See 10 C.F.R. § 20.1403.

10 C.F.R. § 2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue.

The DP completely excludes the likely scenario of radionuclides contaminating the groundwater. Goodman Report § 5.2.2.2.4. The DP states that groundwater below the Shieldalloy facility is contaminated and not likely to be ingested by anyone. DP § 5.2.2.2.4. SMC therefore excludes the drinking water pathway from its modeling. Id. However, the aquifer beneath the SMC site is classified as a Class IIA aquifer which means it can be used as potable water with treatment. Goodman Report § 5.2.2.2.4. Treatment is considered a contol that will fail. Id. Current municipal supply wells are located less than one mile from the site and draw water from the same aquifer that Shieldalloy has contaminated. Gaffigan Dec. 18. Shieldalloy has been operating a treatment system on site to remediate the groundwater that was contaminated by Shieldalloy.

Id. SMC's consultant, TRC Environmental Company, has entered into an oversight document with the NJDEP to remediate the chemical contamination in the ground water, soil, sediment and soil. Id. TRC's goal is to remediate the ground water as quickly as possible, potentially within 20 years. Id. The DP states that RESRAD supports the position that a suburban resident does not drink groundwater. DP rev. 1a page 61 note 157. The RESRAD Manual states that in an EPA study (U.S. Environmental Protection Agency, 1994, *Radiation Site Cleanup Regulations: Technical Support Document for the Development of Radionuclide Cleanup Levels for Soil*, review draft, Office of Radiation and Indoor Air, Washington, D.C.), an on-site well is assumed for drinking in the suburban resident scenario. Goodman Report page 8. Therefore, SMC must include the drinking water pathway in its all controls fail analysis. Gaffigan Dec. ¶ 19; Goodman Report § 5.2.2.2.4; Malusis Report page 5; Spayd Report page 3.

The DP also excludes other reasonable exposure scenarios from its modeling. Farming up to the property boundary and on the unrestricted portion of the property should be considered since the DP states that the property will be subdivided for unrestricted release, DP vol 1 page 154 note 102. Goodman Report page 6.

The DP assumes that the hypothetical resident lives 1000 feet from the pile. DP rev. 1a page 60 note 156. However, because a portion of the property will be released for unrestricted use,

and because a resident currently resides only 100 feet from the property, the modeling should assume a family living on the unrestricted portion of the property. Goodman Report §§ 5.3.1, 5.3.3.2. Also, it is unreasonable to assume that municipal water will be available in the foreseeable future. Id. § 5.3.3.2. It is also reasonable to assume that the family grows a garden and consumes produce from it. Id. Since 10 C.F.R. § 20.1403(e) requires the assumption that institutional controls will fail, and since the materials will remain a radioactive hazard in perpetuity, the modeling should assume that the radioactive slag will be exposed. Id. § 5.3.3. In sum, all pathways should be used for this scenario, namely direct radiation exposure, particulate inhalation, direct soil ingestion, crop ingestion, and drinking water ingestion. Goodman Report page 8.

The DP states the suburban resident scenario is unlikely because of the lack of available space to construct a house and parking and because the majority of the area surrounding the Storage Yard is assigned for natural resource damage mitigation. DP rev. 1a page 61. However, since a resident currently lives 100 feet from the property, DP rev. 1 § 1.2, there is no basis to claim that a resident scenario is unlikely. Furthermore, institutional controls will likely fail while the materials remain a radioactive hazard in perpetuity. Goodman Report § 5.1. Therefore, the natural resource limitation must also be assumed to fail. Id. page 8.

The amount of time a suburban resident assumed by the DP to spend at the site is not conservative. Id. The US Environmental Protection Agency's Exposure Factors Handbook[5] recommends 16.4 hours per day for time indoors. Id. The RESRAD Manual uses 50% of the time spent indoors. Id. There is no recommendation for how many days per year, but the average number of vacation days taken in the US is 13. Id. The standard days per year for a resident is typically 350. Id. The values listed, 240 days for 8 hours per day are not justified. Id. That means the resident is away from home for 4 months out of the year. Id.

The engineered cap and slag may be an ideal source for construction material. Id. Page 6. In fact, Shieldalloy used the slag material as fill for a road and underneath a building knowing full well that this material was radioactive. DP rev. 1 pages 27, 29. Therefore, this scenario should be modeled. Goodman Report page 6.

The DP states that an all controls fail scenario is being modeled. DP rev. 1a page 34, line 20. However, the DP is actually modeling only a slight degradation of controls. Goodman Report § 5.1. Modeling needs to be performed assuming that the engineered controls completely degrade since the materials will remain a radioactive hazard into perpetuity. Id.

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[5] Exposure Factors Handbook Volume III, Activity Factors, US Environmental Protection Agency, EAP/600/P-95/002Fc, August, 1997.

The DP fails to take into account exposure from direct contact with the uncovered pile. DP rev. 1a § 5.5.10. However, as discussed above, contact with the uncovered pile when institutional controls fail is a reasonable scenario.

The Microshield runs neglected to take into account all the progeny associated with uranium and thorium. Goodman Report § 5.5.9. Because the uranium and thorium in the slag are in equilibrium with their associated decay products, and because most of them are gamma emitters, all of these decay products should be included in the source term. Id. Using the same geometries as SMC for the shape of the source and the distance from the source, the exposure rates are two orders of magnitude higher than shown in Appendix 19.5. Id.

The DP states that modeling to predict future doses has been derived from "previously completed radiological assessments of the residual radioactivity at the Newfield site." DP rev. 1a § 5.2.1. However, the lateral and vertical extent of contamination has never been determined. Exh. M. Accurate dose modeling of radionuclide contamination into the groundwater cannot be conducted without determining the vertical extent of the contamination. Goodman Report § 5.2.1. Also, without a determination of the lateral extent of the contamination, contamination above the established cleanup levels could be missed in the final status survey. Id.

The DP derives the source term using the weighted averages of the concentrations of material in the storage yard. DP Table 17.7. This would make sense if the material were capable of being blended together. Goodman Report § 5.2.1.2. However, the concentration in the slag will not change even if other, less concentrated material is placed near it. Id. If the slag were uncovered, as would be the case in an all controls fail scenario, it is reasonable to assume that the receptor would be exposed to the higher concentration, not the derived concentration. Id. Thus, the Derived Source Term should use the concentration of the slag. Id.

The fence should be assumed to fail since the waste will remain a radioactive hazard into perpetuity. Goodman Report page 7.

The DP includes erroneous assumptions that affects the dose modeling. Goodman Report § 5.4.3.3. For example, it is stated that the saturated hydraulic conductivity was measured for the native sand material at the site as 2,000 m/y. DP rev. 1a page 77. However, SMC uses 0.017 m/y for the saturated hydraulic conductivity of the unsaturated zone (which is the native sand layer). Id. Page 79. Also, Table 17.5 lists the K_d of Radium as 50, which is much lower than the RESRAD default, but this is not even mentioned in the text. Goodman Report § 5.4.3.3. This seems to contradict the statement that the slag is essentially insoluble even under the most extreme in-situ conditions that might

reasonably be encountered. Id. A site-specific K_d was not determined for the baghouse dust or the contaminated soil. Id.; Spayd Report page 2. This will be important when the drinking water pathway is included in the analysis. Id.

The DP inputs a parameter of 0.004 for the hydraulic gradient of the saturated zone, as shown in Appendix A and B and referenced in the April 1992 Remedial Investigation Technical Report. Spayd Report Page 2. However, measurement of the hydraulic gradient of the saturated zone in the 1992 Report show the gradient at the site to be 0.002, one half the gradient used in RESRAD. Id. The Ground Water Modeling Memo also uses the 0.002 hydraulic gradient value. Id. Therefore, the hydraulic gradient of the saturated zone used in RESRAD is not correct and should be changed to 0.002. Id. NJDEP modeling found that using the lower value of 0.002 increases the doses.

Sections 5.1, 5.2.2.2.1 to 5.2.2.2.3, 5.3, 5.3.3.1 to 5.3.3.4, 5.5.1, 5.5.11 of Goodman's Report provide other DP deficiencies associated with the dose modeling. Page 3 of Spayd's Report also provide DP deficiencies.

10 C.F.R. § 2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.

The DP completely excludes the likely scenario of radionuclides contaminating the groundwater. Goodman Report § 5.2.2.2.4. The DP states that groundwater below the Shieldalloy

facility is contaminated and not likely to be ingested by anyone. DP § 5.2.2.2.4. SMC therefore excludes the drinking water pathway from its modeling. Id. However, the aquifer beneath the SMC site is classified as a Class IIA aquifer which means it can be used as potable water with treatment. Goodman Report § 5.2.2.2.4. Treatment is considered a control that will fail. Id. Shieldalloy has been operating a treatment system on site to remediate the groundwater that was contaminated by Shieldalloy. Gaffigan Dec. ¶ 17. SMC's consultant, TRC Environmental Company, has entered into an oversight document with the NJDEP to remediate the chemical contamination in the ground water, soil, sediment and soil. Id. TRC's goal is to remediate the ground water as quickly as possible, potentially within 20 years. Id. Because the radiological hazard from these materials will remain in perpetuity, Goodman Dec. ¶ 2, Shieldalloy's dismissal of the groundwater pathway because of present contamination is not warranted. Malusis Report page 5; Goodman Report § 5.2.2.2.4; Gaffigan Dec. ¶ 19; Spayd Report page 3. Therefore, SMC must include the drinking water pathway in its all controls fail analysis. Id.

The DP states that RESRAD supports the position that a suburban resident does not drink groundwater. DP rev. 1a page 61 note 157. However, the RESRAD Manual states that in an EPA study (U.S. Environmental Protection Agency, 1994, *Radiation Site Cleanup Regulations: Technical Support Document for the Development of*

Radionuclide Cleanup Levels for Soil, review draft, Office of Radiation and Indoor Air, Washington, D.C.), an on-site well is assumed for drinking in the suburban resident scenario. Goodman Report page 8.

The DP also excludes other reasonable exposure scenarios from its modeling. Farming up to the property boundary and on the unrestricted portion of the property should be considered since the DP states that the property will be subdivided for unrestricted release, DP vol 1 page 154 note 102. Goodman Report page 6.

The DP assumes that the hypothetical resident lives 1000 feet from the pile. DP rev. 1a page 60 note 156. However, because a portion of the property will be released for unrestricted use, and because a resident currently resides only 100 feet from the property, the modeling should assume a family living on the unrestricted portion of the property. Goodman Report §§ 5.3.1, 5.3.3.2. Also, it is unreasonable to assume that municipal water will be available in the foreseeable future. Id. § 5.3.3.2. It is also reasonable to assume that the family grows a garden and consumes produce from it. Id. Since 10 C.F.R. § 20.1403(e) requires the assumption that institutional controls will fail, and since the materials will remain a radioactive hazard in perpetuity, the modeling should assume that the radioactive slag will be exposed. Id. § 5.3.3. In sum, all pathways should be used for this scenario, namely direct radiation exposure, particulate inhalation, direct

soil ingestion, crop ingestion, radon, and drinking water ingestion. Goodman Report page 8.

The DP states the suburban resident scenario is unlikely because of the lack of available space to construct a house and parking and because the majority of the area surrounding the Storage Yard is assigned for natural resource damage mitigation. DP rev. 1a page 61. However, since a resident currently lives 100 feet from the property, DP rev. 1 § 1.2, there is no basis to claim that a resident scenario is unlikely. Furthermore, institutional controls will likely fail while the materials remain a radioactive hazard in perpetuity. Goodman Report § 5.1. Therefore, the natural resource limitation must also be assumed to fail. Id. page 8.

The amount of time a suburban resident assumed by the DP to spend at the site is not conservative. Id. The US Environmental Protection Agency's Exposure Factors Handbook[6] recommends 16.4 hours per day for time indoors. Id. The RESRAD Manual uses 50% of the time spent indoors. Id. There is no recommendation for how many days per year, but the average number of vacation days taken in the US is 13. Id. The standard days per year for a resident is typically 350. Id. The values listed, 240 days for 8 hours per day are not justified. Id. That means the resident is away from home for 4 months out of the year. Id.

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[6] Exposure Factors Handbook Volume III, Activity Factors, US Environmental Protection Agency, EAP/600/P-95/002Fc, August, 1997.

The DP fails to model excavation of the engineered cap and slag. Id. Page 6. However, these materials may be an ideal source for construction material. Id. In fact, Shieldalloy used the slag material as fill for a road and underneath a building knowing full well that this material was radioactive. DP rev. 1 pages 27, 29. Therefore, this scenario should be modeled. Goodman Report page 6.

The DP states that an all controls fail scenario is being modeled. DP rev. 1a page 34, line 20. However, the DP is actually modeling only a slight degradation of controls. Goodman Report § 5.1. Modeling needs to be performed assuming that the engineered controls completely degrade since the materials will remain a radioactive hazard into perpetuity. Id.

The DP fails to take into account exposure from direct contact with the uncovered pile. DP rev. 1a § 5.5.10. However, as discussed above, contact with the uncovered pile when institutional controls fail is a reasonable scenario.

The Microshield runs neglected to take into account all the progeny associated with uranium and thorium. Goodman Report § 5.5.9. Because the uranium and thorium in the slag are in equilibrium with their associated decay products, and because most of them are gamma emitters, all of these decay products should be included in the source term. Id. Using the same geometries as SMC for the shape of the source and the distance from the source, the exposure rates are two orders of magnitude higher than shown in

Appendix 19.5. Id.

The DP states that modeling to predict future doses has been derived from "previously completed radiological assessments of the residual radioactivity at the Newfield site." DP rev. 1a § 5.2.1. However, the lateral and vertical extent of contamination has never been determined. Exh. M. Accurate dose modeling of radionuclide contamination into the groundwater cannot be conducted without determining the vertical extent of the contamination. Goodman Report § 5.2.1. Also, without a determination of the lateral extent of the contamination, contamination above the established cleanup levels could be missed in the final status survey. Id.

The DP derives the source term using the weighted averages of the concentrations of material in the storage yard. DP Table 17.7. This would make sense if the material were capable of being blended together. Goodman Report § 5.2.1.2. However, the concentration in the slag will not change even if other, less concentrated material is placed near it. Id. Goodman Report § 5.2.1.2. If the slag were uncovered, as would be the case in an all controls fail scenario, it is reasonable to assume that the receptor would be exposed to the higher concentration, not the derived concentration. Id. Thus, the Derived Source Term should use the concentration of the slag. Id.

The fence should be assumed to fail since the waste will remain a radioactive hazard into perpetuity. Goodman Report page 7.

The DP includes erroneous assumptions that affects the dose modeling. Goodman Report § 5.4.3.3. For example, it is stated that the saturated hydraulic conductivity was measured for the native sand material at the site as 2,000 m/y. DP rev. 1a page 77. However, SMC uses 0.017 m/y for the saturated hydraulic conductivity of the unsaturated zone (which is the native sand layer). Id. Page 79. Also, Table 17.5 lists the K_d of Radium as 50, which is much lower than the RESRAD default, but this is not even mentioned in the text. Goodman Report § 5.4.3.3. This seems to contradict the statement that the slag is essentially insoluble even under the most extreme in-situ conditions that might reasonably be encountered. Id. A site-specific K_d was not determined for the baghouse dust or the contaminated soil. Id.; Spayd Report page 2. This will be important when the drinking water pathway is included in the analysis. Id.

The DP inputs a parameter of 0.004 for the hydraulic gradient of the saturated zone, as shown in Appendix A and B and referenced in the April 1992 Remedial Investigation Technical Report. Spayd Report Page 2. However, measurement of the hydraulic gradient of the saturated zone in the 1992 Report show the gradient at the site to be 0.002, one half the gradient used in RESRAD. Id. The Ground Water Modeling Memo also uses the 0.002 hydraulic gradient value. Id. Therefore, the hydraulic gradient of the saturated zone used in RESRAD is not correct and should be changed

to 0.002. Id. NJDEP modeling found that using the lower value of 0.002 increases the doses.

Sections 5.1, 5.2.2.2.1 to 5.2.2.2.3, 5.3, 5.3.3.1 to 5.3.3.4, 5.5.1, 5.5.11 of Goodman's Report provide other DP deficiencies associated with the dose modeling. Page 3 of Spayd's Report also provide DP deficiencies.

Contention 6

THE 1000 YEAR MODELING CONDUCTED BY SHIELDALLOY FAILS TO ADEQUATELY PROTECT THE PUBLIC SAFETY AND HEALTH BECAUSE THE WASTE WILL REMAIN A RADIOACTIVE HAZARD FOR BILLIONS OF YEARS.

10 C.F.R. § 2.309(f)(i) Provide a specific statement of the issue of law or fact to be raised or controverted.

The DP's modeling for only 1000 years violates the Low-Level Radioactive Waste Policy Act ("LLRWPA"), the Atomic Energy Act ("AEA"), and the License Termination Rule ("LTR") by failing to require the permanent isolation of low-level radioactive waste or protect the public health and safety.

10 C.F.R. § 2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The LLRWPA requires "the permanent isolation of low-level radioactive waste pursuant to the requirements established by the Nuclear Regulatory Commission under applicable laws, or by an agreement State if such isolation occurs in such agreement State." 42 U.S.C. § 2021b(7). Thus, the LLRWPA requires the "permanent isolation" of low-level radioactive waste.

Furthermore, NRC's paramount responsibility, as required by the AEA, is to regulate radiological material in a manner that protects the public health and safety. 42 U.S.C. §§ 2012(d), 2013(d), 2022(f)(3), (referring to § 2022(b)(2)), 2099, 2111(b)(1)(A), 2113(b)(1)(A), 2114(a)(1), 2201(b). The Supreme Court held that "[the] Commission's prime area of concern in the licensing context, . . . is national security, public health, and safety." Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n, 461 U.S. 190, 207 (1983).

The LTR requires an applicant for decommissioning to calculate the peak annual TEDE to the average member of the critical group expected within the first 1000 years after decommissioning. 10 C.F.R. § 20.1401(d). However, this provision is intended to only apply to short-lived nuclides. 62 Fed. Reg. at 39083 (Response F.7.3). Short-lived nuclides are defined as having half-lives between 5.3 and 30 years and which would decay to unrestricted dose levels in about 10-60 years. Id. at 39069. For long-lived nuclides, future calculations beyond 1000 years would be valuable. Id. at 39083. Thus, the intent of 10 C.F.R. § 20.1401(d) is to actually require longer dose assessments depending on the duration of the nuclides.

10 C.F.R. § 2.309(f)(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding.

Shieldalloy has submitted a DP that relies upon modeling the TEDE from residual radioactivity for only 1000 years. However, the materials sought to be disposed at the facility have a half-

life of billions of years. Goodman Dec. 2.

10 C.F.R. § 2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

NRC must determine whether the 1000 year modeling is sufficient to determine whether the onsite disposal will be safe and protective of the public health even though the half-life of the nuclides is billions of years.

10 C.F.R. § 2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue.

The DP only conducts dose modeling assessments for 1,000 years, even though the radiological hazard from the waste will endure for billions of years. The 1000 year modeling is inadequate for this particular waste. Goodman Dec. ¶ 3.

NUREG-1757 uses Native American Mounds to demonstrate erosional stability, but states that the ability of the mounds to limit infiltration is unknown. Vol. 2 pages 3-14 to 3-15. It goes on to state that archaeologists have dated the mounds by excavating bones and artifacts from the mounds and determining the age of the object or the data of its burial. Id. However, these examples demonstrate that human excavation of an engineered barrier is reasonably foreseeable thousands of years later. Goodman Report page 2.

The DP states that it is "extremely unlikely" that institutional controls and physical controls would fail. DP rev. 1 page xxiv. However, the Shieldalloy waste will remain a radioactive hazard for billions of years. Goodman Dec. ¶ 2. If a LTC license is utilized for institutional controls, it is self-evident that neither Shieldalloy nor a private third party trustee can be expected to endure in perpetuity to enforce maintain the institutional controls required by the LTC license.

The DP states that the greatest annual dose occurs past 1000 years. DP rev. 1a page 75. Since the material will still be a radioactive hazard, this dose should be considered. Goodman Report § 5.4.3.2.

10 C.F.R. § 2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.

The DP only conducts dose modeling assessments for 1,000 years, even though the radiological hazard from the waste will endure for billions of years. The 1000 year modeling is inadequate for this particular waste. Goodman Dec. ¶ 3.

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object or the data of its burial. Id. However, these examples demonstrate that human excavation of an engineered barrier is reasonably foreseeable thousands of years later. Goodman Report page 2.

The DP states that it is "extremely unlikely" that institutional controls and physical controls would fail. DP rev. 1 page xxiv. However, the Shieldalloy waste will remain a radioactive hazard for billions of years. Goodman Dec. ¶ 2. If a LTC license is utilized for institutional controls, it is self-evident that neither Shieldalloy nor a private third party trustee can be expected to endure in perpetuity to enforce maintain the institutional controls required by the LTC license.

The DP states that the greatest annual dose occurs past 1000 years. DP rev. 1a page 75. Since the material will still be a radioactive hazard, this dose should be considered. Goodman Report § 5.4.3.2.

Contention 7

SHIELDALLOY HAS FAILED TO DEMONSTRATE THAT OFFSITE DISPOSAL WILL CAUSE NET PUBLIC OR ENVIRONMENTAL HARM OR THAT RESIDUAL RADIOACTIVITY FROM ONSITE DISPOSAL IS AS LOW AS REASONABLY ACHIEVABLE ("ALARA").

10 C.F.R. § 2.309(f)(i) Provide a specific statement of the issue of law or fact to be raised or controverted.

Shieldalloy did not address the question of whether

offsite disposal of its radioactive waste will cause net public or environmental harm by disposing the waste offsite at a licensed facility rather than disposing the materials onsite. Goodman Report page 15. Furthermore, Shieldalloy has failed to conduct an ALARA analysis. Id. Therefore, Shieldalloy has not demonstrated that the proposed onsite disposal will reduce residual radioactivity to levels that are ALARA.

10 C.F.R. § 2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The LTR provides:

> A site will be considered acceptable for license termination under restricted conditions if:
>
> > (a) The licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA.

10 C.F.R. § 20.1403.

Shieldalloy has not addressed the question in the DP of

whether greater public or environmental harm will result if it disposes the materials offsite at a licensed facility. Goodman Report page 15. Furthermore, Shieldalloy has failed to conduct an ALARA analysis. Id. Therefore, Shieldalloy has not demonstrated that the proposed onsite disposal will reduce residual radioactivity to levels that are ALARA.

10 C.F.R. § 2.309(f)(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding.

Shieldalloy has submitted a DP that proposes to conduct onsite disposal of its radioactive waste and to decommission the property. The LTR requires the licensee to demonstrate that "reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA." 10 C.F.R. § 20.1403(a).

10 C.F.R. § 2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

NRC must determine whether Shieldalloy has demonstrated that "reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA." 10 C.F.R. § 20.1403(a).

10 C.F.R. § 2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue.

An ALARA analysis requires the licensee to demonstrate that "further reductions in residual radioactivity . . . were not being made because the residual levels associated with restricted conditions are ALARA." 10 C.F.R. § 20.1403(a). Thus, ALARA requires the applicant to consider both the costs and benefits of reducing residual radioactivity.

The DP fails to conduct an ALARA analysis because it only considers the costs of reducing residual radioactivity. Goodman Report page 11. An ALARA analysis is required to also consider the benefits, including the collective dose averted. NUREG-1757 vol. 2 page N-2. The DP fails to consider any benefit. Goodman Report page 11.

In order for the averted dose to be calculated, the drinking water pathway must be included for each alternative since groundwater contamination is likely if the DP is implemented. Goodman Report page 12; see also Contentions 1, 2, 3, and 5 above. Since the material will remain radioactive in perpetuity, the length of time for modeling should be increased past 1000 years. Goodman Report page 12.

The costs considered by the DP for offsite disposal are

higher than was actually quoted by the disposal facility. The DP considers a cost of $62,864,543. DP Table 17.15. However, Energy Solutions has repeatedly quoted a price of $33 million for a turnkey operation. Exh. A. Adding a 25% contingency required by the NRC brings it to $41,250,000.

The DP does not address the question of whether offsite disposal of its radioactive waste will cause net public or environmental harm by disposing the waste offsite at a licensed facility rather than disposing the materials onsite. Goodman Report page 15.

The whole discussion of radiation risks is misleading. The author discusses chronic exposures and acute exposures without explaining the difference and the different health effects. Goodman Report page 12. The author's discussion of radiation effects would lead one to believe that the material at SMC is harmless. DP § 7.2.1. The Health Physics position paper actually states that the risks of health effects below 5-10 rem (which includes occupational and environmental exposures), are either too small to be observed or are nonexistent. Goodman Report page 12. The paper goes on to state that "the possibility that health effects might occur at small doses should not be entirely discounted. Id. The Health Physics Society also recognizes the practical advantages of the linear, no-threshold hypothesis to the practice of radiation protection. Id. Nonetheless, risk assessment at low doses should

focus on establishing a range of health outcomes in the dose range of interest and acknowledge the possibility of zero health effects." Id.

Furthermore, the Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation recently released the Biological Effects of Ionizing Radiation (BEIR) VII report. Id. The BEIR VII committee concluded that current scientific evidence is consisitent with the hypothesis that there is a linear dose-response relationship between exposure to ionizing radiation and the development of radiation-induced solid cancers in humans. Id. This conclusion is based on many facts (contrary to the statement made in the DP that this conclusion is not supported with facts). Id. For example, the committee stated that there is compelling support for the linearity view of how cancers form. Id. Studies in radiation biology show that "a single radiation track (resulting in the lowest exposure possible) traversing the nucleus of an appropriate target cell has a low but finite probability of damaging the cells' DNA. Id. Subsets of this damage, such as ionization "spurs" that can cause multiple damage in a short length of DNA, may be difficult for the cell to repair or may be repaired incorrectly. Id. The committee has concluded that there is no compelling evidence to indicate a dose threshold below which the

risk of tumor induction is zero."[7] Id. The explanation of radiation risks in the DP would lead one to believe that the radioactive material at SMC is harmless. Id. The current scientific evidence does not support this view. Id.

The benefits of unrestricted use versus restricted use should include the Regulatory Costs Avoided (NUREG 1757, Vol. 2, p. N-6). Included in these costs are additional licensing fees to develop an EIS and costs associated with public meetings, to name a few. Because NRC has already held two public meetings and started the EIS process, these costs can not now be avoided. The NRC has violated its own guidance by conducting these meetings and starting the EIS process without first determining if the site complies with the requirements in 10 CFR 20.1403(a). Goodman Report pages 1 to 2. The DP should include the costs associated with two years of NRC review of the DP. Creation of a new disposal site at the SMC facility in Newfield will require the additional expenditure of human resources and funds to regulate and maintain an additional disposal facility in perpetuity. These costs should be considered in the DP.

10 C.F.R. § 2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.

The DP fails to conduct an ALARA analysis because it only

[7] Health Risks from Exposure to Low Levels of Ionizing Radiation, BEIR VII Phase 2, National Research Council, National Academies Press, Washington, D.C., 2006.

considers the costs of reducing residual activity. Goodman Report page 11. An ALARA analysis is required to also consider the benefits, including the collective dose averted. NUREG-1757 vol. 2 page N-2. The DP fails to consider any benefit. Goodman Report page 11.

In order for the averted dose to be calculated, the drinking water pathway must be included for each alternative since groundwater contamination is likely if the DP is implemented. Goodman Report page 12; see also Contentions 1, 2, 3, and 5 above. Since the material will remain radioactive in perpetuity, the length of time for modeling should be increased past 1000 years. Goodman Report page 12.

The costs considered by the DP for offsite disposal are higher than was actually quoted by the disposal facility. The DP considers a cost of $62,864,543. DP Table 17.15. However, Energy Solutions has repeatedly quoted a price of $33 million for a turnkey operation. Exh. A. Adding a 25% contingency required by the NRC brings it to $41,250,000.

The DP does not address the question of whether offsite disposal of its radioactive waste will cause net public or environmental harm by disposing the waste offsite at a licensed facility rather than disposing the materials onsite. Goodman Report page 15.

The whole discussion of radiation risks is misleading.

The author discusses chronic exposures and acute exposures without explaining the difference and the different health effects. Goodman Report page 12. The author attributes the statement that no effect has ever been observed at levels below 5,000 mrem delivered over a one year period to the Health Physics Society. DP § 7.2.1. However, the current scientific evidence does not support this view. Goodman Report page 12.

Contention 8

THE SMC DP FAILS TO PROVIDE SUFFICIENT FINANCIAL ASSURANCE.

10 C.F.R. §2.309(f)(i) Provide a specific statement of the issue of law or fact.

The SMC DP fails to provide sufficient financial assurance in the proposed selected long term control license (LTC) alternative.

10 C.F.R. §2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The regulations require an applicant seeking restricted use license termination to provide "sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site. 10 C.F.R.

§20.1403(c).

10 C.F.R. §2.309(f)(iii) Demonstrate that the issue raised is within the scope of the proceeding.

SMC has submitted a DP which proposes and selects a LTC restricted use alternative which must meet the requirements of 10 C.F.R. §1403.

10 C.F.R. §2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

For the NRC to make a determination on the proposed selected LTC alternative in the DP it must determine whether the financial assurance requirements of 10 C.F.R. §1403(C) have been met.

10 C.F.R. §2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which petitioner intends to rely at hearing, together with reference to the specific sources and documents on which requestor/petitioner intends to rely to support its position on the issue.

The LTC alternative will create a disposal site with a very long-lived radionuclides. Financial assurance must be sufficient to ensure that sufficient funds are available during the entire time period that the radiological hazard continues in order to conduct required survey, maintenance, license and inspection and trust expenses.

The DP fails to require sufficient financial assurance and fails to require an adequate ALARA analysis because it fails to consider inflation. Over the past 50 years inflation has dramatically increased the cost of goods and services. Failure to consider the effect of inflation on all costs to maintain the disposal site and comply with license and record keeping obligations dramatically undermines the sufficiency of the financial assurance amount posted at the time of establishment of the disposal facility. This is particularly true at a disposal facility which is to be maintained in perpetuity, and is also true notwithstanding the 25% contingency included in the Table 17.14 Cost Estimate for the LTC Alternative.

The Table 17.14 Cost Estimate in the DP for the LTC Alternative does not provide sufficient funds for remedial action, should that be required. In the event that radioactive contaminants are found at some future date to be escaping the cap into groundwater, for example, it is very unlikely that the amount of financial assurance provided for would be sufficient to fund recovery and treatment of contaminated groundwater along with modification of the cap to prevent continuing contamination. The annual amount allocated to "cap maintenance" is a mere $7,440.00. The amount set aside for annual cap maintenance is only half of the $14,376 set aside for annual paperwork review and a site inspection by the NRC once every five years by the NRC. Additionally, in the

event that SMC defaults on its obligation to operate and maintain the disposal site over it's perpetual existence, a contractor would have to be hired by the NRC to maintain the disposal facility. Such a contractor will require a profit to maintain the disposal facility. The Table 17.14 Cost Estimate for the LTC Alternative does not provide sufficient funding to support a cost plus profit arrangement and therefore does not establish sufficient financial assurance. Burke Declaration ¶ 2 to 5.

10 C.F.R. §2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of fact.

SMC's DP asserts that the amount of financial assurance proposed for the LTC alternative is adequate.

Contention 9

THE SMC DP MISSTATES EXISTING SITE USE RESTRICTIONS AND THEREFORE MISCHARACTERIZES THE SITE AND EXPOSURE SCENARIOS

10 C.F.R. §2.309(f)(i) Provide a specific statement of the issue of law or fact.

The SMC DP misstates existing site use restrictions and therefore mischaracterizes the site and exposure scenarios.

10 C.F.R. §2.309(f)(ii) Provide a brief explanation of the basis for the contention.

A proposed restricted use decommissioning must demonstrate that the DP will meet the regulatory criteria for restricted use including the existence of institutional controls and exposure scenarios that provide reasonable assurance that exposure to radiation will not exceed the 25 mrem per year limit.

10 C.F.R. §2.309(f)(iii) Demonstrate that the issue raised is within the scope of the proceeding.

The SMC DP proposed and selects a restricted use alterative which must meet the requirements of 10 C.F.R. 1403.

10 C.F.R. §2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

For the NRC to make a determination on the proposed selected LTC alternative in the DP it must determine whether the TEDE requirement of 10 C.F.R. §1403 will be met.

10 C.F.R. §2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which petitioner intends to rely at hearing, together with reference to the specific sources and documents on which requestor/petitioner intends to rely to support its position on the issue.

In the discussion on page 41 of the DP about the reasonably likely foreseeable future use (100 years) scenarios for the site it is stated that there are existing site use restrictions due to natural resource restoration and potential future residential use restrictions due to chemically contaminated soil.

The DP also mentions the proximity of the Pinelands National Reserve, states that these restrictions will result in a land buffer to prevent construction in close proximity to the engineered barrier. SMC uses these assumptions in the dose assessment to limit the evaluation to non-residential exposure scenarios. The DP (page 89) also asserts that future residential use of the site will be prohibited by soil contamination levels. This approach is erroneous since these land use restrictions are only institutional controls that are considered to disappear under an "all controls fail" scenario. Gaffigan Dec. ¶ 8.

Nor have final decisions been made with respect to the nature and extent of cleanup of chemical contamination at the facility and whether some or all of the Newfield site will be restricted in use after chemical cleanup. Gaffigan Dec. ¶ 9. It is important to note that with properly managed engineering and institutional controls of areas with residual chemical contamination, no future use of the facility, including residential, is precluded. Id. It is therefore erroneous for SMC to suggest in the DP that chemical contamination precludes future residential use of the facility. Id. Foreseeable future use evaluation by SMC in the DP must include residential use. Id.

10 C.F.R. §2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of fact.

SMC's DP misstates existing site use restrictions.

Contention 10

THE SMC DP PROPOSES A LTC DISPOSAL DESIGN WHICH IS NOT PROTECTIVE OF GROUNDWATER OR HEALTH

10 C.F.R. §2.309(f)(i) Provide a specific statement of the issue of law or fact.

The SMC DP proposes a LTC restricted use disposal design which is not protective of groundwater or health.

10 C.F.R. §2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The Atomic Energy Act, 42 U.S.C. 2012(D), 2201(B), and NRC regulations, 10 C.F.R. 1403, require that a restricted use decommissioning proposal be protective of health and the environment and that reductions in residential radioactivity be as low as reasonably achievable. The proposed selected LTC alterative does not meet those requirements.

10 C.F.R. §2.309(f)(iii) Demonstrate that the issue raised is within the scope of the proceeding.

SMC has submitted a DP which proposes and selects a LTC restricted use alternative which must meet the requirements of 10 C.F. R. §1403.

10 C.F.R. §2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.

For the NRC to make a determination on the proposed selected LTC alternative in the DP it must determine whether the requirements of 10 C.F.R. §1403 have been met.

10 C.F.R. §2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which petitioner intends to rely at hearing, together with reference to the specific sources and documents on which requestor/petitioner intends to rely to support its position on the issue.

In chapter 5 of the DP (Dose Modeling) SMC improperly excludes the evaluation of groundwater as an exposure pathway on the basis that: the engineered barrier (cap) is designed to prevent rainwater infiltration; TCLP results show the slag will not leach radioactivity; groundwater is already contaminated with chemicals and is not a potable supply; it is unreasonable to assume that future site use would include an on-site drinking water well when a municipal water supply is near.

The assumptions in the DP are either incorrect or unsupported. The DP is contradictory in its discussion of the engineered barrier. In some sections the DP states that a geomembrane will be present to prevent water infiltration through the buried materials and in others the absence of such a membrane is noted. Also, at the public meeting held in Newfield on December 5, 2006, the NRC staff stated that the engineered barrier will be designed to *allow rainwater infiltration*. A permeable engineered barrier allows for the potential leaching of contaminants from the buried materials directly into the ground water. No liner is proposed beneath the contaminated material, and the material sites on the native sandy and very permeable soil.

The slags and baghouse dust were submitted to the

Toxicity Characteristic Leachability Procedure (TCLP) in 2005. The resulting "leachate" was then analyzed for radionuclides only, with the results presented in Appendix 19.4 of the DP. There are many problems with this analysis, including

a. failure to analyze radioactively contaminated soils and building materials which will be buried under the engineered barrier;

b. failure to analyze samples of materials which will be buried to determine if they are hazardous waste and banned for land disposal;

c. failure to submit a sufficient number of samples to TCLP and subsequent radionuclide analysis to be representative of the materials to be disposed of under the engineered barrier;

d. analytical results indicate that radium may leach from the slag and the DP is contradictory whether radionuclides will leach from the slag (e.g. DP pages 27 and 30).

Groundwater should not be eliminated or excluded in the DP as an exposure pathway. SMC's DP states that the groundwater at the facility is already contaminated and suggests it should therefore essentially be DISREGARDED as not worthy of protection from contamination by the proposed permanent radioactive waste

disposal pile. SMC has for 27 years operated a treatment system on site to remediate groundwater contamination caused by SMC. SMC's consultant, TRC Environmental Company, has entered into an oversight document with the NJDEP to remediate the chemical contamination in the ground water, soil, sediment and soil. TRC's goal is to remediate the ground water potable standard as quickly as possible, potentially within 20 years. It is incorrect to conclude that just because the groundwater is already contaminated it should be excluded as an exposure pathway and should not be protected against further contamination or should not be considered to be a potable source for the next 1000 years.

SMC's DP fails to mention that the current municipal supply wells are located less than one mile from the site and draw water from the same aquifer that SMC has contaminated. The wells are located upgradient of the site, but the presence of large volume irrigation wells in the immediate area, in conjunction with the constant pumping of the municipal wells, makes transport of the contamination towards and into the potable wells a real possibility over the next 1000 years. In addition, SMC is located in the New Jersey Coastal Plain Sole Source Aquifer and as such there are obvious limits to alternative water supplies. (see http://www.epa.gov/region02/water/aquifer/coast/coastpln.htm#I19). Protection of this resource is critical yet the DP fails to properly and fully consider and evaluate groundwater protection and

future use. Gaffigan Declaration ¶ 19.

10 C.F.R. §2.309(f)(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of fact.

SMC's DP asserts on page 100 that the proposed selected LTC alternative is designed to prevent groundwater impact and that the groundwater exposure pathway need not be considered in dose modelling. The DP does no support this assertion.

Contention 11

RESIDUAL RADIOACTIVITY FROM SMC'S OPERATIONS IN SURFACE WATER AND SEDIMENT IS NOT ADEQUATELY ADDRESSED IN THE DP.

10 C.F.R. §2.309(f)(i) Provide a specific statement of the issue of law or fact.

Residual radioactivity from SMC's operations in surface water and sediment is not adequately addressed in the DP.

10 C.F.R. §2.309(f)(ii) Provide a brief explanation of the basis for the contention.

The Atomic Energy Act, 42 U.S.C. 2012(D), 2201(B), and NRC regulations, 10 C.F.R. 1403, require that a DP be protective of health and the environment and reductions and residual radioactivity be as low as reasonably achievable. The DP does not meet those requirements.

10 C.F.R. §2.309(f)(iii) Demonstrate that the issue raised is within the scope of the proceeding.

SMC has submitted a DP which proposes and selects a LTC

restricted use alternative which fails to address radioactivity identified in the DP in sediment and/or surface water.

10 C.F.R. §2.309(f)(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding

For the NRC to make a determination on the proposed selected LTC alternative in the DP the NRC must determine whether it is protective of health and the environment.

10 C.F.R. §2.309(f)(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which petitioner intends to rely at hearing, together with reference to the specific sources and documents on which requestor/petitioner intends to rely to support its position on the issue.

Residual radioactivity has been identified in the Hudson's Branch as indicated in the DP Executive Summary and Appendix 19.9, Environmental Report. The data referenced is from a 1992 report which concluded that the radioactivity detected in the Hudson's Branch water and sediments is not significantly different from background. It does not appear that sampling of the stream has been conducted since 1991. Existing sediment and/or surface water contamination does not appear to be adequately addressed in the DP. Gaffigan Declaration ¶ 19.

10 C.F.R. §2.309(f(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of fact.

SMC's DP fails to address sediment and/or surface water contamination identified in the DP.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

COMMISSIONER

February 22, 2007

DOCKETED
USNRC

February 22, 2007 (3:55pm)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

SERVED February 22, 2007

Eric E. Jackson, President
Shieldalloy Metallurgical Corporation
435 Devon Park Drive
Bldg. 400
Wayne, PA 19087

Dear Mr. Jackson:

Thank you very much for taking the time to present information to me regarding your facility in Newfield, New Jersey, and the tour of the facility. I found the tour very informative. I understood you to say during your presentation that you believed the "Settlement Agreement of Environmental Claims and Issues By and Between Debtors and the United States of America and the State of New Jersey," was a binding document in which the NRC had agreed both that the slag pile could be left onsite, and that the cost to the company of decommissioning would not exceed 5 million dollars. This statement has been widely repeated in the press as well.

Since returning to my office, I have reviewed the settlement agreement, which is Appendix K of your decommissioning plan. I do not agree with your characterization of the content of the settlement agreement. I would particularly commend to you the following paragraphs.

A. "Shieldalloy and the United States have agreed that for purposes of determining financial assurance only, the dollar amounts assigned to each of the Environmental Projects are as follows: . . . NRC Slag Pile Remediation 5.0." Page 19, Paragraph 14.

B. "It is agreed and understood that the Predetermined Costs as identified in paragraph 14 of this Settlement Agreement in no way constitute a cap or limitation on Shieldalloy's continuing obligations to comply with state and federal environmental laws or with the NJ ACO." Page 34, Paragraph 40.

C. "Nothing in this Settlement Agreement shall release Shieldalloy or a subsequent owner or operator of the Newfield or Cambridge sites from complying with applicable state and federal environmental laws." Page 35, Paragraph 43.

D. "Nothing in this Settlement Agreement shall be construed to affect the NRC's regulatory authority over the Newfield site or the Cambridge site, including, but not limited to, the NRC's authority relating to the decommissioning of the Sites, and the NRC's authority to require Shieldalloy to post separate financial assurance, above and beyond the amounts set forth in this Settlement Agreement." Page 37-38, Paragraph 50.

The NRC currently has before it your proposed decommissioning plan. The NRC will, in accordance with its regulatory responsibilities, review the plan and determine whether or not it is acceptable.

Finally, as I stated during my visit, I would encourage further dialogue between your staff and the other interested parties to determine if there are other options, in addition to onsite decommissioning, that may be able to resolve the final cleanup and reuse of this site in a cost effective way.

Sincerely,

Jeffrey S. Merrifield

cc: Parties to the Proceeding
Congressman Frank A. LoBiondo
Congressman Robert E. Andrews
Senator Robert Menendez
Senator Frank R. Lautenberg

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
SHIELDALLOY METALLURGICAL CORP.	)	Docket No. 40-7102-MLA
	)	
	)	
(License Amendment Request for Decommissioning the Newfield, New Jersey Facility)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LETTER FROM COMMISSIONER JEFFREY S. MERRIFIELD TO ERIC E. JACKSON, PRESIDENT, SHIELDALLOY METALLURGICAL CORPORATION, have been served upon the following persons by electronic mail this date, followed by deposit of paper copies in the U.S. mail, first class, and NRC internal mail on 02/23/2007.

Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: ocaamail@nrc.gov

Administrative Judge
Alan S. Rosenthal, Chair
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: rsnthl@comcast.net

Administrative Judge
Richard E. Wardwell
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: rew@nrc.gov

Administrative Judge
William Reed
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: whrcville@earthlink.net

Bradley W. Jones, Esq.
Margaret J. Bupp, Esq.
Michael J. Clark, Esq.
Office of the General Counsel
Mail Stop - O-15 D21
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: bwj@nrc.gov; mjb5@nrc.gov; mjc1@nrc.gov

Joseph J. McGovern, Esq.
Parker McCay, P.A.
Three Greentree Centre
7001 Lincoln Drive West
P.O. Box 974
Marlton, NJ 08053
E-mail: jmcgovern@parkermccay.com

Docket No. 40-7102-MLA
LETTER FROM COMMISSIONER JEFFREY S. MERRIFIELD
TO ERIC E. JACKSON, PRESIDENT, SHIELDALLOY
METALLURGICAL CORPORATION

Jay E. Silberg, Esq.
Matias F. Travieso-Diaz, Esq.
Robert B. Haemer, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 N Street, N.W.
Washington, DC 20037-1128
E-mail: jay.silberg@pillsburylaw.com;
matias.travieso-diaz@pillsburylaw.com;
robert.haemer@pillsburylaw.com

David R. Smith, Radiation Safety Officer
Shieldalloy Metallurgical Corporation
12 West Boulevard
P.O. Box 768
Newfield, NJ 08344-0768

Loretta Williams
310 Oakwood Drive
P.O. Box 311
Newfield, NJ 08344

Borough of Newfield, New Jersey
c/o John C. Eastlack, Jr., Esq.
Solicitor for the Borough of Newfield
Holston, MacDonald, Uzdavinis, Eastlack,
Ziegler & Lodge
66 Euclid Street
Woodbury, NJ 08096
E-mail: jeastlack@holstonlaw.com

Terry Ragone
Newfield Residents Environmental Group
White Dove Lane
P.O. Box 605
Newfield, NJ 08344
E-mail: foxragone@aol.com

Gary D. Wodlinger, Esq.
110 North 6th Street
Box 729
Vineland, NJ 08362
E-mail: gwodlinger@lipmanlaw.org

Stuart Rabner, Esq.
Attorney General of New Jersey
Andrew D. Reese, Esq.
Kenneth Elwell, Esq.
Deputy Attorneys General
New Jersey Office of the Attorney General
Department of Law and Public Safety
Division of Law
25 Market Street
P.O. Box 093
Trenton, NJ 08625-0093
E-mail: andrew.reese@dol.lps.state.nj.us
kenneth.elwell@dol.lps.state.nj.us

Fred H. Madden, State Senator
David R. Mayer, Assemblyman
Paul Moriarty, Assemblyman
New Jersey Senate and General Assembly
Holly Oak Office Park
129 Johnson Road, Suite 1
Turnersville, NJ 08012
E-mail: senmadden@njleg.org;
asmmayer@njleg.org;
asmmoriarty@njleg.org

Evangeline S. Ngbea
Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 22nd day of February 2007

H

65 N.R.C. 341, 2007 WL 2195475 (N.R.C.)

**1 IN THE MATTER OF SHIELDALLOY METALLURGICAL CORPORATION
(Licensing Amendment Request for Decommissioning of the Newfield, New Jersey Facility)

Nuclear Regulatory Commission (N.R.C.)
Atomic Safety and Licensing Board

40-7102-MLA
(ASLBP 07-852-01-MLA-BD01)

March 28, 2007

*341 Before Administrative Judges: Alan S. Rosenthal, Chairman; Dr. Richard E. Wardwell; Dr. William H. Reed

RULES OF PRACTICE: STANDING TO INTERVENE

A hearing requestor must demonstrate the existence of the requisite standing to raise questions regarding the acceptability of the particular proposal at hand. To that end, the Rules require that the requestor set forth, *inter alia* , his or her interest in the proceeding, as well as the possible effect that any order or decision entered therein might have upon that interest. 10 C.F.R. § 2.309(d)(1).

RULES OF PRACTICE: STANDING TO INTERVENE

The Commission has long applied the test that is employed in the federal courts in resolving standing issues — i.e., the requestor must allege "a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision."*Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 92 (1993) (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555,561 (1992)).

RULES OF PRACTICE: PARTICIPATION BY AN INTERESTED STATE OR LOCAL GOVERNMENT

In the case of governmental entities, status as a party is not a condition precedent to participation in NRC adjudicatory proceedings. By virtue of 10 C.F.R. § 2.315(c), an interested state or political subdivision thereof that has not become a party to the proceeding must be accorded a reasonable opportunity to participate, through a single representative, in the hearing of one or more of the admitted contentions.

RULES OF PRACTICE: STANDING TO INTERVENE (INTEREST)

Although it is clearly established in the Commission's regulations and case law that a state or local governmental body has standing to intervene in a proceeding for a facility that is located within its boundaries, the same does not hold true for individual legislators wishing to participate as a party on behalf of unnamed constituents.

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Rather, licensing boards have consistently ruled that one does not acquire standing as a consequence of being a member of a legislative tribunal. *See Babcock & Wilcox* (Apollo, Pennsylvania Fuel Fabrication Facility), LBP-92-35, 36 NRC 355, 358 n.9 (1992); *Combustion Engineering, Inc.* (Hematite Fuel Fabrication Facility), LBP-89-23, 30 NRC 140, 145 (1989); *General Electric Co.* (GE Test Reactor, Vallecitos Nuclear Center), LBP-79-28, 10 NRC 578, 582-83 (1979).

RULES OF PRACTICE: CONTENTIONS (PLEADING)

As the Commission has stressed on numerous occasions, "the contention rule is strict by design" (*Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001); *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP site), CLI-05-29, 62 NRC 801, 808 (2005)), and does "not permit the filing of a vague, unparticularized contention, unsupported by affidavit, expert, or documentary support." *North Atlantic Energy Service Corp.* (Seabrook Station, Unit 1), CLI-99-6, 49 NRC 201, 219 (1999) (citation and internal quotation marks omitted).

RULES OF PRACTICE: CONTENTIONS

While it is true that, at the time contentions are filed, a petitioner is not required to have developed the entire factual record on which it intends to rely at a hearing, even in the case of a *pro se* litigant some level of factual or expert support must be furnished.

***343 MEMORANDUM AND ORDER**

(Ruling on Hearing Requests)

This proceeding had its genesis in the publication of a notice in the *Federal Register* to the effect that the Commission was considering the issuance of an amendment to Source Material License No. SMB-743 that had been issued to the ShieldAlloy Metallurgical Corporation [Licensee]. If granted, the amendment will authorize, in accordance with a submitted plan, the decommissioning of the Licensee's facility where the licensed activities had been conducted. The site is located in the Borough of Newfield, Gloucester County, New Jersey. The notice provided the customary opportunity for persons whose interest might be affected by the proceeding to file a written request for a hearing on the proposed amendment. 71 Fed. Reg. 66,986 (Nov. 17, 2006).

In response to the notice, hearing requests were filed by or on behalf of a number of governmental entities within the State of New Jersey: the New Jersey State Department of Environmental Protection [New Jersey]; Gloucester County; nearby Cumberland County; and the Borough of Newfield. In addition, a joint request was received from three members of the New Jersey State Legislature (Fred H. Madden, David R. Mayer, and Paul Moriarity) and two such requests were submitted by private citizens (Loretta Williams and Terry Ragone, the latter said to be acting in a representational capacity on behalf of Newfield residents). Responses to each hearing request were filed by the Licensee and the NRC Staff. New Jersey alone submitted a reply to those responses.

Upon consideration of the filings before us, and for the reasons set forth below, solely the New Jersey request is being granted. Each of the others is being denied as not satisfying the requirements of the applicable provisions of the Commission's Rules of Practice. Despite the denial of their requests, however, as will be seen, the two counties and the borough will be entitled to participate as nonparties in any hearing ultimately held on issues raised by New Jersey.

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****3** Subject to reconsideration at the behest of one or more of the parties, we have additionally decided to defer all further proceedings in this matter to await the completion of the NRC Staff's safety and environmental review of the tendered decommissioning plan and the issuance of the documents reflecting the results of that review. That deferral includes threshold consideration of all of New Jersey' s contentions other than the one that we have found to provide a sufficient basis for the grant of its hearing request.

I. BACKGROUND

As explained in the *Federal Register* notice, *supra*, the Licensee has been conducting smelting and alloy production at its Newfield site since 1940. Among ***344** other things, during an extended period ending in June 1998, the facility processed pyrochlore, a concentrated ore containing columbium (niobium), to produce ferrocolumbium, an additive/conditioner used in the production of speciality steel and super alloy additives.

Because pyrochlore contains more than 0.05% by weight uranium and thorium, it is subject to NRC regulation as a source material. *See*10 C.F.R. §40.4. Accordingly, the Licensee sought and obtained license No. SMB-743 that entitled it to ship, to receive, to possess, and to store such material.

In August 2001, the Licensee advised the Commission that it had ceased using source material and intended to decommission the Newfield facility. As a consequence of this development, the license was later amended in November 2002 to authorize only decommissioning activities. In October 2005, the Licensee submitted its initial decommissioning plan (DP), which proposed the use of a possession-only license for long-term control of the site. According to the *Federal Register* notice, that plan was rejected by the NRC Staff. A revised DP, submitted on June 30, 2006, was, however, found acceptable by the Staff for the purpose of initiating the technical review of the plan that will eventually produce both a safety evaluation report (SER) and an environmental impact statement (EIS).

In broad outline, although not discussed in the notice, the revised DP now under NRC Staff review addresses principally an accumulation on the Newfield site of 18,000 cubic meters of slag and 15,000 cubic meters of baghouse dust, all of which contains uranium and thorium. It appears that the plan contemplates that the contaminated material will be maintained in a pile on 8 acres within the facility's storage yard. The pile is to be graded and shaped and then covered with an engineered barrier consisting principally of native soil and rocks. Long-term maintenance and monitoring of this restricted area would be performed by the Licensee under conditions imposed by the NRC Staff. The remainder of the site would be released for unrestricted public use.

II. THE HEARING REQUEST REQUIREMENTS

****4** As customary, the opportunity for hearing provided in the *Federal Register* was accompanied by a specific reference to the provisions of the Commission's Rules of Practice respecting the required content of hearing requests in proceedings such as this one. As the Commission and its licensing boards have made quite clear, full compliance with the dictates of these provisions is a condition precedent to the grant of such a request. [FN1]

***345** To begin with, the hearing requestor must demonstrate the existence of the requisite standing to raise questions regarding the acceptability of the particular proposal at hand. To that end, the Rules require that the requestor set forth, *inter alia*, his or her interest in the proceeding, as well as the possible effect that any order or decision entered therein might have upon that interest. 10 C.F.R. § 2.309(d)(1). In that regard, the Commission has long applied the test that is employed in the federal courts in resolving standing issues — i.e., the requestor must allege “a concrete and particularized injury that is fairly traceable to the challenged action and is likely to

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be redressed by a favorable decision."*Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 92 (1993) (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992)). In addition, the claimed injury must be arguably within the zone of interests protected by the governing statute (here either the Atomic Energy Act of 1954, 42 U.S.C. §§ 2011 *et seq.*; or the National Environmental Policy Act, 42 U.S.C. §§ 4321 *et seq.*). *See ibid.*

It is not enough, however, that the requestor satisfy the standing requirement. In order to obtain a grant of the sought hearing, the request must also advance at least one contention that meets the admissibility standard set forth in 10 C.F.R. § 2.309(f)(1).*See*10 C.F.R. § 2.309(a). That standard requires the requestor to provide, with regard to every contention sought to be admitted, (1) a specific statement of the issue of law or fact to be raised; (2) a brief explanation of the basis for the contention; (3) a demonstration that the issue raised in the contention is within the scope of the proceeding; (4) a demonstration that the issue raised in the contention is material to the findings that the NRC must make to support the action that is involved in the proceeding; (5) a concise statement of the alleged facts or expert opinions that support the requestor's position; and (6) sufficient information to show that a genuine dispute exists on a material issue of law or fact, including, among other things, references to specific portions of the application that the requestor disputes. 10 C.F.R. § 2.309(f)(1)(i)-(vi).

****5** In the case of governmental entities, however, status as a party is not a condition precedent to participation in NRC adjudicatory proceedings. By virtue of 10 C.F.R. § 2.315(c), an interested state or political subdivision thereof that has not become a party to the proceeding must be accorded a reasonable opportunity to participate, through a single representative, in the hearing of one or more of the admitted contentions. It may introduce evidence; interrogate witnesses in circumstances where cross-examination by the parties is allowed; advise the Commission without being required to take a position on any issue; file proposed findings where such are allowed; and seek Commission review on admitted contentions.

***346 III. ANALYSIS**

A. With the foregoing regulatory requirements in mind, we now turn to consider *seriatim* the several hearing requests to determine whether (1) the requisite standing has been established in accordance with 10 C.F.R. § 2.309(d); and (2) there has been advanced at least one admissible contention meeting the requirements of 10 C.F.R. § 2.309(f)(1).

1. Gloucester County

Given that the facility is located within its boundaries, Gloucester County's standing is beyond cavil. Its hearing request sets forth four separate contentions; each is addressed in tum below. [FN2]

a. Contention 1

> Permitting [the Licensee] to Facilitate their DP Plan would have profoundly negative economic implications for the residents and businesses of Newfield, the surroun[ding] areas and the County of Gloucester.

Gloucester Hearing Request at 3.

Gloucester asserts that property values will decrease because "it is extremely dangerous and undesirable to reside near a facility storing hazardous radioactive material," and, as a result, businesses will lose revenue and potential businesses will choose not to begin operations in the area. *Id.* at 4. To support this thesis, Gloucester cites a yet-to-be prepared expert report by Allen Black, Special Appraiser for the firm Todd & Black, Inc., that assertedly will demonstrate the DP's "severe and detrimental economic consequences to the residents and businesses of the Township of Newfield and the surrounding areas."*Id.* at 5. Additionally, Gloucester references the

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statement of Sue Mavilla, a Newfield resident, claiming that "she moved to Newfield 30 years ago from Northern New Jersey to escape the refineries present there," as evidence that other residents and businesses might relocate to escape potential dangers presented by the Licensee's site. *Ibid.*

At issue at this stage in the proceeding is the Licensee's DP and its accompanying environmental review documents. As the Licensee and the Staff point ***347** out, [FN3] however, the contention fails to identify the portions of the Licensee's DP deemed to be inadequate. Although it is true that the DP must address economic considerations, a contention that seeks to raise issues in that sphere must "include references to specific portions of the [DP] that the petitioner disputes" in order to demonstrate a genuine dispute. 10 C.F.R. §2.309(f)(1)(vi). Accordingly, Gloucester's first contention is inadmissible.

b.Contention 2

> ****6** Approving [the Licensee's] Decommissioning Plan would have a detrimental effect on the health and safety of the residents of Newfield, the surrounding areas and the County of Gloucester.

Gloucester Hearing Request at 5.
As the basis for its second contention addressing health and safety concerns, Gloucester states that the "hazardous radioactive waste [the Licensee] proposes to store at their Newfield site is extremely dangerous and causes severe and life threatening illnesses."*Id.* at 6. To support this claim, Gloucester points to the statements made at a December 12, 2006, public information session by members of the public who reside near the Licensee's facility, describing instances of cancer and tumors in their neighborhoods and families. *See id.* at 7. According to the hearing request, these statements describe a high rate of cancer and tumors in the area surrounding the Licensee's facility and provide the required support for its contention. *See ibid.*

We agree with the Licensee and the Staff that, in common with the first contention, this contention does not controvert the DP. [FN4] Without specific references to alleged inadequacies in the Licensee's analysis regarding the health and safety concerns raised in the contention, Gloucester's challenge falls short of demonstrating a genuine dispute of law or fact, as required by 10 C.F.R. § 2.309(f)(1)(vi), and is therefore inadmissible.

c. Contention 3

> The interests of environmental justice require the NRC to deny [the Licensee's] DP ***348** and mandate the removal of the radioactive material from the Newfield, New Jersey Site.

Gloucester Hearing Request at 8.
Invoking the "interests of environmental justice," Gloucester's third contention focuses on the adequacy of the DP's provisions in the realm of financial assurance. The contention maintains that the Licensee's estimated costs improperly exclude several items and, therefore, the Licensee has not provided sufficient financial assurance to the taxpayers in the event that it should be required to declare bankruptcy. *See ibid.*In this connection, Gloucester claims that the DP is inadequate because it "only provides for monitoring the site for 1,000 years despite the fact the radioactive material will not break down for possibly billions of years."*Id.* at 9. To support the contention, Gloucester refers to statements made by the former mayor of the Borough of Newfield, Richard W. Westergaard, at the December 12, 2006, information session, listing an assortment of alleged costs the Licensee failed to consider, including the costs of sampling surface and groundwater, security monitoring, cap and fence repair and replacement, the impact on property values, and the costs associated with groundwater cleanup. *See ibid.*

****7** Although initially characterized as an environmental justice contention, as seen Gloucester raises exclus-

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ively financial concerns. Starting with the statements of Mayor Westergaard offered as support for the contention, we agree with the Licensee and the Staff that the allegations of unaccounted costs are no more than "bare assertions" and fail to provide the required supporting facts or expert opinion. *See*10 C.F.R. § 2.309(f)(1)(v); *Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195,203 (2003).

d. Contention 4

> The NRC's review of [the Licensee's] decommissioning plan under the NRC's long-term storage license program is an improper and prejudicial application of its regulatory authority in that the NRC's long-term storage license program was not meant to cover manufacturing activities like SMC, which could open the door for countless abandoned radioactive waste piles like SMC across the country. Nor was the NRC's long-term storage license regulation intended to give waste generators the right to handle or manage their waste (or abandon it, as the case may be) in a fashion different or less environmentally protective from other waste generators across the country.

Gloucester Hearing Request at 10.

Unlike its other three contentions, Gloucester's fourth contention does not attempt to address the contention admissibility factors in 10 C.F.R. § 2.309(f)(1); ***349** rather, it appears simply to voice an objection to the NRC's Long Term Control (LTC) license option and its application to the Licensee's facility. [FN5] As observed by the Licensee and the Staff, [FN6] Gloucester has failed to provide any support for its claims that the LTC license option is inapplicable or impermissible in this case; rather, it merely asserts, without more, that it is "improper." Because no legal authority or other support is cited to bolster its claims regarding the purpose and scope of the LTC license option, the contention is inadmissible. *See*10 C.F.R. § 2.309(f)(1)(v).

It thus appears that none of Gloucester's contentions meets the admissibility standards. Accordingly, its hearing request must be denied.

2. Borough of Newfield

The facility also being within its boundaries, the Borough of Newfield likewise has the requisite standing. In its hearing request, Newfield claims that the Licensee has failed to comply with a Consent Order entered into by the Licensee and the New Jersey Department of Environmental Protection. [FN7] As a result, it is said, the Licensee

> has placed the Borough and its residents at significant risk for continued environmental harm which will cause significant health, safety and welfare concerns to the Borough's residents and will otherwise significantly impact upon property values and the ability to use over seventy (70) acres of property available within the Borough.

Newfield Hearing Request at 2.

****8** We agree with the Licensee and Staff that the issue of compliance with the State Consent Order is beyond the scope of this proceeding. [FN8] The "Notice of Consideration of Amendment Request for Decommissioning for Shieldalloy Metallurgical Corporation, Newfield, NJ and Opportunity To Request a Hearing," 71 Fed. Reg. at 66,986, defines that scope, which is limited to whether the Licensee's DP complies with the Atomic Energy Act, the National Environmental Policy Act, and the NRC's regulations. Accordingly, the Newfield hearing ***350** request must be denied for want of an admissible contention. *See*10 C.F.R. § 2.309(f)(1)(iii). If the facility has in fact not complied with the Consent Order, the remedy is to seek enforcement by New Jersey Department of Environmental Protection.

3. Cumberland County

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In its hearing request, Cumberland County asserts that one of its boundaries is immediately adjacent to the Licensee's site and that the County lies downgrade and downwind from the facility. [FN9] Continuing, it claims to have "taken a position consistent with that of Gloucester County and the New Jersey Department of Environmental Protection," in that it believes that the DP poses a threat to the health, safety, and welfare of the general public. Cumberland Hearing Request at 1. Further, Cumberland states that it intends to "rely on the expertise of the New Jersey Department of Environmental Protection with respect to these issues and the purpose of this correspondence is to make sure that the process does not continue to ignore the needs of the citizens of Cumberland County and the State of New Jersey."*Id.* at 2.

As noted by the Staff, Cumberland's filing appears to be a statement of support for the hearing request filed by New Jersey and an expression of interest and concern in the proceeding, rather than a formal petition to intervene in this proceeding. [FN10] Given the understandable absence of any challenge to its standing, we nonetheless treat the filing as a formal hearing request on behalf of the County. So regarded, we agree with the Licensee and the Staff that Cumberland has failed to proffer a specific contention meeting the admissibility requirements outlined in 10 C.F.R. § 2.309(f)(1). Its hearing request must therefore be denied. *See*10 C.F.R. § 2.309(f)(1)(i).

4. New Jersey State Senator Madden, Assemblymen Mayer and Moriarty

In their joint hearing request, [FN11] New Jersey State Senator Fred H. Madden, Assemblyman David R. Mayer, and Assemblyman Paul Moriarty (State Legislators) assert, in what appears to be an attempted demonstration of standing, that, "as representatives of the residents of the Newfield and surrounding areas, [they] have a sincere concern regarding the large quantities of radioactive contaminated waste ***351** remaining at the ShieldAlloy site."State Legislators' Hearing Request at 1. What then follows is a discussion of general concerns with regard to the Licensee's site and the DP, including concerns related to possible economic, environmental, and public health and safety harms. *See id.* at 1-2.

****9** Although it is clearly established in the Commission's regulations and case law that a state or local governmental body has standing to intervene in a proceeding for a facility that is located within its boundaries, the same does not hold true for individual legislators wishing to participate as a party on behalf of unnamed constituents. Rather, as noted by both the Licensee and the Staff, licensing boards have consistently ruled that one does not acquire standing as a consequence of being a member of a legislative tribunal. *See Babcock & Wilcox* (Apollo, Pennsylvania Fuel Fabrication Facility), LBP-92-35, 36 NRC 355, 358 n.9 (1992); *Combustion Engineering, Inc.* (Hematite Fuel Fabrication Facility), LBP-89-23, 30 NRC 140, 145 (1989); *General Electric Co.* (GE Test Reactor, Vallecitos Nuclear Center), LBP-79-28, 10 NRC 578, 582-83 (1979). In this instance, none of the legislators has attempted to demonstrate standing on any other basis and, thus, their hearing request must be denied. *See*10 C.F.R. § 2.309(a).

5. Loretta Williams

At the outset of her hearing request, Ms. Williams states that she lives "within a few blocks of the Shieldalloy Metallurgical Corporation in [the] 1.7 square mile community" of Newfield. [FN12] Moving on, she lists multiple grievances with the DP including: the adequacy of the DP's cost estimates; unaccounted economic, environmental, and health and safety risks; security risks and costs associated with the storage of radioactive waste at the site; the accuracy of the Licensee's solubility testing and analysis; the application of the NRC's dose criterion regulations; and the Licensee's cost analysis regarding the possible offsite disposal of radioactive waste as an alternative to the procedure proposed in the DP. *See* Williams Hearing Request at 1-2.

The proximity of Ms. Williams' residence to the Licensee's facility satisfies the standing requirement. The ques-

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tion thus is whether her hearing request also satisfies the contention requirements. On this score, Ms. Williams alleges that the Licensee's proposal poses numerous threats to the health and safety of Newfield residents and to the surrounding environment. What is missing, however, is a demonstration that she might, through expert opinion or factual development, connect the alleged threats to specific aspects of the Licensee's DP. Where Ms. ***352** Williams does mention the Licensee's DP, she does not address, with specific references to the Licensee's analyses, how she intends to demonstrate that the DP is flawed. As the Commission has stressed on numerous occasions, "the contention rule is strict by design"[FN13] and does "not permit the filing of a vague, unparticularized contention, unsupported by affidavit, expert, or documentary support."[FN14]

****10** Although a certain amount of latitude might appropriately be extended to *pro se* litigants such as Ms. Williams, there nonetheless must be a substantial endeavor to meet the clear regulatory requirement that a hearing request provide a "specific statement of the issue of law or fact to be raised or controverted," together with a concise statement of the alleged facts or expert opinion supporting the contention and specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue. *See*10 C.F.R. § 2.309(f)(1)(i), (v). Such an endeavor falling far short in this instance, Ms. Williams' hearing request must be denied.

6. Terry Ragone

Included in Ms. Ragone's hearing request is a statement regarding her standing to participate in this proceeding and a section labeled "Contentions." [FN15] The latter catalogues grievances associated with the alleged "unusual precedent of establishing a low level radioactive waste site in a densely populated area," allegations "that the dump site will inevitably cause economic hardship," and opposition voiced by the Borough of Newfield in the form of a Borough resolution. Ragone Hearing Request at 1-2.

As noted by both the Staff and the Licensee, it is difficult to identify any specific contention in the request or to determine what, if any, specific aspects of the DP Ms. Ragone seeks to challenge. [FN16] Her statements do not identify any portion of the DP that contravenes a statutory provision or NRC regulation and, therefore, she fails to provide sufficient information to demonstrate that a genuine dispute exists on a material issue of fact or law. *See*10 C.F.R. § 2.309(f)(1)(vi).***353** Further, absent from the request is any form of factual information, documentary evidence, or expert opinions to support its claims. *See*10 C.F.R. § 2.309(f)(1)(v).

While it is true that, at the time contentions are filed, a petitioner is not required to have developed the entire factual record on which it intends to rely at a hearing, even in the case of a *pro se* litigant some level of factual or expert support must be furnished. Accordingly, although Ms. Ragone has established her standing as an individual, the conclusion is required that her hearing request is devoid of an admissible contention and thus must be denied. [FN17]

7. State of New Jersey

In common with that of the counties and borough, New Jersey's standing is readily apparent. We thus turn to its contentions.

a. New Jersey's Contentions

The New Jersey hearing request is divided into three parts, with "Technical Contentions" in Part I, "Environmental Contentions" in Part II, and a "Miscellaneous Contention" in Part III. [FN18] As the sixteen contentions presented in Part I are identical to those advanced in Part II, we will refer only to the ones in Parts I and III. *See* New Jersey Hearing Request at 1-89, 178-82.

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****11** New Jersey sets forth multiple contentions challenging the DP with respect to the technical analyses performed by the Licensee, essentially arguing that the DP has not demonstrated compliance with the relevant statutory and regulatory standards, including those prescribed in 10 C.F.R. § 20.1403. The contentions include challenges to the analyses performed regarding the proposed disposal design and siting, the dose modeling results, the exclusion of certain exposure pathways, and the DP's dose modeling time frame. Also advanced are challenges to the adequacy of the DP's site characterization, the Licensee's satisfaction of financial assurance requirements, and the Licensee's consideration of public input on the DP. To support these contentions, New Jersey provides the declarations and supporting statements of various purported experts in relevant fields.

In addition to challenges to the Licensee's technical analyses, New Jersey proffers numerous contentions addressing the legality of the regulatory avenues relied on in the submission of the Licensee's DP. Specifically, it questions the role ***354** of the License Termination Rule's restricted use provisions, [FN19] the use of the Long Term Control-Possession Only License, and the Commission's decommissioning regulations generally. [FN20]

In response, both the Licensee and the Staff acknowledge that New Jersey has standing to participate in this proceeding. [FN21] The Licensee asserts, however, that none of New Jersey's seventeen proffered contentions satisfies the admissibility standards set forth in 10 C.F.R. § 2.309(f)(1).[FN22] For its part, the Staff would have it that eight of New Jersey's contentions are admissible, in whole or in part, and contests the admission of the remaining nine contentions. [FN23]

b. Contention 5

As previously noted, if (as here) the requisite standing has been established, under the terms of the Rules of Practice a hearing request must be granted upon a determination that it contains at least one admissible contention. With that in mind, we have elected to consider first New Jersey's Contention 5, which reads as follows:

> The DP obtains inaccurate dose modeling results by ignoring the likely scenario of groundwater contamination and ignoring other reasonable assumptions.

New Jersey Hearing Request at 27.

As the basis for this contention, New Jersey points to 10 C.F.R. § 20.1403(e) and the regulation's requirement that "'the TEDE [Total Effective Dose Equivalent] from residual radioactivity distinguishable from background to the average member of the critical group is as low as reasonably achievable and would not exceed either (1) 100 mrem (1 mSv) per year; or (2) 500 mrem (5 mSv)' under certain circumstances."*Id.* at 28 (citation omitted). According to New Jersey, the inclusion of the "likely scenario of radionuclides contaminating the groundwater" in the dose modeling results in a dose level that exceeds the TEDE limit in the regulation. *Ibid.*

****12** Additionally, New Jersey insists that the DP improperly excludes other reasonable exposure scenarios, including resident farmer and suburban resident ***355** scenarios. *See id.* at 30-32.According to New Jersey, at some future time individuals might take up residence on currently restricted land and receive increased radiation exposure from activities associated with farming and the occupation of land in close proximity to the facility. Further, it takes issue with the DP's "all controls fail" dose modeling. *See id.* at 32.Here, New Jersey asserts that the Licensee has failed to perform adequate dose modeling for scenarios in which all engineered and institutional controls degrade or fail.

As support for the contention, New Jersey relies on the accompanying declaration and report of Jennifer Goodman, a research scientist with the Bureau of Environmental Radiation at the New Jersey Department of Environmental Protection. [FN24] The Goodman Report identifies numerous alleged deficiencies in the DP. In particu-

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lar, with respect to the substance of Contention 5, it challenges the DP's treatment of groundwater exposure pathways and assumptions made in the dose modeling. Additionally, New Jersey cites declarations and/or reports filed by: Donna Gaffigan, Case Manager with the New Jersey Department of Environmental Protection, discussing groundwater exposure; Steven E. Spayd, Research Hydrogeologist & Supervising Geologist, Bureau of Water Resources, New Jersey Department of Environmental Protection, discussing dose modeling and the groundwater pathway; and Michael A. Malusis, Assistant Professor, Department of Civil and Environmental Engineering, Bucknell University, Lewisburg, PA, discussing groundwater pathway.

c. Responses to Contention 5

The Staff does not oppose the admission of Contention 5 to the extent that New Jersey challenges the DP's dose modeling for its failure to take into account certain exposure pathways and thus its underestimation of the peak annual TEDE. [FN25] The Staff does not, however, support the wholesale admission of the contention. First, it insists that NRC regulations do not require the Licensee to consider an "all controls fail" scenario in its dose modeling. *See* Staff Response to New Jersey at 10. Second, with respect to the "resident farmer scenario," the Staff claims that New Jersey has provided nothing more than a bare assertion that the Licensee should have addressed that scenario. *Ibid.*

As is the case with nearly all of the proffered contentions, the Licensee claims that Contention 5 fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(vi).***356** Turning first to the assertion that the DP's dose modeling improperly excludes the groundwater pathway, the Licensee maintains that New Jersey's expert, Ms. Goodman, fails to address the DP's discussion "as to why groundwater need not be considered in the dose modeling" and, in particular, "ignores the fact that the groundwater is not potable because it is heavily contaminated with toxic chemicals."Licensee Response to New Jersey at 46. Further, the Licensee maintains that the contention and Ms. Goodman's supporting report do not address site-specific groundwater modeling performed by the Licensee that purportedly demonstrates that, even if the pathway was considered, there would be no significant radiological impact. *See id.* at 47.The Licensee would have it that, without addressing the DP's stated reasons for excluding groundwater as a pathway in its dose modeling, the contention cannot establish a genuine dispute and does not raise a litigable issue.

****13** The Licensee further insists that the contention's claims regarding the farming and resident scenarios similarly fail to raise genuine disputes. *See id.* at 48.Specifically, it claims that the contention does not address the DP's assertions that the Licensee will "retain the [ ] site, both restricted and unrestricted portions, for industrial use" and that the site will be restricted from residential use independent of its radiological status. *Ibid.* Moreover, with respect to each assertion advanced in support of a particular contention, the Licensee addresses the factual documentation and/or expert opinion offered by New Jersey and attempts to demonstrate that the assertion is nonetheless without merit. *See id.* at 49-57.

d. New Jersey's Reply

With respect to Licensee's assertions that groundwater pathways need not be modeled because there are no drinking water wells within the restricted area and the water is not potable due to nonradioactive contamination, New Jersey responds that "there is no reason to believe" that in the distant future "wells will not be used in the vicinity of the facility for drinking water."[FN26] New Jersey further notes that the Licensee, as directed in the Consent Order, is currently conducting groundwater remediation for the nonradioactive contamination with the end goal of removing restrictions on the water's use. New Jersey Reply to Licensee at 11. Responding to the Licensee's claims that it ignored the DP's site-specific groundwater modeling, New Jersey asserts that the modeling was not discussed because there was "insufficient information to evaluate it." *Id.* at 11-12.

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Respecting the Licensee's insistence that farming encroachment is not likely due to land-use restrictions that exist with regard to the facility site, New Jersey ***357** points out that 10 C.F.R. § 20.1403(e) prescribes radiation standards that must be met against the possibility that, at some future time, such institutional controls will no longer be in effect. *Id.* at 12-13.In this regard, New Jersey would have it that, over the course of "a billion years," it is possible that the site will be inhabited by a resident farmer or suburban resident. *Ibid.* The remainder of its reply to the Licensee is devoted to addressing the dose modeling and technical challenges lodged by the Licensee in its answer.

As the Staff did not oppose the admission of Contention 5 in its entirety, New Jersey responded only to its claims regarding the "all controls fail" and "resident farmer" scenarios and, in that regard, repeats the argument it supplied in response to the Licensee. [FN27] Specifically, New Jersey cites 10 C.F.R. § 20.1403(e) and maintains that the regulation requires consideration of the "all controls fail" scenario. *See* New Jersey Reply to Staff at 4. It insists that, contrary to the claims of the Staff, it has supported sufficiently its claims with respect to these two scenarios by relying upon the LTR, the expert report of Jennifer Goodman, and facts available from the DP and other public sources. *See id.* at 5-6.

e. Board's Ruling

****14** We entertain little difficulty in reaching the conclusion that Contention 5 is admissible in its entirety. In a word, New Jersey has provided adequate support for its insistence that the dose modeling provided in the DP is inadequate to determine the potential long-term impact that leaving the slag pile *in situ* might have upon those residing in the vicinity of the facility.

We are unimpressed with the Licensee's insistence that groundwater need not be considered in the dose modeling because it is currently contaminated with toxic chemicals. As New Jersey cogently observes in response, there is no assurance that this situation will remain for the duration of the lengthy period that the slag pile will continue to represent a radioactive hazard. In any event, as noted in paragraph 17 of the Gaffigan Declaration without contradiction, the Licensee is currently engaged in groundwater remediation for these nonradioactive contaminants that is mandated by a Consent Order that it had signed. [FN28] Notwithstanding that fact, it will be open to the Licensee to attempt to establish, by way of a motion for summary disposition or at an evidentiary hearing, that the possibility of the groundwater serving as drinking water over the relevant period is so remote that it can appropriately be entirely dismissed. At this preliminary stage, however, such a dismissal is plainly impermissible.

***358** What that leaves for consideration is the admissibility of so much of Contention 5 as challenges the exclusion in the DP of the resident farmer/suburban resident and "all controls fail" exposure scenarios. Contrary to the insistence of both the Licensee and NRC Staff, we are satisfied that New Jersey has offered enough to support those challenges at this very early stage of the proceeding. Whether they will be found meritorious when the evidentiary stage is reached is of no present moment.

To begin with, insofar as concerns the possibility offered by New Jersey of a resident planting a vegetable garden and consuming its produce, the environs of the Borough of Newfield are hardly to be equated with the urban environment that marks the five boroughs of New York City some distance to the north. Moreover, we are told by New Jersey, again without contradiction, that there is currently someone residing within very close proximity of the Licensee's property. Our attention has also been called to the disclosure in the Licensee's Environmental Report to the effect that there are farms located within a 1-mile radius of the facility. [FN29] That being so, and given the length of time that the slag pile might continue to represent a radioactive hazard, there would

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seem to be at least a reasonable possibility that, at a future date, there might be some exposure to the hazard on the part of one engaged in activities falling within the bounds of the resident farmer/suburban resident scenario. If, however, in justification of the DP's failure to address such a scenario, the Licensee has compelling reasons why such a possibility may be entirely ruled out, it will have the opportunity to present that showing once the merits of the contention are reached.

****15** With respect to the "all controls fail" scenario, it might well be that, as the NRC Staff asserts, there is no specific Commission requirement that such a scenario be included in the DP. New Jersey points, however, to the regulatory provision requiring an assumption that institutional controls will fail. *See*10 C.F.R. § 20.1403(e). As it sees it, given that required assumption, it is not unreasonable to indulge in the additional assumption that, over the course of the lifetime of the radiological hazard, the engineered barriers will fail. Although the matter might not be free from all doubt, we believe that there is sufficient reason to allow the inclusion of this scenario within the ambit of what is being accepted as Contention 5. This issue will, of course, be open to further exploration when the proceeding reaches the merits stage.

B. It follows from the foregoing that, its standing not being in serious question and at least one of its contentions having been found to meet the standard for admissibility imposed by section 2.309(f) of the Rules of Practice, by virtue ***359** of section 2.309(a) of those Rules the New Jersey hearing request must be granted. By the same token, given their failure to satisfy both the standing and the contention requirements, all of the other hearing requests must be denied.

In the case of the two counties and the borough, this does not mean, however, that they are precluded from participation in the evidentiary hearing that will ultimately be held in light of the grant of the New Jersey request. As earlier noted (*see* p. 345, *supra*), governmental entities (including counties and municipalities) are accorded by 10 C.F.R. § 2.315(c) the right to participate in adjudicatory proceedings such as this one without having to obtain party status. Indeed, it might well be concluded that, should they choose to invoke that right through the required designated representative, the counties and borough will assume a status preferable in some respects to that of a party. For, once again, the section explicitly authorizes the participating governmental entity to introduce evidence and to conduct such cross-examination as might be allowed to the parties, all without being obliged to take a position on the issues under consideration. In addition, as also seen, they enjoy the same entitlement possessed by the parties to file proposed findings and to seek Commission review of Board determinations.

It remains to be seen, of course, whether the counties and borough will desire to invoke the section 2.315(c) entitlement to participate in the proceeding as a nonparty. They might well be content simply to rely upon New Jersey to pursue their concerns, given the likelihood that, through its Department of Environmental Protection, the State has greater resources at its disposal for ventilating those concerns.

****16 C.** What is left for consideration is whether we need or should go forward at this juncture with a consideration of the admissibility of New Jersey's other contentions. As we read the Rules of Practice, there is no requirement that we do so. All that is mandated is that, within 45 days of the filing of the last pleading (here the February 27, 2007, New Jersey Reply to the Licensee and NRC Staff), the Board issue its decision on each hearing request before it. *See*10 C.F.R. § 2.309(i). In this instance, insofar as the New Jersey request is concerned, that mandate has been met by our determination today that the request must be granted on the strength of its standing and the contention that we have found admissible. Insofar as the express terms of the Rules of Practice are concerned, it is left to us to decide whether, in the totality of circumstances, it is best to rule now on the admissibility of the balance of the New Jersey's contentions or, instead, to defer a ruling on them until a later date.

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In another recent decommissioning proceeding, a licensing board addressed the same question. Its answer was that, having granted the hearing request there-involved on the strength of one admissible contention, it was appropriate, "in the interest of the economical use of [the board's] resources," to defer ***360** consideration of the remaining contentions pending the Staff's completion of its technical review of the proposal under scrutiny and its issuance of the SER and EIS or EA. *See U.S. Army* (Jefferson Proving Ground Site), LBP-06-6, 63 NRC 167, 185-86 (2006). Its rationale was this (*ibid.*):

> It seems … quite possible, if not probable, that, upon its examination of the documents issued by the Staff at the end of the technical review, the Petitioner will find reason to alter in at least some respects the tack that it has taken in the challenge to the [Licensee's] proposal that is contained in the hearing request. For one thing, Petitioner might well find that some of the concerns that [have been] set forth in the request have been fully resolved. At the same time, it might determine, on the basis of the disclosures in the technical review documents, that there is cause to seek leave to amend one or more existing contentions or to add new ones. Any such endeavor would, of course, have to comply with the provisions of the Rules of Practice governing the submission of late contentions.

As it turned out, the *Army* Board's forecast of subsequent events proved to be on target. *See* LBP-06-27, 64 NRC 438 (2006). And it seems patent to us that the same analysis applies in full measure to the case of New Jersey's challenges to the decommissioning plan that is in issue here. There is no aspect of that plan that is set in stone and it is scarcely inconceivable that, whether as the result of the Staff's review or independent of it, the DP might undergo significant revision that would have a decided impact upon the New Jersey contentions now on the table.

****17** In this connection, this Board and the parties to the proceeding have formally been made aware of a letter sent by an NRC Commissioner to the Licensee's President following the former's recent visit to the Newfield site. [FN30] In the letter, the Commissioner reiterated a suggestion, made at the time of a site visit, that there be further dialogue between the Licensee's staff and other interested parties to determine whether there might be "other options, in addition to onsite decommissioning," that might allow the "reuse of the site in a cost effective way."[FN31]

We do not presume to speculate on what might be the outcome of that suggestion. It does, however, indicate a belief on the part of at least one Commissioner of this agency that there is reason to explore possible alternatives to the onsite storage of the slag that has raised so many concerns on the part of New Jersey and others. And, presumably, the NRC Staff will conduct such an exploration in the technical review associated with this decommissioning ***361** case, including its activities in discharging its obligation under the National Environmental Policy Act. Thus, there is at least a considerable measure of current uncertainty as to whether, at the end of the day, the decommissioning of the Licensee's site will take the form that is contemplated by the DP now in hand. [FN32]

In short, all things considered, it seems to make good sense to follow here the course that was adopted in the *Army* proceeding. In addition to the withholding of action on the remainder of New Jersey's contentions, all further action in the proceeding would be deferred to await the Staff's completion of its safety and environmental review. (The deferral would embrace all obligations imposed by the Rules of Practice upon the grant of a hearing request such as that of New Jersey here). Once the Staff had released the SER and EIS reflecting the results of that review, an order would issue providing New Jersey a reasonable opportunity to withdraw, to amend, or to supplement its existing contentions based upon the disclosures in those documents and in conformity with the provisions of the Rules of Practice concerned with the submission of new contentions. Following a ruling on all remaining contentions, the proceeding would move forward.

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On this score, based upon the filings to date, a few words of caution appear appropriate with regard to any future contentions and the responses thereto. First, contrary to New Jersey's apparent belief (*see* pp. 353-54, *supra*), it has long been the rule that Commission regulations are not open to challenge in NRC adjudicatory proceedings. *See*10 C.F.R. § 2.335(a); *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 & n.33, *aff'd in part on other grounds,* CLI-74-32, 8 AEC 217 (1974).

****18** Second, New Jersey's reliance in several of its contentions upon the Low-Level Radioactive Waste Policy Act of 1985 (LLRWPA), 42 U.S.C. §§ 2021b *et seq.*, is misplaced. That Act does not broadly require, as New Jersey would have ***362** it, "the permanent isolation of low-level radioactive waste."Insofar as here relevant, it states simply that "[e]ach State shall be responsible for providing, either by itself or in cooperation with other States, for the *disposal* of — (A) low-level radioactive waste generated within the State." 42 U.S.C. § 2021c(a)(1) (emphasis added). "Disposal" is defined generally by the Act as meaning the "permanent isolation of low-level radioactive waste pursuant to the requirements established by the Nuclear Regulatory Commission under applicable laws."42 U.S.C. § 2021b(7). As directed by the Act, the NRC has set forth regulatory requirements in 10 C.F.R. Part 61 that implement the LLRWPA's mandate and further define terms contained in the Act. Although New Jersey acknowledges Part 61's implementing regulations, it ignores the Commission's clear statement in that part limiting regulation to waste "received from other persons." 10 C.F.R. § 61.1(a). There is no question that this Licensee does not intend to become a facility for the permanent isolation of wastes received from other persons.

For its part, a substantial portion of the Licensee's response to New Jersey's contentions is not addressed to whether the contentions meet the admissibility standards set forth in 10 C.F.R. § 2.309(f)(1) but, rather, seeks to challenge them as lacking merit. Given that Licensee's counsel have long been involved in NRC adjudicatory proceedings, they should be fully aware that such claims must await either motions for summary disposition under 10 C.F.R. § 2.1205 or an evidentiary hearing. [FN33] We trust that this fact will be given recognition in any future Licensee filings directed to contention admissibility.

D. We perceive no reason why a deferral of the consideration of the balance of New Jersey's contentions might prejudice the legitimate interests of New Jersey, the Licensee, or the Staff as parties going forward in this proceeding. Indeed, it appears to us that it should serve to further those interests, given the bearing that the fruits of the technical review indisputably might have on the issues to be litigated at an evidentiary hearing. Nonetheless, it is possible that we have overlooked some consideration that, in view of one or more of those parties, might cast doubt upon the acceptability of the course we propose to follow. Accordingly, the deferral that we are now ordering will be subject to the filing of a timely motion for reconsideration in accord with 10 C.F.R. § 2.323(e).

****19** For the foregoing reasons, (1) the hearing request of the New Jersey Department of Environmental Protection is *granted;* and (2) all other hearing requests are ***363** *denied.*Notwithstanding the denial of their requests, in accordance with the provisions of 10 C.F.R. § 2.315(c), upon notifying the Board, Gloucester and Cumberland Counties and the Borough of Newfield may, if so inclined, participate in any further proceedings in this matter through a designated representative.

Moreover, subject to reconsideration at the behest of New Jersey, the Licensee and/or the NRC Staff, all additional proceedings (including but not limited to the submission of the hearing file, 10 C.F.R. § 2.1203, and mandatory disclosures, 10 C.F.R. § 2.336) are hereby *deferred* pending the completion of the Staff's safety and environmental review and further order of this Board.

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Finally, as to those individuals and entities whose hearing requests have been denied, in accordance with 10 C.F.R. § 2.311(a), any appeal to the Commission must be taken within 10 days after service of this Memorandum and Order. In accordance with that same provision, the Licensee is entitled to appeal the grant of the New Jersey Hearing Request within a like time period.

It is so ORDERED

THE ATOMIC SAFETY AND LICENSING BOARD [FNa1]

Alan S. Rosenthal
Chairman
ADMINISTRATIVE JUDGE

Dr. Richard E. Wardwell
ADMINISTRATIVE JUDGE

Dr. William H. Reed
ADMINISTRATIVE JUDGE

FNa1. Copies of this Memorandum and Order were sent this date by Internet electronic mail transmission to counsel or other representative for (1) the Licensee, (2) the NRC Staff, and (3) each hearing requestor that has provided for e-mail service.

FN1. *See Private Fuel Storage, LLC.* (Independent Spent Fuel Storage Installation), CLI-99-10, 49 NRC 318, 325 (1999); *Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155-56 (1991).

FN2. *See* Gloucester County Board of Chosen Freeholders Request for Hearing and Petition To Intervene (Jan. 11, 2007) [hereinafter Gloucester Hearing Request].

FN3. *See* NRC Staff's Response to Request for Hearing by Gloucester County Board of Chosen Freeholders (Feb. 5, 2007) at 5 [hereinafter Staff Answer to Gloucester]; Shieldalloy's Answer to Request for Hearing and Petition To Intervene of Gloucester County Board of Chosen Freeholders (Feb. 6, 2007) at 13 [hereinafter Licensee Answer to Gloucester].

FN4. *See* Licensee Answer to Gloucester at 15; Staff Answer to Gloucester at 7-8.

FN5. *See* Staff Requirements — SECY-06-0143 — Stakeholder Comments and Path Forward on Decommissioning Guidance To Address License Termination Rule Analysis Issues (Sept. 19, 2006), ADAMS Accession No. ML062620515.

FN6. *See* Staff Answer to Gloucester at 11; Licensee Answer to Gloucester at 20.

FN7. *See*Request for Hearing of the Borough of Newfield (Jan. 16, 2007) [hereinafter Newfield Hearing Request].

FN8. *See*Shieldalloy's Answer to Hearing Request of Borough of Newfield (Feb. 13, 2007) at 3; NRC Staff's Response to Request for Hearing by the Borough of Newfield (Feb. 12, 2007) at 6.

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FN9. *See*Request for Hearing by Cumberland County (Jan. 16, 2007) at 1 [hereinafter Cumberland Hearing Request].

FN10. *See* NRC Staff's Response To Request for Hearing by Cumberland County (Feb. 12, 2007) at 2-3.

FN11. *See*Request from New Jersey State Senator Fred H. Madden, Assemblyman David R. Mayer, and Assemblyman Paul Moriarty for a Hearing (Jan. 12, 2007) [hereinafter State Legislators' Hearing Request].

FN12. *See*Request for a Hearing Submitted by Loretta Williams (Jan. 3, 2007) at 1 [hereinafter Williams Hearing Request].

FN13. *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001); *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP site), CLI-05-29, 62 NRC 801, 808 (2005).

FN14. *North Atlantic Energy Service Corp.* (Seabrook Station, Unit 1), CLI-99-6, 49 NRC 201, 219 (1999) (citation and internal quotation marks omitted).

FN15. *See*Hearing Request from Terry Ragone (Jan. 15, 2007) at 1 [hereinafter Ragone Hearing Request].

FN16. *See*Shieldalloy's Answer to Hearing Request of Terry Ragone (Feb. 5, 2007) at 3; NRC Staff Response to Hearing Request from Terry Ragone (Feb. 9, 2007) at 5.

FN17. Given the failure to proffer an admissible contention, we need not address here the question as to whether Ms. Ragone has demonstrated standing in a representational capacity on behalf of “The Newfield Residents.”

FN18. State of New Jersey Department of Environmental Protection Petition for Hearing the Shieldalloy Metallurgical Corporation (License No. SMB-743) Decommissioning Plan (Jan. 16, 2007) [hereinafter New Jersey Hearing Request].

FN19. *See*10 C.F.R. § 20.1403; 62 Fed. Reg. 39,058 (July 21, 1997).

FN20. *See generally*10 C.F.R. Part 20, Subpart E.

FN21. *See*Shieldalloy's Answer to Petition for Hearing of State of New Jersey Department of Environmental Protection (Feb. 12, 2007) at 3 [hereinafter Licensee Response to New Jersey]; NRC Staff's Response to Request for a Hearing by New Jersey Department of Environmental Protection (Feb. 12, 2007) at 3 [hereinafter Staff Response to New Jersey].

FN22. *See* Licensee Response to New Jersey at 13.

FN23. *See* Staff Response to New Jersey at 5.

FN24. *See* New Jersey Hearing Request at 29. Ms. Goodman also supplied a resume describing her relevant technical qualifications.

FN25. *See* Staff Response to New Jersey at 9-10. The Staff notes that Contention 5 presents arguments related to dose modeling and, in that respect, is closely related to the arguments presented in Contentions 9 and 10. Accordingly, the Staff addresses all three related contentions in combination and recommends that the Board do the

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same by consolidating the contentions.

FN26. New Jersey Department of Environmental Protection's Reply to the Answer of Shieldalloy (Feb. 27, 2007) at 11 [hereinafter New Jersey Reply to Licensee].

FN27. *See* New Jersey Department of Environmental Protection's Reply to the Response of NRC Staff (Feb. 27, 2007) at 3-6 [hereinafter New Jersey Reply to Staff].

FN28. *See* New Jersey Hearing Request at 36, Declaration of Donna L. Gaffigan (Jan. 16, 2007) ¶ 17.

FN29. *See*Shieldalloy Decommissioning Plan, Environmental Report, Appendix 19.9, § 3.0, Fig. 3-3, ADAMS Accession No. ML053330384.

FN30. Letter from Jeffery S. Merrifield to Eric E. Jackson (Feb. 22, 2007), ADAMS Accession No. ML070530666. The text of the letter was provided by the Office of the NRC Secretary to all those on the service list for the proceeding including this Board.

FN31. *Id.* at 2.

FN32. The NRC Staff recently published a notice in the *Federal Register* to the effect that it has under consideration a decommissioning plan submitted by the Whittaker Corporation, a source material licensee, for its site in Pennsylvania. 72 Fed. Reg. 13,310 (Mar. 21, 2007). According to the notice, that licensee's operations on the site in the extraction of rare earth metals had resulted in the accumulation of "slag by products containing thorium and uranium."*Id.* at 13,311.The submitted DP calls for the release of the entire site for unrestricted use following "the excavation of the waste slag, [the] processing of the excavated material in order to separate the radioactive material from the soil, and [the] shipping [of] the radioactive material to a licensed disposal site."*Ibid.*

> We do not know whether such an option might be available with regard to the Newfield slag of concern in this proceeding. It could well be that, because of composition differences or for some other reason, it might not be feasible. We refer to the Whittaker proposal only as further evidence that there well might be more than one way of dealing with a particular accumulation of radioactive wastes so as to assure the public health and safety and the protection of the environment. In the course of its technical review of any decommissioning plan associated with such waste, the Staff necessarily will be examining any and all feasible alternatives that might serve better the achievement of those objectives.

FN33. Indeed, if anything, addressing the merits in an opposition to a hearing request can be counter-productive in that it serves to reinforce the requestor's insistence that a genuine dispute exists with respect to the substance of the contention in issue.

65 N.R.C. 341, 2007 WL 2195475 (N.R.C.)

END OF DOCUMENT

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July 5, 2007

Mr. David R. Smith
Environmental Manager
Shieldalloy Metallurgical Corporation
Aluminum Products & Powders Division
14 West Boulevard
P. O. Box 768
Newfield, NJ 08344-0768

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR SAFETY REVIEW OF PROPOSED DECOMMISSIONING PLAN FOR SHIELDALLOY METALLURGICAL CORPORATION, NEWFIELD, NEW JERSEY

Dear Mr. Smith:

The U.S. Nuclear Regulatory Commission (NRC) staff is conducting its detailed safety review of Shieldalloy Metallurgical Corporation's (SMC's) proposed Decommissioning Plan (DP), Revision 1, for the Newfield, New Jersey site that was submitted on October 24, 2005, and supplemented on June 30, 2006. Based on its review of SMC's DP, as supplemented, and previously submitted site-specific information, the NRC staff requires additional information to support its evaluation of the potential safety impacts of SMC's proposed decommissioning approach described in the DP. The requested information is identified in the enclosure to this letter. In addition to providing the information in the enclosure, SMC should also update its cost estimate to account for any changes that result from addressing the NRC staff's request for additional information (RAI).

Although our process typically requests responses to RAIs within 30 days we recognize that some of the RAIs will require environmental sampling and laboratory work that cannot be completed within a 30-day period. Therefore, we are requesting that you provide your response within 120 days of the date of this letter.

I want to emphasize that timely completion of our safety review is dependent on SMC providing complete and high quality responses to all of the enclosed safety-related RAIs, as well as providing followup responses to the environmental RAIs that were transmitted to you on March 19, 2007. In that regard, our practice is to initiate only one round of RAIs. We have implemented this practice to avoid the cost, in terms of time and resources, of multiple RAIs. If the additional information you provide is insufficient for the NRC staff to complete its Safety Evaluation Report and Environmental Impact Statement, the staff may suspend or terminate its review of your DP.

The NRC staff is available to meet with you to discuss any questions that you may have regarding the enclosed RAIs. If you have any other questions concerning this letter, please contact Ken Kalman, at (301) 415-6664, or via email at klk@nrc.gov.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-7102
License No.: SMB-743

Enclosure: Request for Additional
Information

cc: Shieldalloy Distribution List (w/o encl)

The NRC staff is available to meet with you to discuss any questions that you may have regarding the enclosed RAIs. If you have any other questions concerning this letter, please contact Ken Kalman, at (301) 415-6664, or via email at klk@nrc.gov.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-7102
License No.: SMB-743

Enclosure: Request for Additional
Information

cc: Shieldalloy Distribution List (w/o encl)

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Request for Additional Information

Shieldalloy Metallurgical Corporation
Decommissioning Plan
Docket No. 04007102

The U.S. Nuclear Regulatory Commission (NRC) staff is conducting its safety review of Shieldalloy Metallurgical Corporation's (SMC 's) proposed plan for decommissioning its Newfield, New Jersey site. SMC submitted a Decommissioning Plan (DP) (Rev. 1) on October 24, 2005, and a Supplement to the DP (Rev. 1a), on June 30, 2006. Based on NRC staff review of these reports and previously submitted information, the NRC staff is requesting the following additional information to support its evaluation of the potential safety impacts of SMC's proposed DP.

1. (Section 3.6.2) Update the data on surface water flow in the Hudson Branch at and near the site to account for the impact of site decommissioning activities and other changes on this flow.

Basis:

Surface water flow in the Hudson Branch is an important parameter impacting the interrelationship of groundwater and surface water at this site. Vol. III of the DP (Rev. 1) (the Environmental Report) (ER) (page 3-20) states that a surface water inventory of Hudson Branch was performed from 1993 to 1995. However, decommissioning and other activities at the site could have impacted the onsite surface water drainage and discharge outlets to the Hudson Branch. Thus, the surface water inventory should be updated to account for any changes that the previous activities may have had on the Hudson Branch stream flow. If SMC believes that an update is not needed, then it should justify why this is not necessary.

Path Forward:

SMC should update the stream flow inventory of the Hudson Branch, or provide a justification for why an update is not necessary.

SMC should tabulate the most recent surface water withdrawals that have occurred since the 1990 to 1999 values listed in Figure 3-13 of the ER and summarized on page 3-26 of the ER.

Enclosure

2. (Section 3.7.2) Update the data in Table 3-4 of the ER, on the existing monitoring wells (both onsite and offsite) for the SMC site.

Basis:

SMC has evaluated groundwater analytical results in over 50 wells during the past 15 to 20 years. However, the status of these wells for future radiological monitoring should be addressed. SMC should update the data in Table 3-4 of the ER (Monitoring/Extraction Well Construction Details) to provide the following additional well statistics: well location (legal location or referenced to a figure), well ownership, well status (active, damaged, or abandoned), hydro stratigraphic unit screened, and well type (monitoring, private, municipal, industrial, or irrigation). The well statistics in Table 3-4 of the ER should be updated so that future and past sampling and radiological analysis can be adequately evaluated.

Path Forward:

SMC should provide the updated well statistics mentioned above for the wells listed in Table 3-4 of the ER. SMC should also indicate which existing figure(s) displays all of these wells or provide a new figure that shows all wells.

3. (Section 3.7.7) SMC should provide the input data, other pertinent model procedures, and model results for the groundwater flow and transport modeling performed using the MODFLOW-SURFACT model referenced in Appendix D of the DP (Rev. 1a).

Basis:

The NRC staff must independently evaluate the groundwater flow and transport modeling to provide assurance that the model results and procedures are appropriate for the physical system at this site.

Path Forward:

The model results should include the calibration model run and the simulation scenario run in which the engineered barrier for the slag pile fails, radionuclides leach from the slag pile into the groundwater, and a well about 100 feet down gradient of the Storage Yard provides groundwater for a residential use. SMC should provide electronic versions (CD or DVD) of the input data, model procedures, and aforementioned model results of its groundwater flow and transport modeling using the MODFLOW-SURFACT model.

4. (Section 3.7.8) SMC should provide the existing radiological data for the SMC site from the 1990's to the present for all onsite, and offsite groundwater, surface water, and stream sediment monitoring sites.

Basis:

The NRC staff must evaluate the impact of site-generated radionuclides on the groundwater, surface water, and stream sediment to understand existing and potential fate and transport of site-generated radionuclides at the SMC site. Furthermore, SMC has not demonstrated whether site-generated radionuclides have moved offsite. Data on the aforementioned parameters are essential for the NRC staff to assess whether these radionuclides have migrated offsite.

The radiological data for the site's groundwater (the 2004 and 2005 sampling events in the ER) do not contain an adequate number of samples up gradient or down gradient (with respect to groundwater flow) of the slag pile area to characterize the radiological conditions.

Path Forward:

Provide a tabular summary of all groundwater, surface water, and stream sediment investigations conducted at the site. SMC should provide all existing radiological data for this site from the 1990's to the present for all upgradient (including background), onsite, and downgradient groundwater, surface water, and stream sediment monitoring sites. Provide those data not previously transmitted to the NRC for radiological characterization.

SMC should provide an updated figure delineating the location of all groundwater, surface water, and stream sediment monitoring sites from the 1990s to the present. The figure should include background, upgradient, onsite, and downgradient sampling locations.

If the existing data for these parameters are not adequate for characterization, then SMC should develop additional upgradient, onsite, and downgradient groundwater monitoring sites to collect the radiological data.

SMC should list its sampling and analytical procedures, minimum detectable concentrations, and uncertainty for all radiological analyses performed on the above requested water and sediment samples.

SMC should summarize how the measured characterization data support the volume estimates of radioactive materials accumulated in the Storage Yard and in other areas (such as the T12 Tank and the sediments in the Hudson Branch), and the estimated labor and waste disposal volumes required for the proposed action.

5. (Section 3.7.8) An evaluation of potential leachate (radionuclides and other inorganic materials) movement from the consolidated radioactive materials (slag and baghouse dust) to the saturated zone (Upper Cohansey sands) needs to be provided for current and future conditions.

Basis:

The NRC staff is unable to adequately assess the potential dose to humans and the impact on the environment without an understanding of the potential for leaching of radionuclides from the consolidated radioactive materials into the vadose and saturated zones.

Path Forward:

SMC should perform an evaluation of current and potential leachate generated from the consolidated radioactive materials. This evaluation should include the current and potential leachate transport through the vadose zone into the saturated zone with site developed/estimated hydraulic conductivities (K) and distribution coefficients (Kd).

The evaluation of current and potential leachate generated by the proposed action should consider all types of accumulated materials including the various types of slag, baghouse dust, building rubble, and soil.

6. (Section 5.2.2.2.1) SMC should indicate the volume and type of soil that will be used in the engineered barrier that will overlie the consolidated radionuclide-bearing materials in the Storage Yard.

Basis:

The NRC staff will need the volume and type of soil used in the engineered barrier to evaluate both runoff and evapotranspiration from the cap.

Path Forward:

SMC should identify the volume and type of soil that will be used in the engineered barrier and its appropriate soil parameters that impact runoff and evapotranspiration from the cap.

7. (Section 4.4) Provide bases for the radionuclide concentrations for materials to be consolidated into the restricted area cell.

Basis:

Descriptions of the radionuclide concentrations proposed for consolidation in the engineered cell in the restricted area are needed to support the dose assessments for the restricted area. Based on the information provided in the DP (Rev. 1 and Rev. 1a), SMC has not provided a sufficient basis for the radionuclide concentrations for these materials. Without support for this information, the NRC staff cannot conclude that the dose assessments are acceptable.

Section 5.2.1.2 of the DP (Rev. 1a) discusses the restricted area source term to be used in the dose assessments. This section refers to Section 4.4 and Table 17.7 of the DP (Rev. 1) for radionuclide content of the various materials to be consolidated in the restricted area.

Generally, Section 4.4 does not provide references for the statements about radionuclide content of the materials to be consolidated. Section 4.4.1 does include footnote 54, which briefly describes that the radionuclide concentrations for materials formerly in the haul road were estimated to be 18 pCi/g for each of the uranium and thorium series, based on exposure rates relative to exposure rates for the ferrocolumbium slag. Details of this calculation were not provided.

Table 17.7 summarizes radionuclide concentrations for three materials: slag, baghouse dust, and radioactive soil, and provides a derived source term to represent the combination of materials proposed for consolidation in the restricted area cell. Table 17.7 provides references, given in footnotes 167–171. Footnote 167 cites the 1992 characterization report (IT 1992a). However, the NRC staff was unable to find information describing radionuclide concentrations in the slag, baghouse dust, or the excavated haul road soils that are now stockpiled in the Storage Yard in that characterization report.

Footnote 168, related to the slag material, refers to a written communication from Integrated Environmental Management (IEM) to SMC (Berger 1994). This document is a report of the radiological analysis of seven samples of ferrocolumbium slag. The document includes a table of concentrations estimated from gamma spectroscopy analyses of different progeny of the uranium and thorium decay series, with average values from the different progeny measurements. The average values are those SMC has used in Table 17.7 of the DP (Rev. 1); however, SMC has not justified that all measurements were equal in quality. In particular, from examining the measurement results for Bi-214 and Pb-214, the NRC staff has concerns that the samples may not have been sealed or fully equilibrated before the gamma spectroscopy was performed. The results for these two radionuclides are substantially lower than the Ra-226 results, indicating possible disequilibrium. The Tl-208 measurements for the thorium series may also be affected (the average adjusted Tl-208 measurement is lower than the Th-232 and Th-228 measurements). In addition, the sample locations are not described. Thus SMC has not demonstrated that the averages of the seven sample results are representative of the slag, which is the most radioactive source in the Storage Yard.

Footnote 169, related to the baghouse dust, refers to a 1992 SMC ER (SMC 1992). Table 6 of this ER provides information on the mass of thorium and uranium contained in slags and the baghouse dust (called the “lime pile”). The NRC staff has two concerns. First, the mass values were converted into equivalent activity concentrations of Th-232 and U-238. These activity concentrations differ substantially from the values reported in Table 17.7 of the DP (Rev. 1). In particular, the 1992 ER values indicate a much higher concentration of Th-232 than of U-238, which differs from the values provided in Table 17.7 of the DP (Rev. 1). Second, the 1992 ER data are not supported with any references, so the basis of the information is unknown.

In its April 24, 2007, response to the NRC staff request for additional information, SMC provided additional information on radionuclide concentrations in the baghouse dust material. An ORISE report (1997) and a letter from IEM (Berger 1995) indicate radionuclide concentrations substantially different from that provided in Table 17.7 of the DP (Rev. 1).

Footnote 170, related to the radioactive soil, refers to a final status survey of the haul road (IEM 1999). The materials of concern are radioactive soils from the haul road, that were removed and transferred to a pile in the Storage Yard. No information on radionuclide concentrations in the soils that were scraped from the haul road and moved to the Storage Yard could be located in this document (IEM 1999).

Footnote 171 relates to the derived source term that is intended to represent all material proposed for consolidation in the restricted area cell. This footnote states that the derived source term values were calculated from the concentrations in the slag, baghouse dust, and soil, weighted by the masses of the three components. Masses for 12 areas of radioactive materials are provided in Table 17.1 of the DP (Rev. 1). It is unclear to the NRC staff which type of material (i.e., slag, baghouse dust, or radioactive soil) is assumed for some of these areas. The DP (Rev. 1) does not fully describe how the weighted average concentrations for the derived source term was determined.

To summarize, based on the above inconsistencies, lack of supporting data, and lack of transparent calculations, the radionuclide concentrations used for the derived source term of the materials proposed for consolidation in the restricted area cell are insufficiently supported for use in the dose assessments.

Path Forward:

Provide a detailed discussion of the development of the radionuclide concentrations used for the derived source term of the materials proposed for consolidation in the restricted area cell. Supporting measurement data should be provided.

8. (Section 4.4 and Table 17.1) Provide bases for the volumes of materials proposed for consolidation into the restricted area cell.

Basis:

The volumes of materials proposed for consolidation in the engineered cell in the restricted area should be described to support the dose assessments for the restricted area (in part, the volumes are used to develop the “derived source term” or average source term concentrations). The volume of materials are also needed to support the cost estimates for alternatives and to support the cost-benefit analysis and ALARA evaluation. Based on the information in the DP (Rev. 1 and Rev. 1a), SMC has not provided a sufficient basis for the volumes for these materials. Without support for this information, the NRC staff cannot conclude that the dose assessments and ALARA evaluations are acceptable.

Section 5.2.2.2.2 of the DP (Rev. 1a) discusses the contaminated zone layer of the proposed cell in the restricted area, including the total volume of 65,800 m^3. This section refers to Table 17.1 of the DP (Rev. 1) for volumes of the various materials to be consolidated in the restricted area (that make up the total). Table 17.1 does not reference the source for this volume information.

In addition, Section 4.4.1 of the DP (Rev. 1) discusses volumes of ferrocolumbium slag, baghouse dust, and soil excavated during the haul road remediation. Though there is not a clear one-to-one correspondence between these materials and the areas described in Table 17.1, the volumes are inconsistent.

Path Forward:

Provide a detailed discussion of the volume estimates developed for the materials proposed for consolidation in the restricted area cell. Supporting measurement data should be provided, as appropriate.

9. (Chapters 4 and 5) Provide a complete discussion about radiological contamination in the Hudson Branch, and how the radiological criteria are or will be met.

Basis:

The status of radiological contamination in the Hudson Branch has not been sufficiently described for the NRC staff to be able to conclude that the radiological criteria will be met.

Section 4.4 of the DP (Rev. 1) indicates that residual radioactivity was identified in the Hudson Branch watershed in the late 1980s. It is stated that a radiological risk assessment for the Hudson Branch (IT 1992b) showed that the radionuclide concentrations presented an insignificant risk to members of the public. The staff notes, however, that SMC needs to demonstrate that the radiological criteria for unrestricted use (the Hudson Branch is located in the proposed unrestricted use area of the site) have been met. In addition, the staff notes that the risk assessment indicated that the concentrations of contaminants were based on conditions as they existed in 1991 and that the effect of future (i.e., post-1991) releases were not considered. For the characterization to be applicable, it needs to relate to current and future conditions in the Hudson Branch.

Section 4.4 of the DP (Rev 1.) also refers to the ER (Appendix 19.9 of the DP (Rev 1.)) for additional data on soil sampling. The ER contains, in Maps 6, 7, and 8 of Appendix B, locations and results of soil, sediment, and surface water sampling for U-238, Th-238, and Ra-226. These maps show elevated concentrations compared to background.

Section 4.6 of the DP (Rev. 1) states that surface water collected from the vicinity of the site does not exhibit concentrations elevated above background. The citation for this statement is the Remedial Investigation (RI) report (TRC 1992). However, the RI report

does not contain information on radiological constituents; it only addresses non-radiological contaminants. In addition, the NRC staff notes that the statement (that surface water did not exhibit concentrations elevated above background) appears inconsistent with data in the ER maps [which were taken from the 1992 site characterization report (IT 1992a)], which shows concentrations of U-238, Th-232, and Ra-226 in surface water in or around the Hudson Branch that appear to be elevated above background concentrations.

Section 3.11.1.2 of the ER (Appendix 19.9 of the DP (Rev 1.)) discusses radionuclide concentrations in the Hudson Branch. This section of the ER refers to the 1992 Characterization report (IT 1992a), and states that the characterization report concluded "that the presence of uranium and thorium plus progeny in the sediment samples do not contribute significantly to the ambient background exposure rate in the area." The NRC staff could not find such a conclusion in the IT characterization report (IT 1992a).

The licensee has not demonstrated that the residual radioactivity in the Hudson Branch is acceptable under the dose criteria of the LTR (i.e., 25 mrem/year and ALARA for unrestricted use).

In summary, the information presented in the DP regarding sediment and surface water contamination in the Hudson Branch appears dated, is inconsistent, and is not well supported.

Path Forward:

If the licensee intends no remediation in the Hudson Branch, then SMC should provide a detailed discussion of the residual radioactivity in the Hudson Branch and the basis for concluding that the existing conditions are within the radiological criteria for unrestricted use (i.e., 25 mrem/year and ALARA). Supporting measurement data should be provided.

If the licensee intends to perform radiological remediation in the Hudson Branch, then SMC should describe the planned remediation, and should demonstrate that the remediation will achieve the radiological criteria for unrestricted use (i.e., 25 mrem/year and ALARA). Supporting measurement data should be provided.

10. (Section 4.5) Describe the remedial characterization data that will be needed to evaluate residual radioactivity in soils that have not been identified or sufficiently characterized.

Basis:

Section 4.5 of the DP (Rev. 1) discusses the possible subsurface residual radioactivity that may exist on the site, indicating that slag may have been used as fill at a number of locations throughout the site. This section discusses two such areas, the southwest fence line and the T12 Tank Area, however, the NRC staff could not find a figure in the DP that outlines the locations of these areas. The DP neither describes any plan for remediating these areas, nor provides a plan for determining if remediation is needed or if the current concentrations would meet the dose criteria for unrestricted use.

Footnote 65 of the DP (Rev. 1) states that these areas will be addressed during the site-wide final status survey. This is not sufficient for the NRC staff because a final status survey is designed to demonstrate that areas meet the dose criteria, not to locate areas of contamination nor to evaluate the extent of contamination and the need for remediation. The NRC staff notes that Section 14.1 of the DP (Rev. 1) discusses characterization surveys, but that section does not describe any additional planned characterization work.

The NRC staff is also concerned that SMC mentions the existence of possible subsurface contamination in a number of locations; however, no information on plans to either locate or evaluate areas other than the two described above have been discussed. The NRC staff recognizes that all contamination requiring remediation may be identified before remediation begins. However, characterization should be sufficient to bound the range of contamination present at the sites. Without further plans in this regard, the NRC staff is unable to conclude that SMC will be successful in identifying all radioactive material on the site that could require remediation to meet the unrestricted use criteria.

Path Forward:

SMC should identify additional locations where residual radioactivity exists and evaluate the data needed for those areas (including the two areas already identified) to determine if they meet the dose criteria for unrestricted use or if remediation would be necessary.

In addition, the licensee should describe the locations of the southwest fence line and the T12 Tank Area, including the use of figures or maps, as appropriate.

11. (Section 5) Provide additional input for the responses to the Environmental RAIs (Numbers 7 through 14) that were submitted on March 19, 2007.

Basis:

SMC noted that it will be providing additional input for many of the dose analysis RAIs at a later date. It is stated that this input will be included along with the response to RAI No. 11. However, some of the NRC staff questions were not answered, and it's unclear if SMC will be providing a response to those RAIs at a later date. For example, for RAI No. 9, staff asked for SMC to provide the approach used to identify sensitive parameters, but no description was provided. For the action to be taken related to RAI No. 9, SMC does not state whether it will be providing a response to this question at a later date.

Path Forward:

Provide complete responses to each of the questions that NRC staff transmitted on March 19, 2007.

12. (Section 5) Identify the category for each type of scenario analyzed.

Basis:

SMC based its compliance scenario(s) on reasonably foreseeable land use. NRC guidance (NUREG-1757, Vol. 2) recommends that the licensee identify what land uses are less likely but plausible (i.e. not for compliance but to provide insights) and evaluate scenarios consistent with these less likely but plausible land uses when choosing the reasonably foreseeable land use. SMC has identified and evaluated various scenarios but does not provide a clear distinction between those that are considered reasonably foreseeable and used for compliance and those that are less likely but plausible and presented for information purposes. SMC uses various terms for describing the types of scenarios such as, reasonable, possible although not likely, unlikely and applicable. Using terminology consistent with NRC guidance would allow staff to clearly understand the intended category for each scenario.

Path Forward:

Clearly identify each scenario analyzed according to the terminology provided in Table 5.1 of NUREG-1757, Vol. 2.

13. (Section 5.3) Provide additional support for assumptions made regarding the receptor location.

Basis:

In determining what are considered reasonably foreseeable land uses of the site, SMC needs to provide additional support to bolster its assumptions. Specifically, SMC makes assumptions about the unlikelihood of residential and farming encroachment, but doesn't relate this to how the existing surrounding land-use has or has not changed over time. SMC's basis for why encroachment of residential and/or farming will not occur is reliance on the long-term control (LTC) license. The LTC license applies only to the restricted area. Therefore, staff does not see how the LTC license would prevent encroachment outside of and up to the fence line of the restricted area. The NRC staff also questions the validity of this assumption considering that there is evidence of residences being built in the area. Also, according to Figure 3-2 of Vol. III of the DP (Rev. 1), a portion of the SMC site is considered a suburban planning area and the remainder of the site as a rural/environmental sensitive planning area. Further, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) restrictions related to soil contamination do not provide a strong basis for preventing future construction after soil remediation is complete.

It is also unclear why it is appropriate to assume that a residence will not be located closer to the engineered barrier than 1000 feet away from the restricted boundary[1]

[1]SMC's Supplement to the DP (Rev. 1a) assumes that the hypothetical resident is to be located 1000 feet from the boundary of the restricted area; however, the Microshield analysis seems to reflect an assumption that the receptor is 1000 feet from the pile. In addition, Section 1.2 of the DP (Rev. 1) states that the nearest off-site resident is located 100 feet from the property. This statement contradicts the assumption that was made in the dose assessment.

(Section 5.3.3.2), especially in light of the fact that part of the site will be released for unrestricted use. Under the controls-fail scenario, no discussion is provided as to why a residence could not be located within the boundaries of the restricted area, even if the residence is not assumed to be located on top of the engineered barrier. Based on Figure 18.6, which shows the planned layout of the engineered barrier following decommissioning, there appears to be more than an acre of available land within the restricted area. Further, no discussion or explanation is provided as to why an industrial worker will only be located outside of the restricted area. This assumption is questionable, especially if access controls to the restricted area fail.

Path Forward:

Provide a map that identifies the location of the CERCLA well restriction area. Provide a map that identifies the location of the nearest residence relative to the SMC site, and correct the DP, as appropriate. Justify the assumed location of the residence and industrial worker in relation to the proposed engineered barrier, in light of potential uses of the site, failure of access controls to the restricted area, and given current surrounding land-use trends. Alternatively, re-evaluate the potential doses for these scenarios considering a closer location relative to the proposed engineered barrier, including one within the restricted area when controls fail.

14. (Section 5.3) Provide additional information on agricultural uses in the area.

Basis:

SMC does not analyze a resident farmer scenario but does not justify its exclusion as a plausible scenario. Section 3 of Vol. III of the DP (Rev. 1) explains that several acres of land in Gloucester County and Cumberland County are used for agricultural purposes, and it states that prime and unique farmlands (based on soil type) were identified in the vicinity of the SMC facility. Figure 1.1 of Vol. III shows farmland that is owned by SMC. However, uses for this farmland are not explained. In response to RAI No. 11 of the March 19, 2007, Environmental RAIs, SMC mentions anticipated continued agricultural use of the surrounding area. SMC needs to provide justification for excluding the resident farmer scenario.

Path Forward:

Identify farms or agricultural activities occurring within the vicinity of the SMC site and give their proximity to the site. Specifically, explain whether the farmlands in the area are used for cattle grazing. Identify what crops, if any, are grown on the adjacent farmlands. Provide details (i.e. type of agricultural activities and location) on the type of agricultural activities that SMC references in the aforementioned RAI responses. Explain any other future plans for agricultural activities in the area. Provide justification for excluding the resident farmer scenario or include a resident farmer scenario in the dose analysis. The justification should explain how potential uses of the site differ from current agricultural land use trends in the region.

15. (Section 5.3.3.1) Clarify the discrepancy regarding the cover erosion rate under the controls-fail scenario.

Basis:

In Section 5.3.3.1 of the DP (Rev. 1a), SMC assumes that the cover will be maintained and does not erode while institutional controls are in place. This statement is inconsistent with the corresponding scenario, which is analyzed under the conditions when controls fail.

Path Forward:

Revise the statement regarding the cover erosion rate for the recreational scenario when controls fail. Explain whether SMC assumes that this cover will or will not erode. In addition, provide a basis for this assumption given the proposed cover design and performance of that design over 1000 years.

16. (Section 5.3.3.3) Justify exclusion of the ingestion and inhalation pathways for the excavation scenario.

Basis:

In Section 5.3.3.3 of the DP (Rev. 1a), SMC states that slag is hard and difficult to chip or pulverize, which eliminates the potential for ingestion or inhalation of radioactive materials. However, soil and baghouse dust will also be a part of the slag pile matrix which allows for the potential for ingestion or inhalation of radioactive materials.

Path Forward:

Provide stronger justification for the elimination of the ingestion and inhalation pathway for the excavation scenario or include these pathways in the analysis.

17. (Section 5.4.3.3) Provide appropriate characterization of the radioactive solids, slag, baghouse dust, and soil, to support a source term for the performance assessment model.

Basis:

The slag at the SMC site is a result of a thermoelectric process to extract niobium and tantalum from ore for use as additives in steelmaking. Characterization of slags resulting from similar extraction processes on similar ores at other sites in the eastern U.S. suggest that they are generally composed of relatively exotic minerals in a glassy matrix. NUREG-1703 (Veblen et al., 2004), entitled “Characterization of Radioactive Slags,” describes material from these other decommissioning sites where niobium and tantalum were extracted from ores likely similar to those used at SMC. The radionuclides at these other sites were distributed variably in some of the crystalline and glass phases that constitute the slags. Some of the crystalline phases appear to be refractory, i.e. weather resistant, while other phases could be more susceptible to weathering. Glass, for example, generally, weathers to clays. The weathering process can result in the release of radionuclides dissolved in the various phases. The slag at

the SMC site has not been adequately characterized to constrain its performance as a source term.

Various standardized methods have been used to determine the radionuclide release rate from the slag, the slag leachability or solubility-limited concentration of radionuclides in groundwater in contact with the slag at SMC. For example, in 1991 and 1992, the slag was analyzed using the American National Standards Institute/American Nuclear Society Standard (ANSI)16.1-1986 (letters from Rieman to Fawaz). The DP (Rev. 1) mentions that a sample of slag was analyzed using EPA's Toxicity Characteristic Leaching Procedure (TCLP) 13.1. Three slag samples were also analyzed using ASTM D4319. However, application of the results of each of these standardized methods to constrain the performance of the slag as a source term suffers from the non-site-specific physical and chemical aspects of the methods.

For example, the ANSI 16.1 test involves the leaching of a cylinder of dimensions specified by the standard method. However, leaching of the slag is most likely surface-area dependent. Over the regulatory period, weathering of the slag could result in an increase in surface area. The surface area effect on leachability is uncertain.

SMC applied the TCLP to several slag samples to determine leachability. It is unclear how the results of those leaching procedures were used in the performance assessment. TCLP is a relatively aggressive procedure, but its non-site-specific chemistry makes application of its results uncertain. The licensee recognizes the unique physical and chemical characteristics of the slag as evidenced in the September 16, 2005, letter from Carol Berger to David Smith (Appendix 19.4) which states that "While default distribution coefficients are available as part of the code's supporting database, the unusual physical and chemical characteristics of the slag and baghouse dust were thought to present actual distribution coefficients that differ significantly from the defaults." The code that is referred to is RESRAD.

SMC modeled the site performance with RESRAD. One abstraction method to describe a source term in RESRAD involves using Kd values of the contaminated zone. SMC used the ASTM D4319 standardized procedure to determine the Kd values of the slag and baghouse dust. Distribution coefficients describe the ratio of the concentration of radioelements on the solids to the concentration in the coexisting liquids when the processes controlling the distribution are sorption and desorption. However, if the slag at SMC is similar to those described in NUREG-1703, the radionuclides are most likely dissolved in the phases of the slag. Consequently, applying a distribution coefficient, Kd, to describe the partitioning of radionuclides between the solids and the coexisting groundwater, is inappropriate. The ASTM D4319 analytical method describes contacting uncontaminated granular material with groundwater traced with a radionuclide of concern for no more than 14 days. Using radioactive slag and uncontaminated groundwater would be inconsistent with this procedure, especially if the processes affecting radionuclide partitioning are not sorption-desorption.

Instead of characterizing the isotopic composition of the slag in the DP, SMC assumes secular equilibria among the decay progeny. This assumption is intended to maximize the concentration of contaminants in the source term for the performance assessment. However, maximum concentrations in the source term do not necessarily lead to conservative estimates of dose to the receptor when multiple exposure pathways are

expected. Valuable information on leachability may be obtainable by analysis of the isotopes of the decay series. For example, Ra-228 is a decay product of Th-232. With a half-life of 5.76 yrs, Ra-228, in a 20 year-old undisturbed slag, should approach secular equilibrium with the Th-232 parent. If this is not the case, then leaching would be suggested over the time period since the slag has been stored. NUREG/CR-6632, Solubility and Leaching in Site Decommissioning Management Plan (SDMP) Slags (Felmy et al., 2002), describes an example where isotopic analyses of slag from another decommissioning site in the eastern U.S. showed progeny that were not in secular equilibrium with the Ra-226 parent. The authors suggested that the material was porous enough that gaseous Rn-222, the first decay product of Ra-226, had time to escape, (half-life 3.3 days), before itself decaying to solid Po-218. At another site described in this study no disequilibria was evident, suggesting this material was less permeable.

The leachability of the slag over the 1000-year regulatory period is uncertain. As the slag weathers, physical degradation and mineral alteration could affect the leach rate or release of radionuclides. An increase in surface area could result in higher release rates as the surfaces dissolve or possibly lower rates due to increased sorption sites. NUREG/CR-6632 (Felmy et al., 2002) also demonstrated that Th solubility increased significantly at low pH values. Whether low pH could occur within the regulatory period at SMC is uncertain.

Path Forward:

Characterize the stored materials to estimate the leachability of the slag and baghouse dust. This would include an analysis of the existing radionuclides, parents and decay products, to determine the extent of secular equilibrium. Also, SMC should identify in which phases in the slag the radionuclides are contained. This information would help to justify the leaching mechanism responsible for release of the radionuclides. Sampling should capture the variability of material types (e.g. slag, baghouse dust, radioactive concrete, and radioactive soils). Leaching/solubility procedures should include determining the effects of surface area/particle size, experiment duration, and range of future water chemistries on radionuclide concentrations in the groundwater.

18. (Section 5.4.3.3) Provide adequate characterization of sorption parameters for use in the performance assessment.

Basis:

Table 17.5 lists Kd values for actinium, protactinium, lead, radium, thorium, and uranium in the contaminated zone, unsaturated zone, and the saturated zone. It is noted that for actinium and protactinium, different Kd values are provided for the saturated zone compared to the contaminated and unsaturated zones. The source for these values was Sheppard and Thibault 1990. The lead values are the same for all three zones with the source being RESRAD default (Yu et al., 2001). On the other hand, the partition coefficients for radium, thorium and uranium are site-specific, determined by laboratory analysis. These site-specific parameters do not vary for the different zones.

Given that SMC chose Kd values for some of the radionuclides that depend on the zones in which they are located, it seems inconsistent that the site-specific measurements would not also show a zone dependency. This may be a result of limited sampling.

The Kd values associated with the slags are large. Large Kd values for the soil underlying the contaminated zone is not demonstrated. By assuming large Kd values, the leached radionuclides can be stored on the solids, reducing the exposure to the receptor.

Path Forward:

Determine the Kd values for each of the zones to be used in the performance assessment or explain why the values in the DP are adequate.

19. (Appendix E) SMC should provide information regarding riprap gradations, riprap durability, and quality assurance procedures for rock production and placement.

Basis:

Staff review of the DP (Rev. 1 and Rev. 1a) indicates that little or no information is provided regarding the gradations, durability, and quality assurance procedures that will be used for the side slope rock and the apron rock. Riprap gradation information is needed to determine if the gradations meet minimum criteria for size and uniformity. The gradation information should be provided for staff review and approval prior to production of the rock. Examples of acceptable gradations may be found in NUREG-1623 and NUREG-1757.

Additional information is needed to assess the durability of the proposed rock. SMC should select a rock source, perform durability testing using the tests suggested in NUREG-1623 and NUREG-1757, perform petrographic examination(s), and provide the data for staff review.

Path Forward:

Provide additional information regarding the quality assurance (QA) programs, quality control (QC) programs, testing procedures, and inspection procedures that will be used during construction to confirm rock gradations, rock layer thicknesses, and rock quality. The information should include the specific tests and the frequency of testing. General guidance may be found in NUREG-1623 and NUREG-1757.

SMC should select a rock source and indicate the quarry and source that will be used. As discussed above, SMC should provide detailed information and test data regarding gradations, durability, and QA/QC procedures that will be used for the selected rock source. If there is significant variability in the rock source at the quarry, SMC should provide additional information regarding the QA/QC programs that will be implemented at the quarry to assure consistency in rock production.

20. (Sections 5.2.2.2.1, 5.3.3, and 5.4.3.2) Correct the statements related to the use of a geomembrane in the engineered barrier

Basis:

In the DP (Rev. 1a), SMC has indicates in drawings that the geomembrane has been eliminated from the engineered barrier design. However, Section 5.2.2.2.1, Section 5.3.3, and Section 5.4.3.2 of the same DP still refer to a geomembrane.

Path Forward:

Correct these and any other inconsistencies in the DP so the entire document reflects the latest design information.

21. (Section 5.3) Correct discussion in the DP regarding the engineered barrier and its relation to the groundwater pathway considerations.

Basis:

Section 5.3 of the DP (Rev. 1), Exposure Scenarios, indicates that one reason for excluding the groundwater pathway is that the engineered barrier is designed to prevent rainwater infiltration into the radioactive material. This is not the case, as the engineered barrier no longer includes a geomembrane in its design, and SMC has not yet identified and characterized the soil cover material.

Path Forward:

Clarify and correct statements made regarding the engineered barrier and its relation to the groundwater pathway considerations of the dose assessment.

22. (Sections 5.4.3.2 and 8.3): Provide an appropriate and complete engineered barrier design and degradation analysis.

Basis:

A complete and accurate assessment of the performance of the engineered barrier system must be provided. To determine compliance with Subpart E for restricted use, an analysis is required of: 1) the contribution of the engineered barrier system toward compliance with the criteria of 10 CFR 20.1403 with institutional controls in place (25 mrem/yr dose); and 2) the contribution of the engineered barrier system toward compliance with the criteria of 10 CFR 20.1403 assuming loss of institutional controls and maintenance such that the barrier may degrade over time (100 mrem/yr dose). NUREG- 1757, Vol. 2, Section 3.5.3, provides guidance on the elements that should be provided to support the assessment of the performance of the engineered barriers, including the degradation mechanisms and real-world conditions expected for the barriers (see RAIs on dose assessment and scenarios).

Path Forward:

Provide an analysis of the impact of the range of disruption/degradation mechanisms and scenarios, and either a comparison of those impacts to the non-conformance level of degradation or a comparison of the resulting doses to the 10 CFR 20.1403 dose criteria. In this analysis, include the engineered barrier geotechnical degradation mechanisms of slope stability, settlement, liquefaction, freeze/thaw, and root penetration, particularly under the loss-of-control conditions. Figure 18.8 of the DP (Rev. 1) shows vegetation on the cover surface. Identify the type of seed mixes to be used and provide a planting schematic that shows the type and location of vegetation that would be planted on the engineered barrier.

23. Evaluate the effect of additional leach test results on the engineered barrier design.

Basis:

SMC's engineered barrier design in the DP (Rev. 1), including the absence of engineered elements to limit infiltration, is based in part on the assumption that there will be insignificant leaching to affect performance. However, this risk-informed basis for the existing cover design is not clearly described. As a result, questions and concerns are raised about the lack of an infiltration barrier, geomembrane, or liner. Furthermore, there is insufficient evidence to support the assumption of no leaching and future leach testing is needed.

Path Forward:

Evaluate the effect of additional slag and baghouse dust leach testing results on dose assessments, and, if necessary for compliance, revise the engineered barrier design and related monitoring and maintenance as appropriate. This revaluation could result in the potential need for added elements to the cover design to reduce potential leaching and transport of radionuclides, such as an infiltration layer to reduce infiltration or a composite rock/vegetative cover to increase evapotranspiration, or both. To risk-inform the design process and evaluate uncertainties in long-term natural processes and engineered barrier performance, consider conducting sensitivity analyses of a range of assumptions for leaching, infiltration, evapotranspiration, cover degradation, and other factors to demonstrate the significance of these key factors and design elements on compliance with the dose criteria. Use the results from these analyses to describe the risk-informed basis for the engineered barrier design.

Furthermore, if the engineered barrier cover design is revised, the proposed long-term monitoring and maintenance activities and annual costs may also need revision along with the trust fund amount.

24. (Sections 5.4.3.2 and 5.4.3.3) Explain or correct inconsistencies in assumptions for material properties.

Basis:

Page 77 of the DP (Rev. 1a), indicates that native site soils have a measured hydraulic conductivity of $6.4x10^{-3}$ cm/sec. However, on page 79, the DP (Rev. 1a) indicates that native materials have a hydraulic conductivity of $5.4x10^{-8}$ cm/sec.

Page 74 of the DP (Rev. 1a), indicates that cover densities were assumed based on density of site material, yet in other sections, the DP indicates SMC's plans to use unidentified off-site materials.

Path Forward:

Explain or correct the apparent inconsistencies in the dose assessment assumptions for hydraulic conductivity and density of cover materials and sub-soils. Identify the source for the off-site materials.

25. (Section 8.3) Provide information related to the final design, construction, monitoring, and maintenance of the engineered barrier.

Basis:

Section 8.3 of the DP (Rev. 1) indicates that a "final design and specification for the engineered barrier" will be provided in a subsequent submission after the DP has been approved. This same section provides a long list of information, analyses, and plans that SMC will include in this future, post-DP-approval submission. Lacking this information, a typical statement provided at this time in the DP is, "Soil material for the engineered barrier will be secured from a certified off-site source, and will be of appropriate grain size and quality to be stable." Much of the information planned for the future submission is necessary for the scenario analysis of the dose assessment, and thus is needed to enable a complete review of the DP. Further, in opposition to the SMC intention to submit monitoring and maintenance plans after DP approval, Section 17.7.4 of NUREG-1757, Vol. 1, indicates that site maintenance and long-term monitoring information needs to be provided in the DP. The specifics are necessary at this time to provide a solid basis for revising the projected costs for monitoring and maintenance provided in Table 17.14 of the DP (Rev. 1).

Path Forward:

Provide more specific and detailed information on the engineered barrier design, sequence of engineered barrier construction activities, monitoring, and maintenance as itemized in the list in Section 8.3, page 95. Include engineered barrier design details, geotechnical characterization and testing of materials, QA and QC plans for construction, the Operation and Maintenance Plan, information on post-closure monitoring, and revisions to the current surveillance and monitoring costs (Table 17.14) once the actual monitoring and maintenance has been identified. Supporting

information should include schematics and cross sections of the restricted area cell/engineered barrier. Provide a description of the equipment (for example, bulldozers and front-end loaders) that will be used for constructing the engineered barrier and plans for survey and decontamination of the equipment.

26. (Section 8.3) Additional information and analyses should be provided if SMC intends to use rounded rock for erosion protection.

Basis:

Based on discussions during the on-site technical meeting, SMC indicated that rounded rock may be used for erosion protection at this site. However, the method used to calculate rock sizes (Abt-Johnson Method in NUREG-1623) is based on the use of angular rock. If rounded rock is used, the rock may need to be about 40% larger.

Path Forward:

SMC should select a rock source as soon as possible. If rounded rock will be used, SMC should discuss the effects on the required size of the rock.

27. (Sections 7 and 16) Eligibility criteria of 10 CFR 20.1403(a): Demonstrate clearly what method SMC is using to show compliance with 10 CFR 20.1403(a), the eligibility requirements for use of restricted use.

Basis:

The NRC regulation in 10 CFR 20.1403(a), which the staff often refers to as the eligibility requirements for restricted use decommissioning, provides two options for demonstrating eligibility. For eligibility, the licensee may demonstrate that further reductions in residual radioactivity to comply with the unrestricted use criteria either: (1) would result in net public or environmental harm; or (2) were not being made because the residual levels associated with restricted conditions are ALARA. In the DP, the licensee has stated that the proposed approach is ALARA (Rev. 1, Section 7), and (Rev. 1a, Section 16.1) and has also stated that "further reductions in radioactivity at the site, such as that associated with the LT Alternative [i.e., license termination for unrestricted use], would result in net public harm." The licensee has not clearly demonstrated either of these two options, and it is unclear which option (or whether both options) is intended.

Path Forward:

To demonstrate compliance with 10 CFR 20.1403(a), clarify which of the two options (or both) is intended to demonstrate compliance: that further reductions in residual radioactivity to comply with the unrestricted use criteria: (1) would result in net public or environmental harm; or (2) were not being made because the residual levels associated with restricted conditions are ALARA.

28. (Section 7) Eligibility criteria of 10 CFR 20.1403(a): If asserting net public or environmental harm, then demonstrate net harm.

Basis:

Section N.2 of NUREG-1757 (Vol. 2, Rev. 1), provides guidance on demonstrating net public or environmental harm. The calculation of net public or environmental harm is a special case of a general cost-benefit comparison that calculates net harm by comparing benefits to the cost of doses, injuries, and fatalities incurred. The calculation does not consider the monetary cost of performing remediation. In the DP (Rev. 1), the licensee has calculated net harm, without the cost of remediation.

Path Forward:

If the licensee asserts net public or environmental harm as the basis for compliance with 10 CFR 20.1403(a), then the licensee must demonstrate that there is net harm, and the public or environmental benefits must be compared to detriments, without including the cost of the action in the equation.

29. (Section 7) Eligibility criteria of 10 CFR 20.1403(a): If asserting ALARA for the eligibility requirements, then incremental changes to the proposed restricted use approach should be evaluated.

Basis:

Appendix N of NUREG-1757, Vol. 2, provides guidance on performing ALARA analyses for decommissioning. In typical ALARA analyses, incremental changes in the approach, which would reduce doses, are evaluated to determine if the changes are ALARA. This could be thought of as fine tuning the approach, from the ALARA perspective. The DP does not provide any consideration of incremental changes to the proposed restricted use approach.

Path Forward:

Include, as part of the ALARA analysis, consideration of incremental changes to the proposed restricted use approach. If the licensee believes there are no such incremental changes to evaluate, the licensee should provide a justification.

30. (Section 7) Eligibility criteria of 10 CFR 20.1403(a): If asserting ALARA for the eligibility requirements, benefits and detriments should be compared.

Basis:

Appendix N of NUREG-1757, Vol. 2, provides guidance on performing ALARA analyses for decommissioning. An ALARA analysis should compare costs (detriments) with benefits to determine if the costs are reasonable for the benefits provided. Table N.1 of Appendix N lists some of the benefits and detriments that may be applicable. The primary (but not the only) benefit is generally the collective dose averted in the future.

The NRC staff notes that SMC has considered the doses *incurred* for each alternative to be costs, rather than evaluating averted doses as benefits. This approach makes it difficult to understand the benefits potentially achieved for the costs of a given alternative.

Path Forward:

For the ALARA analysis, the licensee should compare benefits to detriments or costs. The licensee should evaluate the doses *averted* as a benefit of each alternative.

31. (Section 7) Eligibility criteria of 10 CFR 20.1403(a): Address minimal incremental actions necessary to achieve unrestricted use.

Basis:

Based on the wording of 10 CFR 20.1403(a), the NRC staff considers that the demonstration of compliance should evaluate incremental measures that could be taken to comply with the unrestricted use criteria. In the DP, the licensee evaluated an "LT" (license termination under unrestricted use conditions) alternative, which assumes removal and offsite disposal of all residual radioactive materials in the Storage Yard. The licensee has not demonstrated that complete removal and offsite disposal is necessary to achieve the unrestricted use criteria. If the amount of remediation work is overestimated, then the cost of the LT alternative would also be overestimated, which would bias the net harm or ALARA comparison away from the unrestricted use option. Thus, the unrestricted use option considered should be an option with minimal incremental remedial actions to achieve the unrestricted use criteria.

Path Forward:

Whether using either the net public or environmental harm option or the ALARA option, the licensee should either evaluate what minimal incremental actions or measures (compared to the proposed action) would be necessary to meet the unrestricted use criteria, or demonstrate that the LT alternative provides the minimum further reduction in residual radioactivity and dose necessary to meet the unrestricted use criteria.

32. (Section 7) Eligibility criteria of 10 CFR 20.1403(a): The licensee's eligibility ALARA analysis should address other societal and socioeconomic considerations.

Basis:

The NRC regulations, in 10 CFR 20.1403(a) and 20.1403(e) require residual radioactivity be ALARA. The regulations define ALARA (§20.1003) as follows:

> "ALARA (acronym for "as low as is reasonably achievable") means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements

> in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest."

Based on the definition, ALARA must take into account improvements relative to other societal and socioeconomic considerations. The Statements of Considerations for the LTR (62FR39069, July 21, 1997) state:

> "To support a request for restricted use, a licensee would perform an ALARA analysis of the risks and benefits of all viable alternatives and include consideration of any detriments. This could include estimated fatalities from transportation accidents that might occur as the result of transport of wastes from cleanup activities, and societal and socioeconomic considerations such as the potential value to the community of unrestricted use of the land."

Guidance in NUREG-1757, Vol. 2, Rev. 1, Section N.1.1, discusses that licensees should account for benefits including changes in land values, aesthetics, and the reduction in public opposition to decommissioning activities the licensee is pursuing. The guidance in Section N.1.1 also states that some benefits can be difficult to quantify; the NRC staff does not require that all benefits be quantified.

The licensee did qualitatively address changes in land value due to restrictions on use, and regulatory costs, but other factors have not been addressed in the ALARA evaluation. In Section 16.5.4 of the DP (Rev. 1a), the licensee describes input obtained from seeking public advice from the site-specific advisory board (SSAB). Part of the advice was that detriments include preventing development of the rest of the site and surrounding properties, concerns about not being able to sub-divide the property, and concerns about property values and rateables. These detriments identified by the public are societal and socioeconomic considerations, and thus should be addressed in the ALARA evaluation.

Path Forward:

SMC's eligibility analysis, for compliance with 10 CFR 20.1403(a), needs to more fully discuss the costs and benefits of the proposed action, and of alternatives to the proposed action. In the eligibility analysis, SMC should include societal and socioeconomic considerations, including the undue burdens identified by the SSAB, considerations identified in the Statements of Consideration for the LTR, and the considerations identified in the NRC staff guidance (NUREG-1757). The licensee should quantify benefits and costs that can reasonably be quantified, to allow better comparison between alternatives. Alternative decommissioning activities such as removal of the radioactive material may produce a societal benefit of reduction in public opposition, which may be difficult to quantify. One approach that would be acceptable to the NRC staff is for the licensee to determine the bases of the public opposition, and to quantify those bases (e.g., quantification of the benefit of avoiding impact on property values versus costs of removing the contaminated material). For other benefits or costs that cannot be

quantified, the licensee should discuss the benefit or cost and should indicate that it cannot quantify that aspect.

33. (Section 7) Eligibility criteria of 10 CFR 20.1403(a): Provide justification for concluding that sale to, and disposal of slag at, the International Uranium Corporation (IUC) uranium mill is not a viable decommissioning option.

Basis:

In the environmental RAIs dated March 19, 2007, the NRC staff asked SMC to provide feasibility analysis calculations and reports that were prepared to examine the economic potential of selling slag material to a uranium mill and/or extracting uranium from the slag. In its responses to the RAIs, dated April 24, 2007, SMC provided correspondence related to discussions with the IUC uranium mill about selling slag material to IUC for uranium extraction. In its responses, SMC concludes that the sale of and disposal of slag at IUC would not be a viable decommissioning option. However, SMC did not provide any supporting information for that conclusion. In the correspondence that SMC provided, there was documentation of SMC's inquiry to IUC, but no documentation of a response from IUC.

Path Forward:

Provide documentation to support the conclusion about the non-feasibility of sending the slag to IUC for uranium extraction.

34. (Section 7 and 16) ALARA analysis under 10 CFR 20.1403(e): Provide an ALARA evaluation of the residual radioactivity under conditions of institutional controls no longer in effect, to demonstrate compliance with 10 CFR 20.1403(e).

Basis:

NRC regulation 10 CFR 20.1403(e) requires that residual radioactivity be reduced such that the dose for conditions when institutional controls are no longer in effect will be ALARA. Chapter 7 of the DP (Rev. 1) and Chapter 16 of the DP (Rev. 1a) discuss ALARA, but do not provide an ALARA discussion of doses for the condition when institutional controls are no longer in effect.

Path Forward:

Provide a demonstration of compliance for §20.1403(e), ALARA for conditions when institutional controls are no longer in effect. This demonstration should evaluate potential incremental changes to the proposed approach and their impact on doses for conditions when institutional controls are no longer in effect.

35. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: Calculate doses or dose averted over the 1000-year compliance period.

Basis:

In Section 7.2.1.2 of the DP (Rev. 1), SMC calculates the collective dose to members of the public over a single lifetime of exposure, that is, 70 years. The compliance period for the dose criteria of the LTR is 1000 years (see 10 CFR 20.1401(d)). Thus, for soil contamination, doses for ALARA evaluations should be calculated over 1000 years.

Path Forward:

For the eligibility and ALARA analyses, the licensee should either calculate doses or doses averted over the 1000-year dose compliance period or justify the alternative used. See NUREG-1757, Section N.1.2.

36. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: For changes in land values, consider land use over the 1000-year compliance period.

Basis:

In Section 7.3.8 of the DP (Rev. 1), SMC discusses changes in land values. In the discussion for the LT alternative, SMC indicates that the existing soil contaminant levels (presumably, the nonradiological contaminants) will likely prevent future residential use of the unrestricted area of the site. While this may be valid for some length of time, SMC is working to complete remediation of the nonradiological contamination of the site. Thus, at some time in the future, it is reasonable that the nonradiological contamination would be reduced such that residential use might be plausible. The compliance period for the LTR is 1000 years, and this time frame should be considered for changes in land values.

Path Forward:

For evaluating changes in land values, the licensee should consider the reasonably foreseeable land uses over the 1000-year compliance period and discuss the status of non-radiological, investigations at the soil site. The licensee should either include evaluation of land uses foreseeable after nonradiological contaminants have been substantially reduced or justify that nonradiological contaminants will not be reduced sufficiently for residential land use.

37. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: Provide a comparison among alternatives of all costs and benefits evaluated.

Basis:

Some of the costs and benefits that SMC has evaluated for the eligibility and ALARA requirements are not quantified in the DP (Rev. 1). In particular, SMC has provided only qualitative discussions of licensing and regulatory costs (Section 7.3.7), change in land values (Section 7.3.8), and environmental impacts (Section 7.3.9). While qualitative evaluations can be acceptable, the licensee has not compared the costs and benefits for all alternatives.

Path Forward:

The licensee needs to compare all the costs and benefits among the alternatives, to complete the eligibility and ALARA analyses. In particular, for costs or benefits that have not been quantified, SMC should still provide sufficient discussion to qualitatively compare the alternatives.

38. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: Provide an evaluation using zero discount rate or with a sensitivity analysis of the discount rate for the present worth calculations for the value of future doses.

Basis:

In Section 7.3.6 of the DP (Rev. 1), SMC calculates the cost of the radiological risks, and applies a discount rate of 3% to calculate the present worth of the future doses. Based on the very long half life of the residual radioactivity at the SMC site, the NRC staff is concerned that use of this discount rate essentially eliminates any value in doses averted in the later years of the compliance period.

The NRC staff guidance on use of discount rates is provided in NUREG-1757, Vol. 2, Section N.5. That guidance refers to NUREG/BR-0058 ("Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission), the most recent version of which is Vol. 4, dated September 2004. Section 4.3.5 of NUREG/BR-0058 indicates that for certain regulatory actions, such as those involving decommissioning and waste disposal, special considerations arise when considering benefits and costs across generations. That section indicates that the analysis should be supplemented with an explicit discussion of intergenerational concerns. This could be done by performing the analysis based on costs and impacts at the time they are incurred, with no present worth conversion, or by performing a sensitivity analysis using lower discount rates.

Path Forward:

The licensee should include some method for analyzing the intergenerational concerns, by including an analysis with no discounting or with a sensitivity analysis of the discount rate. (The NRC staff acknowledges, that as it currently stands, the DP (Rev. 1) is somewhat unclear about whether discounting is applied. The calculations of Section 7.3.6 include use of a 3% discount rate. However, it appears that the costs of the doses included in the Table in Section 7.4 do not include any discounting.)

39. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: Correct the use of the formula and recalculate the results for present worth in the eligibility and ALARA analyses.

Basis:

In Section 7.3.6 of the DP (Rev. 1), SMC calculates the cost of the radiological risks, and applies a discount rate to calculate the present worth of the future doses. In these

calculations, the NRC staff finds acceptable the use of equation N-2 in Appendix N of NUREG-1757, Vol. 2. This equation essentially calculates the present worth as the product of the number of people exposed, the annual dose or dose averted, and the discounting function. In the calculations SMC performed in Section 7.3.6 of the DP (Rev. 1), it appears that rather than using annual dose, a cumulative dose, over 70 years or 30 years, was used. This approach incorrectly calculates present worth.

Path Forward:

If SMC continues to use a discount rate to calculate the present worth of future doses, the calculation should be corrected.

40. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: For doses to members of the public after decommissioning, use more site-specific, unbiased analyses for the dose assessments.

Basis:

Some of the dose calculations for the eligibility and ALARA analyses of Chapter 7 of the DP (Rev. 1) use the regulatory limit as the dose expected for that alternative. This approach is in contrast to SMC's use of site-specific analyses for the dose assessments used to demonstrate compliance with the dose criteria. Use of the generic values, rather than site-specific values may bias the results of the ALARA analyses. Appendix N of NUREG-1757, Vol. 2, recommends that ALARA analyses use unbiased dose estimates.

Path Forward:

The licensee should either use more site-specific, unbiased dose estimates for the ALARA analyses or demonstrate why the values used do not inappropriately bias the results of the eligibility and ALARA analyses.

41. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: Correct inconsistencies in the eligibility and ALARA analyses.

Basis:

As noted elsewhere, the DP (Rev. 1) has inconsistently used discount rates. As a result, the dollar values attributed for the three alternatives are inconsistent amongst Section 7.3.6, the table in Section 7.4, and Table 17.9 of the DP (Rev. 1). In addition, the dollar value of doses has been used inconsistently. In some cases, a value of $20,000 per person-rem is used, while in other cases, a value of $2,000 per person-rem is used.

Path Forward:

The licensee should either be consistent in the eligibility and ALARA analyses, or should justify the inconsistencies.

42. (Section 7) Calculations of costs and benefits for eligibility and ALARA analyses: Provide more complete justification for the analysis of rail accidents.

Basis:

The licensee discusses rail transportation accidents and risks in Section 7.2.3 of the DP (Rev. 1). The NRC staff has two concerns with the assessment of rail accident fatality risk for the LT (unrestricted use license termination) alternative. First, SMC has used a fatality risk coefficient of 2.3×10^{-7} (units were not provided in the DP). The reference for the risk coefficient is data from 2004 from the Federal Railroad Administration (FRA), as detailed in footnote 187 of the DP (Rev. 1). The NRC staff downloaded the rail safety data from 2004 (FRA 2007), but the overall fatality risk coefficient does not appear consistent with the value used by SMC.

Second, it appears to the NRC staff that SMC has incorrectly used the railroad fatality data. Based on how SMC applies the fatality risk coefficient, the units appear to be fatalities per rail car mile. However, the FRA describes the units used for reporting fatalities as per train-mile, and defines train and train-mile in its guide to preparing accident reports (FRA 2003). If the fatality coefficient is multiplied by the number of rail car miles rather than train-miles, the expected fatalities would be overestimated.

Path Forward:

The licensee should provide additional details on and justification for the rail fatality risk coefficient used in the eligibility and ALARA analyses. If appropriate, the licensee should revise the calculation to correctly apply the risk coefficient.

43. (Section 9.2) SMC should provide information on how Radiation Work Permits (RWPs) are developed, reviewed, and implemented.

Basis:

Radioactive material work procedures/practices (such as RWPs) are developed, reviewed, implemented, and managed so that the licensee's proposed health and safety program complies with the regulatory requirements of 10 CFR Parts 19 and 20, and is adequate to protect workers from ionizing radiation during decommissioning activities (see NUREG-1757, Section 17.2.5).

The DP (Rev. 1) states that details of how individuals performing procedures in the RWP will be informed of those procedures, will be provided to NRC by the decommissioning contractor before start up of on-site work. This information should be included in the DP rather than before start up of on-site work.

Path Forward:

Provide information about how radioactive material work procedures/practices (such as RWPs) will be developed, reviewed, implemented, and managed to comply with the regulatory requirements and protect workers from ionizing radiation during decommissioning activities.

44. (Section 9.3) Provide information to describe responsibilities, authorities and minimum qualification of all positions listed in Figure 18.10.

Basis:

The NRC staff needs to determine whether individuals performing the various project management and safety functions are qualified for these functions. SMC did not provide this information for anyone below the Site Health & Safety Officer on Figure 18.10. In addition, SMC did not provide NRC with the qualifications of any newly hired employees or replacements for the positions noted on Figure 18.10.

Path Forward:

SMC should submit information regarding responsibilities and authorities and minimum qualifications of all positions listed in Figure 18.10. SMC also should describe how it will provide NRC with the qualifications of any newly hired employees or replacements for these positions.

45. (Section 9.3) Provide information regarding the authority to stop work.

Basis:

Information should be sufficient to allow the NRC staff to understand the relationship between the various organizational units within the decommissioning organization (such as remedial activities and health and safety units), including the responsibilities and authority to revise or stop work. In reviewing Section 9.3 of the DP (Rev. 1), it appears that the only positions with authority to stop work are the Radiation Safety Officer and the Site Health & Safety Officer. The NRC staff believes that the Quality Assurance Officer (QAO) should also be able to stop work.

Path Forward:

SMC should describe which positions have the authority to stop work and under what conditions. If the QAO does not have the authority to stop work, provide an explanation for this position.

46. (Section 9.3.1) The Radiation Safety Officer (RSO) needs to meet more stringent requirements than those described in the DP.

Basis:

The DP (Rev. 1) description of qualifications of the RSO position is deficient in meeting the criteria described in NUREG-1757. The RSO needs to have at least 1 year of health physics experience and the specialized knowledge described in the Evaluation Findings of NUREG-1757, Section 17.2.3.1.

Path Forward:

SMC should revise the DP (Rev. 1) description of its qualifications for the RSO.

47. (Sections 9.4.2 and 9.4.3) SMC should provide information on how it will determine qualifications of its general employees and radiation workers.

Basis:

Information needs to be provided to document that the licensee has the personnel resources to safely conduct and manage the decommissioning of its facility. DP (Rev. 1) Sections 9.4.2 (General Employee Training) and 9.4.3 (Radiation Worker Training) rely on self-graded exams to test employee proficiency.

Path Forward:

SMC should identify who will have authority over the general employees and the radiation workers, and how those in authority will determine the qualifications of the general employees and radiation workers.

48. (Section 13) The DP does not discuss the revision of quality assurance (QA) documents.

Basis:

Information needs to be provided regarding SMC's procedures to ensure that changes to documents are reviewed and approved by the same organizations as those that performed the initial review and approval, or by other qualified responsible organizations delegated by SMC. The procedures should ensure that documents are available at the location where the activity will be performed prior to commencing work. Furthermore, procedures should be established to ensure that obsolete or superseded documents are removed and replaced by applicable revisions in work areas in a timely manner.

Path Forward:

SMC should address how its QA documents will be revised. In addition, SMC should explain how its process for revising the documents will be as rigorous as the process used to develop them.

49. (Section 13.1) There appear to be inconsistencies in the titles and functions of personnel.

Basis:

The QA program should have adequate controls in place to support the decommissioning activities. Furthermore, the licensee's description of its organizational structure should be such to document that persons and organizations performing quality affecting activities have sufficient authority and freedom to identify quality problems, provide solutions, and verify that solutions have been implemented. The authority and duties of persons and organizations performing functions related to meeting the performance objectives must be clearly established and delineated in writing, including both the performing functions of attaining the requisite quality of work (quality achieving) and the assurance functions of verifying the attainment of quality (quality assuring). Designated QA personnel should be sufficiently free from direct pressures resulting from cost and schedule, have the responsibility, delineated in writing, to stop unsatisfactory work, and control further processing or delivery of nonconforming material.

Section 13.1 of the DP (Rev. 1) refers to the "Project Manager" and the "Decommissioning Project Manager". Are these positions the same? Only the Project Manager appears on the Organization Chart provided in Figure 18.10. Similarly, reference is made to the QAO yet Section 13.1.1 refers to a Quality Assurance Manager.

Furthermore, as evidenced by the Organization Chart provided in Figure 18.10, it appears that the QAO reports directly to the Decommissioning Contractor. The NRC staff is concerned that this position in the organization may not give the QAO the necessary independence. Also, the QAO should have stop work authority. According to the DP (Rev. 1), it appears that only the SMC Radiation Safety Officer and the Site Health & Safety Officer have the authority for stop work decisions.

Path Forward:

Be consistent in terminology, and correct Figure 18.10 to reflect the actual organization. Explain how the QAO will be afforded sufficient authority and freedom to identify quality problems, provide solutions, stop work, and verify that solutions have been implemented. Explain whether the QAO is a contractor or an SMC employee. It must be clear that quality is the responsibility of SMC, not the contractor.

50. (Section 13.1) Overall control and authority rests with the licensee.

Basis:

The licensee needs to have adequate controls in place to support the decommissioning activities. Major delegations of work should be fully described, and in each case, organizational responsibilities and methods for control of the work by the applicant should be described, including how responsibility for delegated work is to be retained and exercised.

The licensee and its contractors should evaluate the performance of work delegated to other organizations, including audits/surveillances of the contractor's QA programs and audits/surveillances of subcontractors, consultants, and vendors furnishing equipment or services to the applicant or its contractors. The frequency and method of this evaluation should be specified.

However, Section 13.1 of the DP (Rev. 1) states that ultimate responsibility for implementing the elements of the QA Program rests with the Decommissioning Project Manager. Elsewhere, Section 13.1 of DP (Rev. 1) states that overall control and authority for radiation protection will rest with the Project Manager. These and similar statements should be revised as the overall control and authority always rests with the licensee.

Path Forward:

SMC should revise its organizational structure so that overall control and authority rests with the licensee. Major delegations of work should be fully described and in each case, organizational responsibilities and methods for control of the work by the applicant should be described, including how responsibility for delegated work is to be retained and exercised.

51. (Section 13.1) The DP refers to the use of a summary of the Decommissioning Contractor's corporate QA policy rather than the licensee's corporate QA Policy.

Basis:

As previously noted, overall control and authority rests with the licensee. Therefore, the corporate QA policy should be that of the licensee.

Path Forward:

Pursuant to NUREG-1757, Section 17.6.2, the licensee should submit a summary of the licensee's corporate QA policy.

52. (Section 13.2) The DP is inconsistent with NRC's policies in stating that the Quality Assurance Program Plan (QAPP) will be provided to the NRC for review and acceptance.

Basis:

There is no need to submit the QAPP for NRC review and acceptance. The NRC staff does not review and approve QAPPs. However, the NRC staff does review the overall QA program to assure that adequate controls are in place to perform decommissioning activities. NRC inspectors review and evaluate implementation of the QA procedures during inspection of the site.

Path Forward:

SMC should explain how it will develop, implement and revise its QAPP and demonstrate that revisions to the QAPP will be made with the same rigor as the original development of the QAPP. Furthermore, the frequency and method of revisions to the QAPP should be specified.

53. (Section 13.2.3) The DP states that the off-site laboratory will be responsible for assuring that all appropriate laboratory personnel are thoroughly familiar with the QAPP.

Basis:

It is not necessary for the off-site laboratory personnel to be thoroughly familiar with the QAPP. Use of a chain-of-custody process would be acceptable to the NRC staff.

Path Forward:

Shieldalloy should consider whether to hold the off-site laboratory responsible for being thoroughly familiar with Shieldalloy's QAPP or use a chain-of-custody process. If SMC opts to use the chain-of-custody process, it should be described including responsibilities of the individuals involved.

54. (Section 13.4) The DP discusses control of Measuring and Test Equipment but does not provide a summary of Measuring and Test Equipment that will be used during decommissioning activities.

Basis:

Pursuant to NUREG-1757, Section 17.6.4, the information supplied by the licensee should be sufficient to allow the staff to fully understand the methods and procedures that the licensee will use to ensure that only accurate and calibrated test and measurement equipment will be used during the decommissioning project.

Path Forward:

The description of the test and measurement equipment QA program should include: a summary of the test and measurement equipment used in the program; a description of how and at what frequency the equipment will be calibrated; a description of the daily calibration checks that will be performed on each piece of test or measurement equipment; and a description of the documentation that will be maintained to demonstrate that only properly calibrated and maintained equipment was used during the decommissioning.

55. (Section 14) Submit final status survey plan.

Basis:

Section 14.3.2 of the DP (Rev. 1) states that a final status survey plan (FSSP) will be prepared using guidance in NUREG-1757 and in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575. The licensee has included some general plans in the DP, but details are generally not provided. The NRC staff cannot complete its review until the FSSP is provided. Based on the information submitted in Chapter 14 of the DP (Rev. 1), the NRC staff has initial concerns described in the following RAIs.

Path Forward:

The licensee should submit the FSSP.

56. (Section 14) Justify the approach for determinations of area classification for final status surveys.

Basis:

Section 14.3.4 and Figure 18.11 of the DP (Rev. 1) describe the classification of areas for the final status surveys, generally using the MARSSIM designations. The NRC staff is concerned with the approach presented. Section 14.3.4 states that the classifications for the site and surrounding areas are based on current radiological information. Yet it appears to the NRC staff that radiological information is not yet available for all survey units. The DP (Rev. 1) does not describe the individual survey units; Figure 18.11 is not detailed enough to describe the actual survey units, and does not clearly describe the bounds of the expected FSS. The staff suggests that historical site assessment information (historical operational information and measurement data) should be used in determining area classifications. In addition, Section 14.3.4 states that all areas that are not Class 1 or Class 2 areas will be designated Class 3. This is opposite to the usual MARSSIM approach, which is to assume that all areas are Class 1, unless there is information to demonstrate otherwise (see the MARSSIM, Section 4.4).

Path Forward:

The licensee should either provide additional justification for its approach to determining area classifications, or should consider modifying the approach. The licensee should use all available information (including historical and current radiological information) to determine area classifications.

57. (Section 14) Provide justification for statements about adequacy of characterization.

Basis:

Section 14.1 of the DP (Rev. 1) contains conclusions about the adequacy of characterization surveys, some of which are not supported in the DP. The characterization appears to be based primarily on the 1991 survey by IT Corporation. That study did not cover all areas of the site and surrounding area. Section 14.1.5 of the DP (Rev. 1) discusses unimpacted areas, but the DP does not show any areas considered to be unimpacted.

Section 14.1.6 of the DP (Rev. 1) states that information from characterization and other surveys confirms that no significant quantities of residual radioactivity have migrated past the restricted areas. However, the DP describes areas of contamination that are outside of the restricted areas shown in Figure 18.2. Also, results of the 1991 characterization indicate some contamination outside the site boundaries, including on the north side of the Storage Yard and in and along the Hudson Branch on the south side of the site. The NRC staff believes that these areas have not yet been adequately characterized to demonstrate the absence of significant contamination.

Section 14.1.6 also states that all areas of the Newfield facility have been surveyed or sampled as part of the 1991 characterization effort, routine surveillance efforts, or as part of a facility-specific decommissioning effort. This is not supported in the DP.

Path Forward:

If the licensee is relying on statements or conclusions about the adequacy of characterization efforts, it should support those statements by explaining how and when these areas were characterized and why that was sufficient. If, instead, the licensee plans further characterization of certain areas prior to the Final Status Survey (FSS), then the licensee should indicate this.

58. (Section 14) Provide complete plans for final status surveys of buildings.

Basis:

Section 14.3.2 of the DP (Rev. 1) indicates that building surfaces will be surveyed as part of the FSS, and Derived Concentration Guideline Limits (DCGL) for building surfaces are discussed (here and in Table 17.11). However, most of the rest of Section 14.3 does not mention the FSS for building surfaces. Section 14.3.6 only discusses survey unit size for outdoor soil survey units and Section 14.3.11 only discusses survey and sampling for soils.

In addition, it appears that the minimum detectable concentrations (MDCs) for surface scanning measurements, given in Table 17.12 of the DP (Rev. 1), are inconsistent with the proposed DCGLs for building surfaces. From Table 17.11 of the DP (Rev. 1), the proposed gross alpha DCGL (accounting for uranium and thorium decay series) is 9 dpm/100 cm^2. Per MARSSIM guidance, the scan MDCs should usually be as low as (or lower than) the DCGL, the scan MDC is 100 dpm/100 cm^2 according to Table 17.12.

Path Forward:

The licensee should provide a FSS Plan that addresses building surface surveys. The licensee should justify adequacy of the MDCs, relative to the DCGLs for building surfaces.

59. (Section 14) Clarify the applicability of the proposed criteria for release of materials and equipment.

Basis:

Section 14.2.1 of the DP (Rev. 1) describes release surveys for materials and equipment used during decommissioning. The criteria proposed are intended for materials that are only contaminated surficially. However, the licensee has not indicated that the approach and criteria are to be used only for surface-contaminated materials and equipment. The NRC staff notes that in Section 8.1 of the DP (Rev. 1), SMC proposed release of portions of concrete pads. Such concrete may be volumetrically contaminated.

Path Forward:

The licensee should clarify that the criteria will only be applied to surface-contaminated materials. If the licensee intends to release materials or equipment that becomes volumetrically contaminated, the licensee should describe and justify criteria to be used.

60. (Section 15) Update the cost estimate for decommissioning and the amount of funding necessary for the long-term control and maintenance fund.

Basis:

The license needs to make adequate arrangements to ensure that the site will be maintained in accordance with the proposed institutional controls.

Path Forward:

To the extent that costs to meet the conditions of the LTC license may change in response to the RAIs transmitted here, update the cost estimate for decommissioning and the amount of funding necessary for the long-term control and maintenance fund. The update should include changes that affect cost such as changes in the volume of material proposed for consolidation in the cell, changes in cap construction, and changes in long-term monitoring and maintenance.

61. (Section 16.3.1) Update the status of the State's response regarding the State government role in providing a durable institutional control or independent third party arrangement.

Basis:

NRC recognizes that on May 24, 2006, SMC forwarded a letter to the State of New Jersey formally asking if the State would accept responsibility for ownership, control or independent third-party oversight of the Newfield site. The State requested information about these roles from NRC, and NRC provided a response in an October 11, 2006, letter. The State also requested financial disclosure information from SMC in letters dated January 25, 2006, and August 3, 2006. SMC responded to the State in a letter dated May 31, 2007. It is not yet clear how the State will respond. However, NRC will proceed under the assumption that the State will not accept a role. This assumption is based on the written record that documents the State's apparent objection to the restricted use alternative in general and to the LTC license as a legal mechanism to provide institutional controls. This assumption is also based on the following statement made by the State representative and member of the SSAB during the September 21, 2005, SSAB meeting: "They put out the plan without asking first whether or not we would be interested in working with it. And after we saw the revision of the original document, no, we're not interested in overseeing it." Finally, NRC does not know when or even if the State might provide its decision based on the following quote from a State official attending the December 6, 2006, NRC public meeting, "the State has not determined if it will accept the material at Shieldalloy for ownership control or third party oversight. So we don't believe that the NRC can accept a decommissioning plan if the State has not made a decision."

Path Forward:

SMC should revise Section 16.3.1 of the DP (Rev. 1) to describe the status of its request and indicate that it will continue to propose the LTC license option based on the record summarized above that indicates the State of New Jersey is likely to reject a role. However, SMC should continue its communications with the State and provide NRC with the State's response when it is received. The DP should also explain that the State's response is not part of the initial eligibility requirement for restricted use under 10 CFR 20. 1403(a), as stated in the State's April 5, 2007, letter. The State's response is part of NRC's institutional control selection process described in the decommissioning guidance and as such is not a regulatory requirement. In that regard, if no response from the state is received prior to the amendment for the LTC license, NRC will interact with the State to determine if it will accept the oversight role. Note that the discussion of selecting institutional controls and the LTC license should be presented in Section 16.3.1 and not in Section 16.2, "Eligibility Demonstration".

62. (Section 16.3.1) Clarify the basis for not selecting a local government role with durable institutional control or independent third party arrangements.

Basis:

The DP (Rev. 1a) incorrectly states that NRC rejected the Borough of Newfield as a durable institutional control (page 23, Appendix H). NRC rejected the SMC proposal in DP (Rev. 0) for institutional controls because it simply stated that SMC would eventually transfer their site ownership to some local or state government entity, and no discussion or commitment was given regarding the capability or willingness by any government entity to accept institutional control responsibility in perpetuity. However, NRC's guidance on the graded approach in NUREG-1757 identifies that State or Federal government ownership or control would be appropriate rather than a local government when durable institutional controls are necessary, such as for sites with long-lived radionuclides.

Path Forward:

Revise Section 16.3.1 of the DP (Rev. 1) to reflect the discussion above and correct the record.

63. (Section 16.3.1) Correct the discussion in the DP that NRC has agreed to issue the LTC license as part of the overall approval of the DP.

Basis:

In Section 16.3.1 of the DP (Rev. 1a), SMC states that "The USNRC has agreed to issue the LTC license as part of the overall approval of this Decommissioning Plan." This statement is unclear and could be misunderstood. NRC did not agree to issue the LTC license at the time of DP approval. NRC agreed that SMC could propose the LTC license as a legally enforceable and durable institutional control in its revised DP. NRC's interim guidance for SMC and the guidance in NUREG-1757 clearly indicate that the license would be amended (not issued) to become the LTC license after decommissioning activities are completed and approved by NRC. These activities would include construction of the restricted area cell and cover, the final status survey report that confirms compliance with the dose criteria of the LTR, and submittal/approval of the Long-Term Control Plan. Therefore, at the time NRC would approve a DP, the future use of the LTC license would be conditionally approved pending completion and approval of the activities noted above. This general approach is consistent with the discussion of schedules in Section 8.5 of the DP (Rev. 1).

Path Forward:

Revise the statement in Section 16.3.1 to be consistent with Section 8.5 and the NRC guidance on the LTC license as summarized above.

64. (Section 16.3.1) Correct the statements regarding NRC terminating the LTC license.

Basis:

Section 16.3.1 of the DP (Rev. 1a) states that "In the event of SMC default in the terms and conditions of the LTC license, the USNRC has the authority to terminate the license, assume control of the funds held in trust, and contract the services of a third party to implement the license requirements." This statement is unclear and could be misunderstood.

Path Forward:

Section 16.3.1 should be revised as follows: "Under the LTC license, SMC would be legally required to remain in compliance with the conditions of the license and, as with any licensee, take the necessary corrective actions if they are not in compliance." Furthermore, NRC could take a variety of actions, including enforcement, to correct compliance problems.

65. (Section 16.3.1) Clarify the purpose of the proposed deed notice.

Basis:

In Section 16.3.1, a deed notice is proposed as a secondary means of ensuring institutional controls by prohibiting listed uses and notifying future owners of the LTC license and restrictions on the land. NRC guidance only envisions the deed notice as a secondary institutional control for the single purpose to notify future landowners of the restricted area under a NRC LTC license. Therefore, the deed notice is not recognized by NRC as a legally enforceable method of restricting future land use. NRC relies on the LTC license for this purpose.

Path Forward:

SMC has two options. First, Section 16.3.1 could be revised to discuss the purpose of the deed notice as described above and in NRC's guidance (note that footnote 97 of Section 5.3 provides a better discussion of the deed notice and LTC license than Section 16.3.1). Second, SMC could describe why it believes the deed notice is a legally enforceable institutional control that can restrict future site use, in addition to simply informing future owners of NRC's LTC license.

66. (Section 16.3.1) Identification of institutional controls and their role in compliance.

Basis:

Section 5 of the DP (Rev. 1) appears to take credit for restrictions associated with

existing institutional controls, including the natural resources conservation area adjacent to the restricted area. However, these types of institutional controls are not identified or described in Section 16.3.1 of the DP (Rev. 1) on institutional controls. Therefore, the DP is unclear regarding these institutional controls and their role in compliance.

Path Forward:

Clarify the discussion in Section 16.3.1 to indicate the existing institutional controls and their role, if any, in demonstrating compliance.

67. (Section 16.3.1) The discussion of prohibited and permitted uses of the restricted area is scattered and unclear.

Basis:

Section 16.3.1 discusses prohibited and permitted uses under the deed notice, but no prohibited and permitted uses are discussed under the LTC license which is the primary institutional control. Furthermore, Section 16.3.2, identifies some other uses of the restricted area that would be restricted, such as excavation and drilling.

Path Forward:

Section 16.3.1 should be revised to provide one clear and comprehensive discussion of both prohibited and permitted uses based on the risk insights from dose assessments and analyses of human processes that could disrupt the performance of the engineered barrier. It should be clear that both prohibited and permitted uses should eventually be incorporated into the LTC license, LTC Plan, and be provided for information in the deed notice. For permitted uses, the licensee should reference dose assessment results as a basis for demonstrating that the hours per year that workers would need for inspection and maintenance will be safe and thus permitted. These results could also be used for concluding that inspections by others, such as NRC or the State will also be safe, and therefore permitted.

68. (Section 16.3.2) Clarify the use of barricades to restrict access to the restricted area.

Basis:

Section 16.3.2 identifies activities to control access including fencing, warning signs along the fence line and all access points (gates). Section 16.4 also identifies maintaining the barricading of roads that surround or approach the restricted area.

Path Forward:

Further discuss the purpose, extent, and method proposed for barricading the restricted area, including the roads. If major excavation that requires use of heavy equipment is considered an adverse disruptive human process, the design of the engineered barriers should discourage the potential for future excavation of the cover with heavy equipment.

Describe the barricade materials such as very large sized durable rock that may be low maintenance and not need replacement, or concrete that could need maintenance and replacement.

69. (Section 16.4) Long-term monitoring plans in Section 16.4 are incomplete and no risk-informed basis is given.

Basis:

To ensure a complete long-term monitoring plan, NRC's decommissioning guidance describes a risk-informed process that would result in a sound basis for the long-term monitoring activities. This process includes a systematic identification of disruptive processes that could lead to non-compliance with NRC's dose criteria and then an analysis of each process to identify the type of monitoring, detection of indicators or precursors of disruptive processes, location and frequency.

Path Forward:

Reevaluate the monitoring activities in the DP using the process described above and in NRC's decommissioning guidance. Revise the discussion of monitoring activities based on this evaluation, and describe the basis for the monitoring identified. Consider long-term monitoring of: groundwater contamination; slag and baghouse weathering and leaching; settlement of the cover and disruption of the shielding and erosion cover. The LTC plan that would eventually be proposed after decommissioning activities are completed should identify the detailed procedures.

Revise the cost estimates in Section 15.1 of the DP (Rev. 1) to reflect the revised long-term monitoring plan as described in the DP (Rev. 1).

70. (Section 16.4) Long-term maintenance plans in Section 16.4 are incomplete and no risk-informed basis is given.

Basis:

To ensure a complete long-term maintenance plan, NRC's decommissioning guidance describes a risk-informed process that would result in a sound basis for the long-term maintenance activities. This process includes a systematic identification of disruptive processes that could lead to non-compliance with NRC's dose criteria and then an analysis of each process and planned monitoring to identify the type of maintenance/corrective actions that would be conducted.

Section 16.4, page 158 of the DP (Rev. 1) briefly notes that the engineered barrier was designed to perform even if maintenance does not take place. However, this brief statement does not provide an understanding of how the engineered barrier was designed to accomplish this and that NRC's decommissioning guidance describes how to design robust erosion barriers that would not need active ongoing maintenance. This regulatory approach is consistent with the approach required by the Uranium Mill Tailings Radiation Control Act and implemented by NRC for erosion covers at uranium mill tailing impoundments.

Path Forward:

Reevaluate the maintenance activities in the DP using the process described above and in NRC's decommissioning guidance. Revise the maintenance activities based on this evaluation, and describe the basis for the maintenance identified. Consider long-term maintenance of the following actions: cover settlement, disruption of the shielding and erosion cover, and the duration of maintenance.

Revise the cost estimates in Section 15.1 of the DP (Rev. 1) for the revised long-term maintenance plans.

Add a discussion of the robust design of the erosion barrier and how the design provides the basis for no ongoing active maintenance or periodic repair.

71. (Section 16) An opportunity should be provided for continued SSAB meetings to inform the SSAB of changes that might result from the NRC RAIs.

Basis:

SMC's response to NRC Issue No. 18 in the June 30, 2006 letter on SSAB interactions, identified an action to be taken to schedule a follow-on meeting with the SSAB as soon as there is sufficient SSAB interest. Additional information will be available from the SMC response to NRC RAIs. Therefore, as a matter of good practice SMC should keep the SSAB informed if there is SSAB interest. NRC recognizes that some members of the SSAB will continue to provide their input as part of the EIS and hearing processes.

Path Forward:

As a follow-on to NRC issue No. 18 and as a matter of good practice, SMC should determine if there is interest in future SSAB meetings to keep the SSAB informed. SMC could discuss the NRC RAIs related to the four questions and its responses. SMC and the SSAB may also want to discuss other topics for general information and background for the four questions.

72. (Section 16.5) Provide a response to the SSAB, local community, and other affected parties that explains the reasons why SMC believes it cannot select the removal alternative.

Basis:

The SSAB members, local community, and State officials have strongly expressed their opposition to SMC's proposed alternative to leave accumulated materials in place and to restrict future site use with an NRC LTC license. They also have identified what they believe are undue burdens that would result from this alternative. NRC recognizes that a licensee can propose its preferred decommissioning alternative for NRC review and that for restricted use sites, it must also seek advice from the affected parties on four questions related to the use of institutional controls and sufficient financial assurance. While licensees are not required to follow or incorporate the advice of the affected parties, they are required by 10 CFR 20.1403 (d) to incorporate, as appropriate, following

analysis of that advice. The evaluation of SSAB advice in Section 16.5.4 of the DP (Rev. 1) identified and evaluated numerous issues and three undue burdens identified by the SSAB. While the SMC evaluations addressed the specific issues and burdens, the evaluations did not provide insight on why SMC continues to propose the LTC alternative even after evaluating the undue burdens and the continued strong opposition by the SSAB and community. NRC's guidance states that a licensee should describe its reasons for not incorporating the advice provided by the affected parties. It would be insightful and useful to understand what reasons are preventing SMC from proposing the removal alternative. Although limited funding has been generally discussed, specific funding limitations and supporting evidence should be documented.

Path Forward:

Discuss the reasons why the removal alternative is not feasible for SMC and provide evidence that documents the reasons. Include a discussion of obstacles to removal for reuse and removal for disposal. For example, if applicable, include a thorough discussion and evidence of insufficient funds for disposal, considering all potential sources of funds such as funds available to SMC, as well as funds which some parties might assume could be available from the SMC holding company and disposal options, such as partial removal of radioactive material, potential disposal at facilities other than Energy*Solutions*.

73. (Section 16) No identification or description of the total system, its elements and contribution to protection was provided.

Basis:

As noted in NUREG-1757, Sections 17.7.1 and 17.7.3, the NRC staff needs to understand what total system of controls SMC plans to use or has provided for, and the manner in which these controls contribute to protection.

Path Forward:

Use NRC's decommissioning guidance to prepare a description of the total system of controls used to provide protection, its elements, and the purpose and contribution to protection of each element. SMC should provide a discussion that could enhance the NRC staff's understanding of its proposed alternative and help affected parties understand how SMC believes all the elements of their total system work together to provide sustained protection.

MINOR ISSUES / TYPOGRAPHICAL ERRORS

1. In many places in the DP, SMC discusses quantities of thorium and/or uranium. In some cases, the description is unclear as to whether total thorium (or total uranium) is being described, or whether a particular isotope (e.g., Th-232 or U-238) is described. For example, Section 4.4 of the DP (Rev. 1) discusses "23 curies each of uranium and thorium" in the slag and baghouse dust, while the top portion of Table 17.7 of the DP (Rev. 1) reports concentrations of "thorium series," "uranium series," and "actinium series." "Thorium," in Section 4.4 of the DP (Rev. 1), could refer to total thorium, natural thorium, or just Th-232.

"Thorium series," in Table 17.7 of the DP (Rev. 1), could refer to natural thorium (i.e., Th-232 plus Th-228) or to Th-232 (with the assumption that all progeny are also present in equilibrium). SMC should be clear and precise, so that the intended meaning is unambiguous.

2. Section 4.5 of the DP (Rev. 1), first paragraph refers to Figure 18.11 for the location of all deposits, but this is an incorrect figure reference.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP 2 6 2007

Ms. Rebecca Tadesse, Chief
Materials Decommission Branch
Division of Waste Management and
Environmental Protection
United States Nuclear Regulatory Commission
M.S. 8F5
11545 Rockville Pike
Rockville, MD 20852

Subject: Shieldalloy Metallurgical Corporation's
Decommissioning Plan for Newfield, NJ Site

Dear Ms. Tadesse:

This letter is written to inform you that the United States Environmental Protection Agency (EPA) has completed its review of the October 2006 Decommissioning Plan (DP) for the Shieldalloy Metallurgical Corporation (SMC) facility located in Newfield, New Jersey.

EPA's comments on the DP are enclosed. Based on EPA's review, we find that the sampling program performed by Shieldalloy Metallurgical Corporation (SMC) in support of the DP is severely deficient and failed to characterize the extent of radiological waste as well as potential mixed wastes located throughout the site. Areas of significant concern requiring additional characterization include Storage Yard wastes, surface and subsurface soils both on and off of the plant property, underground discharge lines, surface water, sediment, and groundwater. Any decision regarding the remediation of radioactive material at the site can only be made based on a complete characterization of the nature and extent of the radiological contamination found at the site. Therefore, SMC must collect and analyze significant additional data, as outlined in the attached comments, prior to a final decision on the decommissioning of this facility.

Further, since the current risk assessment is based on incomplete site characterization of the radiological contamination, SMC must conduct an appropriate risk assessment after the site characterization is complete. In addition, the risk assessment must address significant exposure pathways which

inhalation of radon decay products in indoor air due to the use of site groundwater, and ingestion of site groundwater and homegrown produce. Additional comments on SMC's risk assessment are attached.

Based on our review of the DP, EPA is concerned that the Long Term Control (LTC) option proposed by SMC in the DP, if implemented, may not be protective of human health and the environment and may not be the best option for addressing the radioactive waste materials found on the facility. Based on the limited data presented in the DP, EPA cannot support the LTC option. EPA believes that the method of decommissioning of the SMC facility may have a significant impact on the Superfund portion of the site and the surrounding communities.

In your March 6, 2007 letter to Mr. Walter Mugdan, of EPA, you indicated that you would like to meet with the EPA to discuss our assessment of the DP. This letter was forwarded to me, as the Superfund Division is the lead division for review of the DP. My technical staff would be happy to meet with your technical staff to go over the enclosed comments upon your request.

If you should have any questions regarding the above, please contact me at (212) 637-4420, or have your staff contract Mr. Trevor Anderson, of my staff, at (212) 637-4425.

Sincerely,

Carole Petersen, Chief
New Jersey Remediation Branch

Enclosure

cc: Donna Gaffigan, NJDEP

EPA's Comment on the Draft Decommissioning Plan for Shieldalloy Metallurgical Corporation, Newfield, New Jersey.

General Comments

1. Overall, EPA considers the proposed Decommissioning Plan (DP) to be inadequate. A decision regarding the remediation of radioactive material at the site can only be made based on a complete characterization of the nature and extent of contamination. The sampling program performed by Shieldalloy Metallurgical Corporation (SMC) is severely deficient and failed to characterize the extent of radiological and potential mixed wastes in the Storage Yard, surface and subsurface soils, underground discharge lines, surface water, sediment, groundwater and areas off of the plant property which appear to be impacted. Further, based on the information provided in the DP, there are significant data gaps pertaining to the radiological characterization of both the shallow and deep groundwater. Problems with the data include: poor data quality control; lack of analysis for all radiological parameters in all sampling events; and insufficient number of samples and sampling locations, specifically, from locations downgradient and cross-gradient of the Storage Yard, processing buildings, and effluent discharge lines.

2. Because of the significant lack of characterization of site contaminants, the risk evaluation performed and the development and analysis of remedial alternatives cannot be supported. The developed risk assessment scenarios were not only deficient and based on incomplete data, they failed to address potentially and very significant exposure pathways such as the inhalation of radon decay products in indoor air due to the use of site groundwater, and ingestion of site groundwater and homegrown produce.

3. For unknown reasons, many of the reports of previous investigations conducted by SMC's contractors were not included in the DP. EPA will need to review all of these reports. Such reports include, in part, the radiological characterization of the processing buildings and Haul Road, certain outdoor radiological investigations (e.g., gamma surveys and background surveys), and the radiological assessment of the Hudson Branch.

4. The DP indicates that greater than 99% of radioactivity remained in the slag and the baghouse dust after processing of raw material. Given the amount of radioactivity that SMC processed (approximately 50 curies), even one-tenth percent (0.5 curie) could have a noticeable impact on groundwater contamination if such levels had remained in liquids during the chromium extraction activities and then migrated to groundwater. The radiological site groundwater investigations performed by SMC were poorly done in both the deep and shallow groundwater. It will be necessary to re-sample existing wells and to install a number of additional wells downgradient and crossgradient of the processing buildings and the Storage Yard for the analyses of radiological parameters. Groundwater sampling for radiological parameters should also be performed within the chemical contaminant plume currently being addressed under a Superfund Record of Decision.

5. To date, SMC has not performed subsurface soil investigations, and has not addressed any underground structures such as drains and discharge lines. The potential presence of non-radiological contamination mixed with radioactivity within these underground discharge lines could constitute a mixed waste issue. It is also possible that soils in the vicinity of the discharge lines could be impacted due to potential deterioration in the discharge lines. Although it is clear from work done under the Superfund program at the site that there are non-radiological contaminants at elevated levels in site soils, there is no mention of this in the DP. SMC is currently storing radiologically contaminated materials and equipment in the Storage Yard. Such equipment is mingled with High Ratio slag and D111 Flex Kleen Bags and D116 Polishing Compound. A determination must be made, based on sampling, as to whether site soils and/or other waste on the site constitute mixed waste.

6. Some of the off-site sediment and surface water sample concentrations of radiological contaminants, in excess of the limits stated in 40CFR192 and the Safe Drinking Water Act, have been identified along the Hudson Branch during previous investigations performed by SMC. SMC stated in their DP that off-site contamination will not be addressed in their future decommissioning activities. This is inappropriate. Only a small portion of the Hudson Branch has been sampled by SMC and the extent of radiological contamination in the Hudson Branch has not been determined. The radiologically impacted Hudson Branch passes through a 19.8 acre farmland parcel which is located approximately 2,000 feet southwest of the SMC site property and has recently been acquired by SMC. Contamination on the farmland parcel and within the Hudson Branch must be fully characterized.

7. The SMC proposed Trust Fund for the Proposed Long Term Control (LTC) program appears severely inadequate to support the LTC alternative. The current estimated amount for the LTC alternative is $5,172,507. This amount only accounts for basic environmental monitoring and minimal maintenance needs. Necessary and important monitoring requirements such as groundwater monitoring downgradient and cross-gradient of the engineered barrier and monitoring of potential moisture build-up within the engineered barrier, due to moisture percolating via the soil beneath the waste pile, are not included in the environmental monitoring program for the LTC alternative. The radioactive waste currently, and under the proposed LTC alternative, sits directly over the soil without a liner to prevent any potential leaching of radioactivity into groundwater. If this alternative were selected, it would require extensive and regular groundwater monitoring to assure that groundwater was not impacted. Further, moisture build-up within the engineered barrier due to percolation via the soil beneath the radioactive waste is a plausible event. Such build-up of moisture within the engineered barrier could adversely impact the integrity of the engineered cap and aid in increasing the potential for radioactivity to leach into groundwater, and would need to be monitored. Additional funding would be required for such sampling over the long-term. It is noted that the maximum half-life of the site-related radionuclides is 14 billion years.

8. The evaluations of alternatives under the "Controls Fail/No Maintenance" scenarios presented in the DP are not comprehensive and were not properly performed. The evaluations are inappropriately biased in favor of the LTC alternative particularly with respect to aspects such as dose modeling, modeling radioactivity leaching to groundwater and associated water resources, and the impact on the surrounding community.

9. SMC cannot propose any portion of the property for unrestricted use unless the current radiological conditions are fully characterized and portions of the site are then shown to have no unacceptable levels of radiological, as well as non-radiological contamination in surface and subsurface soils.

10. The baghouse dust appears to be improperly staged in the Storage Yard. The baghouse dust must be contained to prevent its migration via airborne dust and water run-on/run-off.

11. The groundwater flow contouring (piezometric survey) is too limited and requires expansion to include areas downgradient and cross-gradient of the processing buildings and the Storage Yard. Shallow groundwater monitoring in the area east/southeast of the Storage Yard is also necessary as the groundwater flow in that area could potentially be in the east/southeast radial direction.

12. The NRC License SMB-743 allowed SMC to store licensed source material. This licensed source material is any material that contains greater than 0.05% by weight uranium and thorium radionuclides, which in this case would be the pyrochlore ore and the ferrocolumbium slag. During the course of SMC's operations at the site, very significant volumes, of materials which were radiologically contaminated, but may not meet the definition of source material (non-source materials), such as site soils and equipment, were placed in the Storage Yard, along with the slag. As part of the proposed LTC alternative presented in the DP, SMC plans to consolidate additional radiologically contaminated materials remaining on the plant property into the Storage Yard and place a cap over all of this material. Further, prior to further characterization of waste to be capped under the LTC alternative, it is not clear if significant levels of non-radiological contaminants are mixed in with this waste, such as chromium. Since source material, non-source material and mixed waste all exhibit different characteristics, it is not clear that a capping remedy would be appropriate for all of this waste. An appropriate remedy, or remedies, for this different waste cannot be determined until full characterization of all waste material is completed.

LBP-08-08

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED 06/02/08

ATOMIC SAFETY AND LICENSING BOARD

SERVED 06/02/08

Before Administrative Judges:

Alan S. Rosenthal, Chairman
Dr. Richard E. Wardwell
Dr. William Reed

In the Matter of SHIELDALLOY METALLURGICAL CORP. (Licensing Amendment Request for Decommissioning of the Newfield, New Jersey Facility)	Docket No. 40-7102-MLA ASLBP No. 07-852-01-MLA-BD01 June 2, 2008

MEMORANDUM
(Bringing Matter of Concern to Commission's Attention)

I. INTRODUCTION

Before this Licensing Board is a proceeding involving the decommissioning of an industrial site on which radioactive material is present in sufficient quantities to be of concern to the State in which that site is located. It now is a full decade since the termination in 1998 of the activity generating that material under the auspices of an NRC license. Despite that lengthy period, it appears that this proceeding will remain in a state of suspension for at least another 14 months to await the completion of the NRC Staff's review of the safety and environmental aspects of the licensee's most recently submitted decommissioning plan—a review that commenced more than one and a half years ago. In short, it likely will be at least late 2009 or early 2010 before the concerned State will obtain a hearing on its Board-admitted contention that the submitted plan does not provide adequate protection to its citizenry. In the meantime, not even a portion of the protective measures contemplated by the challenged plan are in place.

Although the Board deems this state of affairs to be unacceptable, it is not empowered to involve itself to any extent in the manner in which the Staff conducts its review of decommissioning plans, including the matter of the degree of urgency that the Staff might attach to conducting and completing the technical review of such plans once in its hands. Moreover, it does not appear that there is much that can be done at this juncture to accelerate the date upon which the concerned State will get its hearing on the challenged decommissioning plan. Nonetheless, the Board believes that it has the responsibility to direct the current situation to the attention of the Commission, which does exercise oversight authority over the manner in which the Staff carries out its functions.

In this regard, we have reason to conclude that what has transpired to date in this case is not susceptible of being brushed aside as simply an aberration that is not reflective of what might be expected in the Staff's treatment of other site decommissioning matters. As will also be discussed below, there is a second case that has received the now-and-again attention of first a presiding officer and then a licensing board ever since early 2000. Although the licensed activity there-involved terminated in 1994, it currently is a virtual certainty that there will not be a viable decommissioning plan submitted to the Staff any earlier than 2011—some 17 years thereafter. It can be said that the lion's share of this extreme delay might appropriately be placed at the doorstep of the licensee. The inescapable fact remains, however, that, at the very least, the Staff has countenanced in that matter a situation that will leave the citizens in the area surrounding the activity site in doubt for close to two decades regarding what measures will ultimately be taken for their protection. In common with the existing situation in the proceeding now before this Board, that hardly seems consistent with the intent underlying the Commission regulation (10 C.F.R. § 40.42) concerned with the decommissioning of sites on which licensed activities have terminated.

II. HISTORY

A. Shieldalloy Decommissioning Proceeding. The site at issue here is owned and operated by Shieldalloy Metallurgical Corporation ("Shieldalloy") located in the Borough of Newfield, Gloucester County, New Jersey. During an extended period beginning in 1940 and ending in June 1998, the facility among other things processed pyrochlore, a concentrated ore containing columbium (niogium), to produce ferrocolumbium, an additive used in the production of specialty steel and super alloy materials. Containing more than 0.05 percent by weight uranium and thorium, pyrochlore is subject to NRC regulation as a radioactive source material.[1] Accordingly, Shieldalloy sought and obtained license No. SMB-743 that entitled it to ship, to receive, to possess, and to store such material.

The decommissioning plan at issue is addressed to a substantial pile of slag and baghouse dust that contains a quantity of radioactive material and is currently present at Shieldalloy's Newfield site.[2] It proposes to retain the pile on an eight-acre parcel within the storage yard at the Newfield site. The primary decommissioning activity contemplated by the plan includes the grading and shaping of the pile, which would then be covered with an engineered barrier consisting principally of native soil and rocks. Long term maintenance and monitoring of this restricted area would then be conducted under NRC Staff supervision.

This proceeding was initiated by the publication of a notice in the Federal Register to the effect that the Commission was considering the issuance of an amendment to Shieldalloy's

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[1] See 10 C.F.R. § 40.4.

[2] The revised decommissioning plan now under NRC Staff review addresses principally an accumulation on the Newfield site of 18,000 cubic meters of slag and 15,000 cubic meters of baghouse dust, all of which contains uranium and thorium. Shieldalloy Metallurgical Corp. (Licensing Amendment Request for Decommissioning of the Newfield, New Jersey Facility), LBP-07-05, 65 NRC 341, 344 (2007).

Source Material License.[3] In response to the notice, hearing requests were filed by, or on behalf of, a number of individuals and entities, among them, the New Jersey Department of Environmental Protection (New Jersey). Determining it fulfilled the requirements needed to meet the standards imposed by 10 C.F.R. § 2.309(f), this Board granted New Jersey's hearing request in March 2007.[4] That grant was based upon the Board's determination that New Jersey had standing and had advanced at least one admissible contention to the effect that the proposed decommissioning would not sufficiently protect the area surrounding the Newfield site from unacceptable environmental harm.[5]

According to the November 2006 Federal Register notice, Shieldalloy had advised the Commission in August 2001 that it ceased using radioactive source material and intended to decommission the Newfield facility.[6] Consequently, the Commission had amended the license in November 2002 to authorize only decommissioning activities. Again, according to the notice, Shieldalloy submitted its initial decommissioning plan on October 21, 2005, which proposed the use of a possession-only license for long-term control of the site. This plan was subsequently rejected by the NRC Staff by letter dated January 26, 2006. A revised decommissioning plan,

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[3] Notice of Consideration of Amendment Request for Decommissioning for Shieldalloy Metallurgical Corporation, Newfield, NJ and Opportunity to Request a Hearing, 71 Fed. Reg. 66,986 (Nov. 17, 2006).

[4] See LBP-07-05, 65 NRC at 341.

[5] Id. at 357-58. Having found acceptable one of New Jersey's contentions, the Board went on to consider whether it should determine at that time the viability of its other contentions. It decided against doing so. Its reason was that there appeared to be a substantial possibility, if not probability, that, as a result of the NRC Staff's technical review, the decommissioning plan would undergo significant alterations that might render many, if not most, of New Jersey's current contentions either academic or in need of major revision. Shieldalloy, LBP-07-05, 65 NRC at 360-61. The Board additionally determined that further proceedings on the adequacy of the decommissioning plan should await the completion of the NRC Staff's technical review. Id. at 359-60. The Commission declined to disturb the Board's decision. See CLI-07-20, 65 NRC 499, 501-02 (2007).

[6] 71 Fed. Reg. at 66,986. The Federal Register notice also stated, however, that ferroalloy production at the Newfield site ceased in June 1998. Id.

submitted on June 30, 2006, was found acceptable by the NRC Staff for the purpose of initiating technical review of the plan that would eventually produce both a safety evaluation report (SER) and an environmental impact statement (EIS).[7]

As a follow-up to its contention admissibility determination, the Board issued an order directing the NRC Staff to file bimonthly status reports, with the first due on June 8, 2007. The reports were to contain both "(1) a brief statement regarding the then status of the technical review; and (2) the Staff's then best estimate as to the completion date of the review and the release of the documents associated with it."[8] For its part, the Commission thereafter issued an order on its own in which it further directed that additional filings be made with the Board by the same date. Specifically, Shieldalloy was to disclose in its filing the status of its decommissioning plan, as well as "any relevant developments such as fundamental shifts in [its] approach to decommissioning the site."[9]

On June 7, 2007, the Board received filings from the Staff and Shieldalloy in compliance with the Commission's directive. On the matter of when the technical review might be completed and the associated documents issued, the Staff indicated that its best estimates were the following: issuance of a final SER in January 2008; publication of a draft EIS in March 2008; and issuance of a final EIS in October 2008.[10]

The Staff has since filed a total of six status reports, with three of them noting slippage in the forecasted schedule. On the basis of the last report, filed this April, it now appears that the final EIS will not surface any earlier than August 2009, if then.[11] In that report, the Staff

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[7] Id.

[8] See Licensing Board Order (Directing the Filing of Status Reports) at 2 (May 8, 2007) (unpublished).

[9] See Shieldalloy, CLI-07-20, 65 NRC at 501-02.

[10] See NRC Staff's First Status Report at 1-2 (June 8, 2007).

[11] See NRC Staff's Sixth Status Report at 2 (Apr. 11, 2008).

indicated that, to provide a full response to the Requests for Additional Information, or "RAIs", Shieldalloy "intends to conduct additional leachability tests on slag and baghouse dust from the Newfield site."[12]

Taking into account the required response times for the current decommissioning plan revision, the schedule now reflects a slippage of nearly one year from that projected in the Staff's initial status report to the Commission and the Board. It thus appeared that it would be more than eleven years after the 1998 termination of the licensed activity before there might be a consideration on the merits of New Jersey's already-admitted contention that the decommissioning plan is not adequate to prevent unacceptable environmental harm. This prompted the Board to hold an April 28 telephone conference with the parties to obtain an explanation as to the nature of Shieldalloy's latest proposed revision to its decommissioning plan, and to be informed as to the reasons why the revision will require more than a year to factor into the technical review. The Board additionally desired to explore with counsel the current measures designed to avoid or at least ameliorate any environmental impacts of the amassed slag and baghouse dust at the Newfield site.

Still further, the Board was concerned that the substantial delay in both the submittal and approval of the decommissioning plan might involve a violation of the NRC regulation, 10 C.F.R. § 40.42, addressing the obligations of a licensee once a licensed activity has terminated.[13] This concern stemmed from the fact that, according to the Federal Register notice, Shieldalloy's initial decommissioning plan had been submitted to Staff in 2005—nearly seven years after its ferroalloy production ceased in 1998.[14]

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[12] Id. at 1-2.

[13] See discussion infra p. 11.

[14] 71 Fed. Reg. at 66,986.

During the April 28 telephone conference, two things became apparent. First, contrary to the background statement in the Federal Register notice, a decommissioning plan had been submitted to the Staff considerably earlier than 2005.[15] Further, interaction between Shieldalloy and the Staff had taken place in the years leading up to and following submittal of its initial decommissioning plan.[16] This revelation led the Board to request detailed written accounts from the Staff and Shieldalloy of precisely what had transpired between 1998 and the submittal of the supposedly revised decommissioning plan in 2005.[17]

Second, it became clear to this Board that no interim protective measures have been put in place at the Newfield site. The pile of slag and baghouse dust remains as it was when Shieldalloy notified the NRC that its production activities had ceased.[18] The central issue in this proceeding is the adequacy of the proposed engineering barrier. During the telephone conference, New Jersey reiterated its concern regarding the inadequacy of Shieldalloy's proposed cap, also stating that "interim measures should be taken" before the decommissioning plan is approved "to prevent the contamination that [is] occurring right now" to the surrounding environment.[19]

On May 8, 2008, in response to the Board's directive, the Staff filed a summary of actions, and Shieldalloy filed a chronology of events, both relevant to the decommissioning of

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[15] Official Transcript [Tr.] at 9-10, 12.

[16] Id. at 16.

[17] Id. at 33-34.

[18] Id. at 19 (Mr. Travieso-Diaz: "One of the features of the decommissioning plan is to provide a very hefty layer of rock cover, and an impervious membrane . . . on top of [the slag and baghouse dust] once the decommissioning plan gets approved. Right now, there is no cover."). See also id. at 21.

[19] Id. at 45.

the Newfield facility.[20] These documents provide a detailed account of events as portrayed by each party and are readily available to the Commission and the public alike through the NRC's Agencywide Documents Access and Management System (ADAMS).[21]

In sum, the parties' submittals portray that Shieldalloy's operations ceased in 1998 with the decommissioning of the facility except for the continuing presence of the slag and baghouse dust at issue here.[22] Shieldalloy thereafter sought to find a market for these waste materials, meanwhile notifying the Staff of its efforts.[23] From 1998 to 2001, the Staff permitted Shieldalloy to delay development of a decommissioning plan and to continue the pursuit of a slag and baghouse dust market. When, after two years that endeavor proved unavailing, Shieldalloy requested, and was granted, an additional year by the Staff to locate a buyer for the slag and baghouse dust.[24] In 2001, Shieldalloy expressed to the Staff its intention to terminate its license and was granted another year to prepare a decommissioning plan; this decommissioning plan (denominated Rev. 0) was submitted in August 2002—more than four years after operations had ceased at the Newfield facility.[25] The August 2002 decommissioning plan was then rejected for its presumption that the State of New Jersey would assume an oversight role for the decommissioning of the site.[26]

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[20] NRC Staff's Summary of Actions Relevant to Decommissioning Shieldalloy's Newfield Facility (May 8, 2008) [hereinafter Staff's Submittal]; Shieldalloy's Submittal Regarding Chronology of Events Related to the Decommissioning of the Newfield, NJ Facility (May 8, 2008) [hereinafter Shieldalloy's Submittal].

[21] Staff's Submittal (ADAMS Accession No. ML081360527); Shieldalloy's Submittal (ADAMS Accession No. ML081350612). Documents available in ADAMS may be accessed on NRC's public website at http://www.nrc.gov/reading-rm/adams/web-based.html.

[22] Staff's Submittal at 4.

[23] Shieldalloy's Submittal at 5; Staff's Submittal at 4.

[24] Staff's Submittal at 4-5.

[25] Id. at 6.

[26] Shieldalloy's Submittal at 6.

From 2002 to 2005, Shieldalloy and the Staff pursued multiple approaches for a restricted license termination with enforceable institutional controls. In October 2005, Shieldalloy submitted a new decommissioning plan (denominated Rev. 1). As with the 2002 plan, it was summarily rejected; this time for deficiencies in dose modeling, surface water hydrology, and erosion protection.[27] These deficiencies were purportedly corrected with the submittal of the decommissioning plan (Rev. 1a) on June 30, 2006.[28] The Board now understands that further delays are occurring as Shieldalloy addresses deficiencies in this latest revision that was docketed by the Staff in late 2006.[29]

B. U.S. Army Decommissioning Proceeding. In recent years, there has been only one other adjudicatory proceeding involving the decommissioning of a facility at which the terminated activity carried out under an NRC materials license had left on site a quantity of radioactive material. The proceeding's history up to the present time is fully chronicled in a recent Licensing Board decision.[30] It is not necessary to rehearse here the detailed account contained in that decision. For present purposes, the following summary should suffice.

For a period of ten years commencing in 1984, under the auspices of a NRC materials license the Department of the Army conducted accuracy testing of depleted uranium (DU) tank

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[27] Staff's Submittal at 8.

[28] Id. at 9.

[29] The Staff in its submittal also indicates that while reviewing Shieldalloy's decommissioning plan, it has taken into account public comments on Rev. 1a, most notably New Jersey's 228 comments and the United States Environmental Protection Agency's 283 distinct comments. Staff's submittal at 11.
In its latest submittal to the Board, Shieldalloy suggested that a substantial portion of the delay was attributed to New Jersey. New Jersey filed a response in defense of these allegations, which is also available publicly in ADAMS. New Jersey Department of Environmental Protection's Reply to the NRC Staff and Shieldalloy Submissions Regarding the Chronology of Decommissioning Events (May 15, 2006) (ADAMS Accession No. ML081440776).

[30] U.S. Army (Jefferson Proving Ground Site), LBP-08-04, 67 NRC ____ (Feb. 28, 2008) (slip op. at 1-11).

penetration rounds at its Jefferson Proving Ground (JPG) site in Indiana. In 1999, some five years after the testing came to a permanent halt, the Army submitted a decommissioning plan to the NRC Staff that purportedly addressed the accumulation of DU munitions that remained on the JPG site. In response to the customary Federal Register notice of opportunity for hearing, a local organization filed a hearing request challenging the plan.[31] In 2000, that request was granted.[32]

More than eight years have now elapsed since the initiation of that proceeding. Yet, not only has there been no resolution of the issues raised by the intervening organization, there is not even a decommissioning plan currently on the table for consideration by either the NRC Staff or a licensing board.

To begin with, both the 1999 decommissioning plan and a revised one submitted in 2001 were withdrawn by the Army, the second in favor of an application in 2003 for a five-year renewable possession-only license (POLA). Then, before the NRC Staff had completed its evaluation of that submission, the POLA application itself was withdrawn and replaced by an Army request in mid-2005 for an alternate schedule amendment to the materials license that would give it an additional five years to complete a site characterization of the JPG site. Thereupon, a new decommissioning plan, incorporating the site characterization, would be submitted to the Staff and presumably be subject to challenge before a licensing board.

The alternate schedule proposal was accepted by the Staff and last February approved by the licensing board over the objections of the intervenor to some features of the methodology the Army intends to employ in carrying out the site characterization.[33] The proposal calls for the submission of a decommissioning plan by 2011. Thus, it will likely be some 17 years after the

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[31] Notice of Consideration of Amendment Request for U.S. Army Jefferson Proving Ground Site in Madison, Indiana, and Opportunity for a Hearing, 64 Fed. Reg. 70,294 (Dec. 16, 1999).

[32] U.S. Army (Jefferson Proving Ground Site), LBP-00-9, 51 NRC 159 (2000).

[33] See Army, LBP-08-04, 67 NRC at __ (slip op. at 57).

testing activity was permanently terminated before the decommissioning plan for the JPG site will next undergo Staff scrutiny.

Moreover, even if the then plan meets with Staff approval, it well might be contested as insufficient by the local organization that has been involved in this matter over the course of more than eight years. In the event of such a contest, it could be another year or two before there is a final determination regarding the measures, if any, that must be taken to ensure that the public health and safety and the environment are not adversely affected by the DU munitions remaining on the JPG site.

III. DISCUSSION

A. The Commission's regulations are most specific with regard to the obligations of the holder of an NRC materials license once either (1) a decision has been reached to cease permanently the principal activities conducted under the aegis of the license; or (2) no such activities have been conducted for a period of 24 months. In such circumstances, the licensee must provide written notification to the NRC Staff within 60 days and, additionally, either (1) begin decommissioning of the site so that the building or outside area is suitable for release in accordance with NRC requirements; or (2) submit a decommissioning plan to the Staff within 12 months of the notification.[34]

Implicit in those requirements would appear to be a recognition that, once a licensed activity has come to an end, the decommissioning of the site should proceed with dispatch to ensure that all measures required to ensure the public health and safety and to protect the environment are seasonably taken.[35] Granted, section 40.42(d) does not establish a time

[34] See 10 C.F.R. § 40.42(d).

[35] See Timeliness in Decommissioning of Materials Facilities, 59 Fed. Reg. 36,026, 36,026 (July 15, 1994) (the timeliness in decommissioning rule incorporated into section 40.42 "is intended to reduce the potential risk to public health and the environment from radioactive material remaining for long periods of time at such facilities after licensed activities have ceased.").

period within which the Staff must make its ultimate determination regarding what decommissioning activities might be necessary in order to provide such assurance and protection. Obviously, what the Staff review will entail in a particular case will be largely dependent upon the complexity of the safety and environmental issues presented in that case. That said, however, it is reasonable to read into the section a contemplation that, upon being apprised of the termination of a licensed activity, the Staff will deem its duty to include seeing to it that all decommissioning issues are approached and resolved as expeditiously as possible. Indeed, is not that the justifiable expectation of those persons who are located in close enough proximity to the site to have legitimate concerns regarding the radioactive materials that remain on site?

In that regard, it often will be in the economic interest of a licensee to put off as long as possible implementing expensive remediation measures, whether determined necessary by the NRC Staff or by a licensing board, in its consideration of an intervenor's challenge to a submitted decommissioning plan.[36] Given that financial reality, it seems to us that there might be a particular obligation on the part of the Staff to insist that the licensee not merely comply strictly with the provisions of section 40.42(d) but, as well, do whatever is thereafter required of it in a sufficiently timely fashion to ensure no unnecessary delay in the accomplishment of site decommissioning.

B. 1. As previously summarized in this memorandum, in submittals provided at our direction, Shieldalloy and the NRC Staff provided full accounts of what has transpired on the decommissioning front since 1998. In addition, New Jersey responded in writing to the Shieldalloy charge that the State bears most of the responsibility for the current state of affairs.[37]

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[36] Although we are not prepared to conclude that such a consideration played a part in Shieldalloy's conduct since it terminated the licensed activity a decade ago, the fact remains that it is faced with at least the possibility of being ordered at day's end to do much more by way of site remediation than it now proposes.

[37] See supra note 29.

We do not intend to freight this memorandum with a close analysis of the content of the several submissions.[38] It is enough to note that we have failed to discern in the submissions of either Shieldalloy or the Staff a sense of anything even remotely approaching urgency with regard to the resolution of the decommissioning issues on the table.

As a consequence, ten years after the licensed activity ceased, there remains on Shieldalloy's Newfield site a large slag pile containing radioactive material. Acting on behalf of its citizens, New Jersey maintains, among other things, that the passage of rainwater through the pile will produce unacceptable groundwater contamination. In that connection, it disputes the adequacy of Shieldalloy's proposal to cap the pile with nothing more than native soil and rock. The validity of that proposal apparently will now not receive a Staff determination for over another year (if not still longer). In the meanwhile, as has been the case for the past decade, the pile will not even have the assertedly inadequate cover called for in the challenged decommissioning plan, or some type of alternate cover, to reduce ongoing impacts.

We think it beyond cavil that the residents of the Newfield area who might possibly be affected by contaminated groundwater were entitled to greater consideration. And, while acknowledging the importance of the Staff taking the time necessary to ensure that the conclusion reached on the issues raised by New Jersey (and any others that occur to it on its own) are fully informed ones, it is worth noting that what is involved here is nothing more than a slag pile. As such, we would think that the Staff inquiry here rates relatively low in comparative complexity among the numerous site decommissioning proposals it confronts.

B. 2. With respect to the JPG decommissioning situation is, it is now some 14 years since the Army terminated the munitions testing on the site. Yet, no decision has been reached regarding what measures are to be taken to ensure that the DU munitions amassed on site do not present an undue radiological safety or environmental threat. Still more to the point, there is

[38] As previously noted, supra note 21, the submissions are available for inspection on ADAMS.

not even a decommissioning plan currently on the table. Instead, as matters now stand, it likely will be at least 2011–some 17 years after the licensed activity came to an end–before the Staff will have in hand a decommissioning plan that might possibly meet with its approval (and that of a licensing board if challenged).

As we have seen, this state of affairs is the product of the Army having waited five years to file its initial decommissioning plan (in seeming violation of Section 40.42(d)) and then, over a period of several years, having changed directions several times. If the Staff had any concern with the erratic course that the Army pursued up to and including its application for an additional five years to come up with yet another decommissioning plan, that concern certainly was not made known. To the contrary, for all appearances, the Staff has seen no problem with the residents of the JPG site area being kept in the dark for conceivably as long as two decades with regard to what (if anything) the Army will be required to do to remediate the site.

IV. CONCLUSION

As this Board sees it, the history of these two decommissioning proceedings speaks for itself. It remains at least possible, of course, that it is not the universally held and applied belief of the NRC Staff that it is appropriate to have decommissioning issues remain unresolved for well over a decade. Nonetheless, there seems to be a substantial possibility that these proceedings do not stand alone as representatives of a more than casual attitude on the Staff's part with regard to the decommissioning of sites on which radioactive materials remain as a potential threat to public health and safety and to the environment.

Given that licensing boards lack the authority themselves to oversee the Staff's performance of its regulatory responsibilities (apart from compliance with the dictates of the National Environmental Policy Act), we are not empowered to inquire further into the matter, let alone to order some corrective measures. Thus, as noted in the introduction to this Memorandum, the sole course available to us is a referral of the matter to the Commission for its consideration.

To avoid any possible misunderstanding, we wish to make it clear that nothing that has been said above should be taken as a criticism of anything that the NRC Staff has substantively done in the course of its technical review in either case. Our concern is exclusively with the pace, and therefore not at all with the content, of the Staff's review. Additionally, we are not suggesting that there are steps that might be taken at this point to accelerate materially decommissioning in the specific proceedings discussed herein. In the totality of the present circumstances, that might well be beyond achievement. (The Commission might, however, wish to make clear to the Staff that it will look with disfavor upon any further slippage in either the August 2009 completion of the Shieldalloy technical review or the Army's submission by 2011 of a new decommissioning plan for the JPG site.) Our primary interest is, instead, in the avoidance of like-protracted delay in the resolution of issues arising in future decommissioning endeavors. Once again, those living in the vicinity of the sites being decommissioned are owed no less.

THE ATOMIC SAFETY
AND LICENSING BOARD*

/RA/

Alan S. Rosenthal, Chairman
ADMINISTRATIVE JUDGE

/RA/

Dr. Richard E. Wardwell
ADMINISTRATIVE JUDGE

/RA/

Dr. William Reed
ADMINISTRATIVE JUDGE

Rockville, Maryland
June 2, 2008

* Copies of this Memorandum were sent by e-mail transmission on this date to counsel for (1) Licensee Shieldalloy Metallurgical Corp.; (2) Intervenor New Jersey Dept. of Environmental Protection; and (3) the NRC Staff. In addition, as a courtesy, copies will be informally provided to the service list in the Army proceeding.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
SHIELDALLOY METALLURGICAL CORP.	)	Docket No. 40-7102-MLA
	)	
(License Amendment Request for Decommissioning the Newfield, New Jersey Facility)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LB MEMORANDUM (BRINGING MATTER OF CONCERN TO COMMISSION'S ATTENTION) (LBP-08-08) have been served upon the following persons by U.S. mail, first class, or through NRC internal distribution.

Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Administrative Judge
Alan S. Rosenthal, Chair
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Administrative Judge
Richard E. Wardwell
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Administrative Judge
William Reed
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Catherine Marco, Esq.
Michael J. Clark, Esq.
Office of the General Counsel
Mail Stop - O-15 D21
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Joseph J. McGovern, Esq.
Parker McCay, P.A.
Three Greentree Centre
7001 Lincoln Drive West
P.O. Box 974
Marlton, NJ 08053

Docket No. 40-7102-MLA
LB MEMORANDUM (BRINGING MATTER OF CONCERN TO COMMISSION'S ATTENTION) - (LBP-08-08)

Jay E. Silberg, Esq.
Matias F. Travieso-Diaz, Esq.
Robert B. Haemer, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 N Street, N.W.
Washington, DC 20037-1128

David R. Smith, Radiation Safety Officer
Shieldalloy Metallurgical Corporation
12 West Boulevard
P.O. Box 768
Newfield, NJ 08344-0768

Loretta Williams
310 Oakwood Drive
P.O. Box 311
Newfield, NJ 08344

Borough of Newfield, New Jersey
c/o John C. Eastlack, Jr., Esq.
Solicitor for the Borough of Newfield
Holston, MacDonald, Uzdavinis, Eastlack, Ziegler & Lodge
66 Euclid Street
Woodbury, NJ 08096

Terry Ragone
Newfield Residents Environmental Group
White Dove Lane
P.O. Box 605
Newfield, NJ 08344

Gary D. Wodlinger, Esq.
110 North 6th Street
Box 729
Vineland, NJ 08362

Stuart Rabner, Esq.
Attorney General of New Jersey
Andrew D. Reese, Esq.
Kenneth Elwell, Esq.
Deputy Attorneys General
New Jersey Office of the Attorney General
Department of Law and Public Safety
Division of Law
25 Market Street
P.O. Box 093
Trenton, NJ 08625-0093

Fred H. Madden, State Senator
David R. Mayer, Assemblyman
Paul Moriarty, Assemblyman
New Jersey Senate and General Assembly
Holly Oak Office Park
129 Johnson Road, Suite 1
Turnersville, NJ 08012

[Original signed by Christine M. Pierpoint]

Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 2nd day of June 2008

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NEW JERSEY

AGREEMENT STATE APPLICATION

SECTIONS 4.3 & 4.4

4.3 LICENSING PROGRAM

4.3.1 MATERIALS LICENSING

4.3.1
MATERIALS LICENSING

Summary

The licensing program is outlined in the combination of the *Licensing Procedures* (Section 4.3.1 of the application), the *NJEMS Procedures Manual* (Section 4.3.2 of the application), and the *Training and Qualification Manual* (Section 4.6.2 of the application) to form a critical part of the Department's overall radioactive materials regulatory program. These procedures provide the information necessary for licensing staff to process, manage, and track licensing activities.

The New Jersey Environmental Management System (NJEMS) is a database system used by the New Jersey Department of Environmental Protection to centrally locate information regarding licenses, inspection information, enforcement actions and incidents (http://depnet/njems/index.htm). The system currently supports the Bureau of Environmental Radiation's enforcement records and documentation. Development of the portion of this system that will handle review, issuance and tracking of Licensing and Registration documentation to support the proposed Agreement State activities is continuing. An integral part of the licensing process is the Department's ability to track licensing actions. The New Jersey Environmental Management System (NJEMS) will be used by the BER to support collection and review of license applications, as well as monitoring reports and enforcement actions. Once in place (projected date early 2009), this one database will be the digital repository for licensing, inspection, enforcement, and incidents information and permit us to generate and track documents relating to these tasks.

The *Training and Qualification Manual* (Section 4.6.2) documents the license reviewer's qualification progress as well as the steps taken to qualify that individual. The *Training and Qualification Manual* contains an outline of the minimum activities expected by the BER manager and the Radioactive Materials Section (RMS) Supervisor.

The Qualified License Reviewer/Inspector (QLR/I) is required to use the *Licensing Procedures, NUREG-1556, Consolidated Guidance About Materials Licenses,* and the *NJEMS Procedures Manual* as he or she is processing and reviewing license applications, amendments, and renewals. Part of the qualified license reviewer's continuing quality assurance is the ability to demonstrate proper use and implementation of this manual and all associated procedures and guidance documents.

Legal Authority

The New Jersey Department of Environmental Protection (DEP) derives it authority from the Radiation Protection Act (New Jersey Statutes Annotated Title 26:2D-1 et seq), and its regulations are contained in the Radiation Protection Code (New Jersey Administrative Code Title 7 Chapter 28).

4.3.1 Procedures for the Technical Evaluation of Proposed Uses of Radioactive Material

The Radioactive Materials Section (RMS) of the Bureau of Environmental Radiation (BER) is responsible for establishing written licensing procedures for the safe use, storage, and possession of licensed materials. Technical procedures that have been modeled on NRC procedures along with standard review plans, checklists and policies, will assure the applications are thoroughly and equitably evaluated. Source material licensing procedures will be developed for any future Source Material licenses At such time that a facility requests a license for source material the generic licensing and inspection procedures will be modified based on the following list of documents.

NUREG-1620 Standard Review Plan for the Review of a Reclamation Plan for Mill Tailing Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978
NUREG-1609 Standard Review Plan for Transportation Packages for Radioactive Material
Standard Format and Content for Emergency Plans for Fuel Cycles and Materials Facilities - Regulatory Guide 3.67
Guide for the Preparation of Applications for Licenses To Process Source Material - Regulatory Guide 10.4
Division 3, Fuels and Materials Facilities
Division 4, Environmental and Siting
Division 8, Occupational Health
Consolidated Guidance About Materials Licenses (NUREG-1556) Volume 20 - Guidance About Administrative Licensing Procedures

Presently, New Jersey has only one Source Material licensee that is undergoing decommissioning and does not expect any applications for new source material licenses.

The procedures and criteria that will be used to evaluate the use of radioactive materials are included in this section. Pre-licensing guidance and the Risk-Significant Radioactive Material (RSRM) guidance are an essential component of a licensing program. The objective of RSRM guidance is to identify those licenses that require additional security requirements that are currently in Security Orders and Increased Controls. The RMS will be following the pre-licensing guidance provide in the NRC Agreement State letter dated September 22, 2008 – Requesting Implementation of the Checklist to Provide a Basis for Confidence That Radioactive Material Will be Used as Specified On a License and the Checklist for Risk-Significant Radioactive Material (RCPD-08-020). This document is Attachement 3 to NJDEP-BER Procedure No. 3.01 and is considered Official Use Only – Sensitive Unclassified Non-Safeguards Information (SUNSI).

The procedures included in this section of the application for processing of licensing actions are as follow:

BER 3.01 – Review of Application for License or Amendment Request
Attachment 1 – Checklist for review of license application

Attachment 2 - Guidance/Checklist for Risk-Significant Radioactive Materials (Not Provided due to Sensitive Nature)
Attachment 3 – Checklist for determining when significant licensing action has taken place that may require an additional onsite inspection
BER 3.02 – Review of Application for Renewal of a Specific License
BER 3.03 – Review of a Request for License Termination
BER 3.04 - Prioritization of Licensing Actions
BER 3.05 - Review of Annual Registration of Generally Licensed Devices
Appendix A - Licensing Forms
Appendix B – Sample Letters
License Conditions
- Fingerprinting
- Increased Control
- National Source Tracking System

Witholding Correspondence

On January 8, 2002, amendments to New Jersey's Open Public Records Act (OPRA) placed new obligations on all State agencies related to providing information to the public. The unqualified access to certain government records can threaten the lives, health, and safety of the citizens of the State and endanger public and private property. The filing of proposed new rule N.J.A.C. 13:1F-1.5 establishes standards for use at all levels of government for determining access to a government record on a record specific and/or request specific basis where there is a bona fide security concern. Since the filing of the proposed rule in 2004, the NJDEP is exempted from the OPRA requirements based on domestic security issues. The NJDEP views all information concerning radioactive material licensee activities as a domestic security issue. Therefore, no procedure regarding withholding information is required.

The required qualifications of license reviewers can be found in the *Training and Qualification Manual*, section 4.6.2 of the application.

NJRAD FORM-314 (Revised July 14, 2008)

CERTIFICATE of DISPOSITION of RADIOACTIVE MATERIALS

New Jersey Department of Environmental Protection
Bureau of Environmental Radiation
Radioactive Materials Section
P.O. Box 415, Trenton, NJ 08625
Tel. (609) 984-5462 Fax. (609) 633-2210
Website: http://www.nj.gov/dep/rpp/

Instructions: This form is to be used to officially request termination of a Radioactive Material License as outlined in N.J.A.C. 7:28. Disclosure of this information is required. Failure to provide any information will result in this request for termination of a specific license not being processed. Retain one copy and submit original of the entire request to BER at the address above.

A. LICENSE STATUS INFORMATION

LICENSEE NAME AND ADDRESS:	LICENSE NUMBER	EXPIRATION DATE
	LICENSEE CONTACT NAME	TELEPHONE #

B. DISPOSAL OF RADIOACTIVE MATERIALS

The licensee executing this certificate certifies that:

☐ (A) No radioactive materials have ever been procured or possessed by the licensee under this license.

☐ (B) All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner:

- ☐ (i) Transfer of radioactive materials to the licensee listed below:
  License Name: License Number: Issuing Agency:
- ☐ (ii) Disposal of radioactive materials (explain):
  - ☐ (a) Directly by the licensee:
  - ☐ (b) By licensed disposal site:
  - ☐ (c) By waste contractor:
- ☐ (iii) All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of N.J.A.C. 7:28 and is ALARA.

C. SURVEYS PERFORMED AND REPORTED

☐ (A) A radiation survey was conducted by the licensee. The survey confirms:

- ☐ (i) the absence of licensed radioactive materials.
- ☐ (ii) that any remaining residual radioactivity is within the limits of N.J.A.C. 7:28 and is ALARA.

☐ (B) A copy of the radiation survey results:

- ☐ (i) is attached; or
- ☐ (ii) is not attached (provide explanation); or
- ☐ (iii) was forwarded to NJDEP RMS on:

☐ (C) A radiation survey is not required as only sealed sources were ever possessed under this license, and:

- ☐ (i) The results of the latest leak test are attached; and/or;
- ☐ (ii) No leaking sources have ever been identified.

D. RETENTION OF RECORDS

Records required to be maintained following license termination shall be available at the following address:

E. CERTIFICATION

I certify under penalty of perjury that the information contained on this form and all attachments are true and correct. It is therefore requested that the above referenced radioactive material license be terminated.

NAME & TITLE	SIGNATURE	DATE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Dale E. Klein, Chairman
Gregory B. Jaczko[1]
Peter B. Lyons
Kristine L. Svinicki

In the Matter of	)	
SHIELDALLOY METALLURGICAL CORP.	)	Docket No. 40-7102-MLA
(License Amendment Request for Decommissioning of the Newfield, New Jersey Facility)	)	

CLI-09-01

MEMORANDUM AND ORDER

This proceeding stems from Shieldalloy Metallurgical Corporation's (Shieldalloy or licensee) request for a license amendment to authorize the decommissioning of its Newfield Facility, located in Newfield, New Jersey.[2] In March 2007, the Atomic Safety and Licensing Board granted the New Jersey Department of Environmental Protection's (New Jersey) hearing request on the adequacy of Shieldalloy's proposed

[1] Section 201 of the Energy Reorganization Act, 42 U.S.C. Section 5841, provides that action of the Commission shall be determined by a "majority vote of the members present." Commissioner Jaczko was not present when this item was affirmed. Accordingly the formal vote of the Commission was 3-0 in favor of the decision. Commissioner Jaczko offered a separate dissenting opinion which follows this decision.

[2] *See* Notice of Consideration of Amendment Request for Decommissioning for Shieldalloy Metallurgical Corp., Newfield, NJ and Opportunity to Request a Hearing, 71 Fed. Reg. 66,986 (Nov. 17, 2006).

Decommissioning Plan (Revision 1a).[3] More recently, the Board issued a Memorandum bringing certain issues to the Commission's attention.[4] Both the licensee and the NRC Staff sought leave from the Commission to respond to the Board's Memorandum.[5] The Commission allowed any party to respond.[6] The NRC Staff, the licensee, and New Jersey submitted briefs to the Commission.[7]

The Board's Memorandum raised essentially two concerns. The Board's initial concern was the extraordinarily slow pace of this proceeding. Originally, the Staff estimated that it would issue a final Safety Evaluation Report (SER) in January 2008, a Draft Environmental Impact Statement (DEIS) in March 2008, and a Final Environmental Impact Statement (FEIS) in October 2008.[8] According to the Staff's latest estimates, the DEIS will not be issued until October 2009, and the final SER and FEIS not until December 2009 and July 2010, respectively.[9] Given the circumstances, a hearing on the adequacy of Shieldalloy's Decommissioning Plan would not be held until well over 3 years after the Board granted New Jersey's hearing request, and over a decade since

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[3] LBP-07-5, 65 NRC 341, 353-59 (2007). The Board admitted one contention, and deferred consideration of New Jersey's other contentions pending completion of the Staff's safety and environmental review. *See id.* at 359-62.

[4] *See* Memorandum (Bringing Matter of Concern to Commission's Attention), LBP-08-08, 67 NRC ___ (slip op. June 2, 2008)(Board Memorandum).

[5] *Shieldalloy's Unopposed Motion for Leave to File a Response to Licensing Board's Memorandum (Bringing Matter of Concern to Commission's Attention)*(June 10, 2008); *NRC Staff's Motion for Leave to Respond to LBP-08-08* (June 12, 2008).

[6] *See* Order (June 18, 2008)(unpublished).

[7] *NRC Staff's Response to LBP-08-08* (July 3, 2008)(Staff Response); *Shieldalloy's Response to Licensing Board's 'Memorandum (Bringing Matter of Concern to Commission's Attention)'*(July 3, 2008)(Shieldalloy Response); *State of New Jersey's Reply to the July 3, 2008 NRC Staff and Shieldalloy Submissions to the Commission* (July 10, 2008)(New Jersey Reply).

[8] *See* Board Memorandum, slip op. at 5.

[9] *See NRC Staff's Tenth Status Report* (December 5, 2008).

Shieldalloy ceased manufacturing operations (in 1998).[10] The current delay stems at least partially from Shieldalloy's intention to submit another revision of its Decommissioning Plan, to address many of the issues raised by the Staff in Requests for Additional Information (RAIs) transmitted in July 2007.[11]

The Board also expressed concern over whether there are adequate protective measures in place to protect nearby residents.[12] Recognizing its lack of authority to oversee or "inquire further" into the Staff's performance of its regulatory oversight responsibilities, or to "order some [interim] corrective measures," if any are called for, the Board referred its concerns to the Commission.[13]

Addressing the Board's Memorandum, the Staff responds that Shieldalloy already has "certain protective measures in place at the Newfield site that are essentially the same as those contemplated by the [Decommissioning Plan]."[14] These include security and access control measures, and a radiation monitoring program. The Staff also states that Shieldalloy has built a berm on the south side of the storage area at the Newfield site, to assure that rainwater runoff will not transport baghouse dust outside the

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[10] *See* Board Memorandum, slip op. at 1, 6-8.

[11] *See* Board Memorandum, slip op. at 9; Staff Response at 12-15. As the Staff explains, a significant issue has been determining proper leach rate testing and sampling protocols to assess the leachability of slag and baghouse dust at the Newfield site. *See* Staff Response at 14-15. In its Ninth Status Report, the Staff indicated that Shieldalloy finalized its leach rate testing protocol in September 2008, and plans to take more than 50 additional samples from the nine slag and baghouse dust piles at the site. *See NRC Staff's Ninth Status Report* (Oct. 10, 2008) at 2.

Prior to accepting for technical review Shieldalloy's Decommissioning Plan Revision 1a, the Staff had rejected for docketing other earlier-submitted decommissioning plans for the Newfield site. The Staff rejected Revision 0 (submitted August 2002) and Revision 1 (submitted October 2005). *See* Board Memorandum, slip op. at 8-9.

[12] *See id.*, slip op. at 6-7, 11-12, 13.

[13] *Id.*, slip op. at 14.

[14] Staff Response at 15.

storage area.[15] The Staff stresses that there is "no evidence of any violation or potentially hazardous condition that would support ordering Shieldalloy to implement an engineered barrier [cover over the slag and baghouse dust] as an interim protective measure."[16] The Staff further stresses that it "continues to monitor and inspect the site," and that recent "inspections have not revealed any current threat to public health or safety associated with the Newfield site."[17]

Based upon the information provided to us, we have no reason to conclude that there are ongoing violations of NRC health and safety standards at the Newfield site. We note, further, that New Jersey concurs in the Staff's assessment that an interim protective barrier over the slag and baghouse dust at the site "may prolong and complicate decommissioning."[18]

New Jersey, however, urges the Staff (and Shieldalloy) to consider whether other interim measures are warranted to prevent any "contamination until the final decommissioning is completed."[19] In particular, New Jersey raises a concern about the Hudson Branch Creek, located near the Newfield facility. New Jersey claims, for example, that sampling results from the creek's surface water and soil sediment show elevated levels of uranium-238, thorium-232, and radium-226.[20] New Jersey requests an adequate characterization of this contamination, an investigation into the source of

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[15] *Id.* at 17.

[16] *Id.* at 18.

[17] *Id.* at 6.

[18] New Jersey Reply at 8.

[19] *See id.*

[20] *See id.* at 7, and attached Exhibit 2 at 1-3.

contamination, a plan to prevent any ongoing contamination (if there is any), and remediation of existing contamination.[21]

While the Staff's brief does not address the Hudson Branch contamination, the Commission is aware that the Staff has issued Requests for Additional Information, calling on Shieldalloy to provide additional characterization data and other information on the contamination.[22] Apparently, the Staff has not yet resolved whether the NRC (or New Jersey) has jurisdiction over the radiological contamination in the Hudson Branch.[23] The NRC will assert jurisdiction if the contamination is attributable to Shieldalloy or another NRC licensee.[24] After reviewing Shieldalloy's responses and information from other sources, the Staff will determine whether the NRC has jurisdiction over the radiological contamination and, if so, whether and to what extent the contamination requires remediation.[25] We expect that the Staff will timely and thoroughly address these questions.

In addressing the creek contamination, New Jersey also refers to the berm constructed on the south side of the storage area as an interim protective measure. Because the berm "does not surround the entire pile" of materials, New Jersey seeks additional characterization of the soil and any surface water outside the fence-line, to assure that runoff to the north, east, and west sides of the pile does not pose an offsite

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[21] New Jersey Reply at 9.

[22] *See, e.g.,* Letter from Keith McConnell, NRC, to Ms. Patricia Gardner, New Jersey Department of Environmental Protection (Aug.18, 2008)(McConnell Letter)(ADAMS ML082040537); Request for Additional Information, Cover Letter (July 5, 2007)(ADAMS ML071640267)(Cover Letter), and attached RAIs (ADAMS ML071640287) at 7-8.

[23] *See* McConnell Letter at 1.

[24] *See id.* at 2.

[25] *See id.*

contamination concern.[26] New Jersey states that there are materials other than slag, such as construction debris and contaminated soil, "that could potentially leave the site via runoff."[27] Whether additional data are needed regarding the effectiveness of the existing berm to deter potential offsite migration is a matter that the Staff should discuss with Shieldalloy and New Jersey.

We acknowledge the Board's concern with the extraordinary lag of time between Shieldalloy's cessation of operations and this adjudicatory proceeding on a decommissioning plan, and the continuing delays since the proceeding began. The Board made "clear" that it had no "criticism of anything that the NRC Staff has substantively done in the course of its technical review,"[28] and we likewise discern no failure in the Staff's technical review, which must consider and resolve all relevant safety and environmental issues. The Staff appears to be conducting a detailed, careful review, but to complete its review needs and has requested much additional information from Shieldalloy. We expect Shieldalloy to respond promptly and accurately to Staff inquiries. The Staff has advised Shieldalloy that the Staff may suspend or terminate its review of the Decommissioning Plan if Shieldalloy fails to provide "complete and high-quality responses."[29]

We also expect that, absent compelling circumstances, the Staff will accord sufficient priority and devote sufficient resources to meeting its current estimated safety and environmental review schedule. If in the course of its review, the Staff finds that any additional interim protective measures at the site are warranted, we expect it will take prompt appropriate action.

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[26] New Jersey Reply at 7.

[27] *Id.*

[28] Board Memorandum at 15.

[29] *See* Cover Letter at 1.

Commissioner Jaczko, in his dissent, echoes the Board's concern with the delays in decommissioning the Newfield facility – a concern that we share. We also agree, as espoused in the dissent, that unrestricted release is the preferable method for terminating radioactive materials licenses.[30] But we differ with the dissent in that it addresses a generic matter that was not raised by the Board's Memorandum and offers a position on a question that is premature to address here. Many of the issues raised in the dissent are currently pending before the Board and may be dealt with in the context of the Board's adjudication, if appropriate, with the benefit of full briefing by the parties.

IT IS SO ORDERED.

For the Commission

(NRC SEAL)

/RA/

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland,
this 27th day of January 2009.

[30] *See* NUREG-1757, Vol. 1, Rev. 2, Consolidated Decommissioning Guidance; Decommissioning Process for Materials Licensees (Sept. 2006) at M-1.

Commissioner Jaczko, dissenting:

I dissent from the Commission's Memorandum and Order. It is our job to make sure Shieldalloy fully cleans up this site. For two reasons, I think we may not be headed in the right direction to make sure this happens in a reasonable time. First, I believe that part of the generic guidance on decommissioning in NUREG-1757, with respect to long-term institutional control under 10 C.F.R. § 20.1403, is flawed and should be reconsidered. Should Shieldalloy follow that guidance and the Commission then find that is has to revise or withdraw it, significant delay in decommissioning the site could result. To avoid this result, the Commission could revisit that guidance now. Second, I am not convinced that the potential to achieve unrestricted release of Shieldalloy's Newfield site has been adequately explored. The following explains each of these two points in detail.

With respect to the generic guidance in NUREG-1757, the part of the guidance that applies the requirements in 10 C.F.R. Part 20 governing restricted release and in 10 C.F.R. § 40.42 governing license termination seems to me inconsistent with the text and intent of the regulations. *See* NUREG-1757, Vol. 1, Rev. 2, Consolidated Decommissioning Guidance; Decommissioning Process for Materials Licensees (Sept. 2006) (NUREG-1757). Specifically, the current guidance regarding the "possession only license/long term control" (POL/LTC) option appears to me logically flawed, and I believe we should generically revisit this guidance. In addition, if this flawed guidance is applied at Shieldalloy's Newfield site, significant additional delay to decommissioning this site could result. We would be remiss if did not act now to eliminate this potential source of additional delay.

The regulations that are the basis for my concern are as follows: In short, § 40.42(c) provides that, with respect to possession, a Part 40 license, such as that held by Shieldalloy, continues in effect after expiration until decommissioning is completed.

During that time, a licensee must limit actions to those related to decommissioning and control access to restricted areas until they are suitable for release. Simply stated, the licensee must meet Part 20 with respect to the materials remaining on the site.

Further, to decommission the site under Part 20, the licensee must meet the standards in § 20.1402 for unrestricted release of the site, *i.e.*, the amount of radioactive material left on the site is not dangerous, or the licensee must satisfy § 20.1403 or § 20.1404. Under § 20.1403, the site will be considered for restricted release if further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm or need not be made because residual levels associated with the restricted conditions are as low as reasonably achievable (ALARA). Whether a site is suitable for unrestricted or restricted release, however, the license is terminated upon the completion of decommissioning in accordance with Part 20. Neither the licensee nor the NRC retains any continuing obligation or jurisdiction, respectively, with respect to the site, unless new information shows that the Part 20 criteria were not met and the residual radioactivity remaining on the site could result in a significant threat to public health and safety. *See* 10 C.F.R. § 20.1401(c); NUREG-1757, Appendix M at M-2 to M-3. The license is terminated even if the licensee decommissions the site in accordance with alternate decommissioning criteria pursuant to § 20.1404.

In contrast to the regulations described above, all of which are directed to license termination, the guidance in NUREG-1757 introduces the concept of a "new type of possession-only license [that] is referred to in this guidance as a long-term control (LTC) license[.]" NUREG-1757, Appendix M, M.3 at M-9. Such an LTC license (or possession-only license, POL) could remain outstanding indefinitely. *See id*. at M-14 ("The LTC license is not necessarily permanent"). Nowhere is such an LTC license

mentioned or even hinted at in the License Termination Rule in Part 20, or in the rule on the timeliness of decommissioning (as applicable in this proceeding, § 40.42).

In my view, issuance of an LTC license defeats the purpose of Subpart E of Part 20, "Radiological Criteria for License Termination." Moreover, there is no need to issue such a license, because the expired license held by the licensee continues to exist in accordance with § 40.42, and *already* requires the licensee to provide "institutional control" over the site in accordance with § 40.42(c) and Part 20. Under this existing license, the NRC can require any action that it might require under the LTC license.

In my view, we should just require licensees to comply with Part 20 so that their sites may be released (with or without restrictions) and their licenses terminated. If a particular licensee is unable to do so, then we should refer the site to some other governmental agency with the authority to clean it up or request legislation from Congress to address the situation. Depending on the circumstances, a "safe storage" option during which the licensee accumulates funds for site cleanup might also be an option. In the interim until the licensee or some other agency actually cleans up the site, of course, the licensee will control access and otherwise provide adequate protection to the public health and safety with respect to the materials remaining on site by satisfying Part 20 under its existing, though expired, license.

With respect to Shieldalloy's Newfield site, I offer no opinion on whether or not Shieldalloy can or will satisfy the requirements of § 20.1403 for restricted release, or on the adequacy of its proposed decommissioning plan in light of the current generic guidance in NUREG-1757. Should the Commission decide to request the staff to reexamine that generic guidance regarding restricted release and changes result, Shieldalloy will of course need to consider those changes, and may need to make conforming changes to its proposed decommissioning plan.

With respect to the second point, whether the potential to achieve unrestricted release of Shieldalloy's Newfield site has been adequately explored, I first note the purpose of 10 C.F.R. § 40.42, which governs the expiration and termination of licenses and decommissioning of source material sites, such as the Newfield site. The purpose of the rule in which the current form of that section was promulgated was to "require timely decontamination and decommissioning by nuclear material licensees." "Timeliness in Decommissioning of Materials Facilities," 59 Fed. Reg. 36,026 (July 15, 1994) (Timeliness Rule SOC). As the Timeliness Rule SOC states, "[t]he rule is intended to reduce the potential risk to public health and the environment from radioactive material remaining for long periods of time at [materials] facilities after licensed activities have ceased." *Id*.

In general, I agree with the Licensing Board in its opinion in LBP-08-08 that the decommissioning of the Shieldalloy Newfield site is taking an unduly long time. As the Board has pointed out, licensed activities at the Newfield site ceased in 1998, and the decommissioning process began then. I also recognize, as the staff notes, that numerous areas of the Newfield site have already been decommissioned. NRC Staff's Response To LBP-08-08 at 6 (July 3, 2008). Nonetheless, slag and "baghouse dust" accumulated on an eight-acre portion of the Newfield site, among other things, remain to be decommissioned. *Id.*

Much of the delay in addressing this slag and baghouse dust and completing the decommissioning of this site can be attributed to the licensee's inadequate proposals for decommissioning. As the Board indicated, decommissioning this site would seem to be a simple matter of removing waste offsite for disposal. It only becomes complicated when the licensee seeks to dispose of the waste onsite, with all the attendant characterization work and analyses necessary to show that such a proposal satisfies

Part 20. Our implementation of our decommissioning rules at the Newfield site has resulted in radioactive material remaining at the Newfield site for a prolonged time.

The preferred path for decommissioning in Part 20 is to achieve unrestricted release of a site. The rule states:

> A site will be considered acceptable for license termination under restricted conditions if:
>
> (a) The licensee can demonstrate that ***further*** reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA.

10 C.F.R. § 20.1403 (emphasis added). Section 20.1403 presumes that contaminated material has been removed offsite until the stated criteria are met, thus, offsite disposal is the first option. *See also,* "Radiological Criteria for License Termination," 62 Fed. Reg. 39,058, 39,065 (July 21, 1997). In the rulemaking promulgating this section, the Commission stated that it was taking "[a] tiered approach of unrestricted use and allowing restricted use if certain conditions are met[.]" *Id*. Moreover, § 40.42 is written in terms of "releasing" buildings or areas in accordance with NRC criteria. *See, e.g.*, 10 C.F.R. § 40.42(d).

Licensees do not get to choose between restricted and unrestricted release to suit their own purposes. Rather, the licensee should demonstrate that it will follow the "tiered" approach to decommissioning described above, and that release of the site will be restricted only if one or more of the conditions in § 20.1403(a) is met. The

unavailability of funding for decommissioning adequate to achieve unrestricted release of a site is not one of the conditions specified in § 20.1403(a). If none of the § 20.1403 conditions is met and funding is inadequate to achieve unrestricted release of the Newfield site, some other course of action, such as referral of the site to another agency for cleanup or licensee control and maintenance of the site until additional funds are accumulated, may be necessary. After all, If Shieldalloy invested the $8 million dollars it has in remaining funds, it can reasonably be assumed that those funds would eventually reach the $33 million dollar price tag envisioned in the application as necessary to remove the waste from the site. Even assuming only a 2% real rate of return (interest rate minus inflation), the $8 million would grow to $30 million in roughly 60 years. While that might be a longer time-frame than some would prefer, it is far shorter than a plan to leave the waste on site permanently.

In view of the above, the agency should be sure to explore all options for achieving unrestricted release of the entire Newfield site. Since it seems to me that we have not yet done so, I would have ordered the parties to provide us briefs on what efforts have been made to achieve unrestricted release of the site. After considering those briefs, we could have then provided direction to the Staff, if necessary. (I would *not* have requested the parties' views on whether the criteria in § 20.1403 justifying restricted release are met, as this issue will likely be the subject of the litigation pending before the Board, and is not yet ripe for us to consider.)

In sum, I believe we would be remiss in not directing the staff to explore all options aimed at achieving unrestricted release of the entire Newfield site. Because I believe the staff's current direction in entertaining the possibility of restricted release of the site is problematic with respect to long-term institutional control, and it seems to me that offsite disposal of some portion of the waste currently onsite might be accomplished, I would take a different approach.

SHIELDALLOY METALLURGICAL CORPORATION

35 S. W. Boulevard
P. O. Box 768
Newfield, NJ 08344 U.S.A.

Telephone: 856-697-6501
FAX: 856-697-6515

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June 11, 2009

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RULES AND DIRECTIVES BRANCH USNRC

VIA U.S. MAIL AND ELECTRONIC SUBMISSION

Michael T. Lesar, Chief
Rulemaking, Directives and Editing Branch
MS TWB-05-B01M
Division of Administrative Services
Office of Administration
Washington, DC 20555-0001

Re: Shieldalloy Comments on New Jersey's Application to Become an Agreement State

Dear Mr. Lesar:

In response to the Federal Register notice dated May 27, 2009, 74 Fed. Reg. 25823, this letter submits comments by Shieldalloy Metallurgical Corporation ("SMC") on the application ("Application") by the State of New Jersey ("New Jersey") to enter into an agreement ("Agreement") with the U.S. Nuclear Regulatory Commission ("NRC") pursuant to Section 274 b. of the Atomic Energy Act of 1954, 42 U.S.C. § 2021(b) ("the Act"). Under the Agreement, regulatory authority over certain radioactive materials would be transferred from the NRC to New Jersey.

The Act authorizes the NRC to enter into such an agreement with a State *only if* the NRC "finds that the State program is . . . compatible with the Commission's program for regulation of such materials . . . ." *Id.* As described below, the proposed New Jersey radiation control program (the "NJ Program") is not compatible with the NRC's regulatory program, thus the Application should be denied. Even if the Application were approved, the NRC should retain regulatory jurisdiction over SMC's facility in Newfield, New Jersey ("the Newfield facility"), for which SMC holds a source materials license from the NRC, and continue to oversee the facility's decommissioning until its completion.

A. The New Jersey Program Fails to Meet the NRC's Compatibility Criteria

The NRC Staff evaluates a State's radiation control program as described in the State's formal application to become an "Agreement State" and prepares a written assessment of whether the program is compatible, as defined in the NRC Policy Statement on State Agreements

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = T. Taylor (TMT)
D. Dallenberger (dmd4)

("Policy Statement").[1] The Federal Register notice includes a summary of the Staff's assessment of New Jersey's Application. 74 Fed. Reg. at 25825-26. The summary concludes that

> the State of New Jersey satisfies the criteria in the Commission's policy statement ''Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement,'' and meets the requirements of Section 274 of the Act. Therefore, the proposed State of New Jersey program to regulate Agreement materials, as comprised of statutes, regulations, procedures, and staffing is compatible with the program of the Commission and is adequate to protect public health and safety with respect to the materials covered by the proposed Agreement.

Id. at 25826. On July 18, 2008, SMC submitted comments to New Jersey on the then proposed NJ Regulations.[2] In those comments, SMC pointed out the inconsistency between New Jersey's regulatory framework and the NRC's. Although the NRC Staff had these comments well in advance of the issuance of its Assessment, the Staff neither references nor addresses those comments. For that reason and the other factors discussed herein, the Staff's assessment is incomplete and in part erroneous and must be substantially revised to recognize the incompatibility of the NJ Program with the program of the Commission.

NRC guidance explains that:

> An Agreement State radiation control program is compatible with the Commission's regulatory program when the State program does not create conflicts, duplications, gaps, or other conditions that jeopardize an orderly pattern in the regulation of agreement material (source, byproduct, and small quantities of special nuclear material as identified by Section 274b. of the Atomic Energy Act, as amended) on a nationwide basis.[3]

For determining compatibility, the NRC guidance has established a set of criteria against which a State's regulatory program is evaluated. The NJ Program is incompatible with the NRC regulations in a number of significant respects.

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[1] *Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement*, 46 Fed. Reg. 7,540, 7,543 (1981), as amended by 46 Fed. Reg. 36,969 (1981) and 48 Fed. Reg. 33,376 (1983).

[2] Letter from Hoy Frakes (SMC) to New Jersey Department of Environmental Protection ("NJDEP"), dated July 17, 2008 ("SMC Comments"), Attachment 1 hereto.

[3] *Adequacy and Compatibility of Agreement State Programs*, NRC Management Directive ("MD") 5.9, Handbook 5.9 at 1.

1. The Regulations issued by the NJDEP are Invalid

The NJ Program's Regulations ("NJ Regulations")[4] are invalid because they were not adopted in accordance with the procedural requirements of New Jersey's Administrative Procedure Act, N.J.S.A. 52:14B-1 *et seq.* ("APA"). Among other deficiencies:

- NJDEP failed to conduct a proper Federal Standards Analysis required by state law. *See* N.J.S.A. 52:14B-22 to -24. As further discussed below, the NJDEP regulations are more stringent than relevant NRC rules in areas (discussed below) such as dose criteria, restricted release standards, time period for dose calculations. The NJDEP has failed to analyze the effect of their inconsistency with Federal regulations, as required by the statute.
- NJDEP failed to analyze and minimize the adverse economic impacts of its proposal to become an Agreement State. as required by the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 *et seq.* The agency's approach to the decommissioning of facilities will give rise to enormous costs to Shieldalloy and other similar licensees. NJDEP failed to analyze and minimize these economic impacts as required by the APA.
- As explained below, the NJDEP modified the rule upon adoption to apply to "all persons," instead of applying only to licensees and registrants, as provided in the proposed rule. 40 N.J.R. 5201. This substantial change to the proposal means that interested parties did not have notice and an opportunity to provide meaningful public comment to the rule, as required by the APA. A rule adopted without opportunity for notice and comment is invalid.

2. The NJ Program Fails to Satisfy Compatibility Criterion 9 in that it sets Release Criteria that Differ from Those in 10 CFR Part 20

Compatibility Criterion 9 states, in relevant part: "Waste Disposal. The standards for the disposal of radioactive materials into the air, water, and sewers, and burial in the soil shall be in accordance with Part 20." As further discussed below, the NJ Regulations differ from the radiological criteria for license termination in 10 C.F.R. Part 20 in many significant respects, in violation of Compatibility Criterion 9:

(1) The NJ Regulations establish a maximum allowable total dose to a member of the public of 15 mrem/yr, instead of the 25 mrem set in 10 C.F.R. § 20.1402.[5]

(2) The NJ Regulations do not implement the "as low as reasonably achievable" ("ALARA") principle set forth in, inter alia, 10 C.F.R. § 20.1402.

(3) The NRC regulations include restricted release criteria, set forth in 10 C.F.R. § 20.1403, but the NJ Regulations do not.

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[4] 40 N.J.R. 5196(b) (Sep. 15, 2008) (Attachment 2 hereto).

[5] NJ Regulations at 7:28-12.8.

(4) The NRC regulations in 10 C.F.R. § 20.1401(d) set a time limit of 1,000 years after decommissioning for calculating the peak annual total effective dose equivalent ("TEDE") to the average member of the critical group; the NJ Regulations set an indefinite, and potentially much longer, time limit described as "the time of the peak dose or 1,000 years, whichever is longer." [6]

(5) The NRC regulations in 10 C.F.R. § 20.1403(e) permit release of a site after decommissioning if residual radioactivity at the site has been reduced so that the Total Effective Dose Equivalent (TEDE) from residual radioactivity to the average member of the critical group would not exceed 500 mrem in any year if certain conditions are met; the NJ Regulations do not allow for more than 100 mrem TEDE under any circumstances.[7]

(6) The Part 20 regulations do not impose release limits on surface or ground waters, but incorporate those releases into the overall maximum allowable dose limits in 10 C.F.R. § 20.1402; the NJ Regulations require that radioactivity releases to the ground and surface waters be limited to the levels set by the New Jersey Ground Water and Surface Water standards.[8]

In its comments on the then proposed NJ Regulations, SMC pointed out the inconsistency between New Jersey's regulatory framework and the NRC's.[9] The NJDEP, the state agency charged with developing and implementing the NJ Regulations, rejected the challenge to the 15 mrem limit on the grounds, offered without further justification, that the limit was "not new".[10] The NJDEP also acknowledged that its proposed regulatory regime does not allow for the use of ALARA analysis and thus differs significantly from the NRC's framework:

> ALARA determinations allow the use of cost as a factor for determining what level of remediation is cost effective below the standards. The [NJDEP] and the [New Jersey Commission on Radiation Protection] did not include a provision for ALARA in meeting these dose criteria because the Brownfield and
>
> Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq., does not allow such a provision.

NJ Regulations at 8. In applying for Agreement State status, New Jersey has not sought to remedy this inconsistency between its statutes and the NRC regulations.

On the need to compute peak doses beyond 1,000 years, the NJDEP stated that the NRC regulation does not apply to long-lived radionuclides, and that "it is vital to consider the peak dose, whenever it occurs, to ensure that adequate measures are taken to protect public health and

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[6] *Id.* at 7:28-12.10(d).

[7] *Id.* at 7:28-12.11(e).

[8] *Id.* at 7:28-12.11(a)(3) and (4).

[9] SMC Comments, Attachment 1 hereto, at 2-6.

[10] NJ Regulations at 8.

safety."[11] That interpretation is contrary to the explicit language of 10 C.F.R. § 20.1401(d) and has been rejected by the NRC in briefs submitted to the U.S. Court of Appeals for the Third Circuit.[12]

On the separate limits on releases to the surface and ground waters, the NJDEP did not deny that those limits are inconsistent with the NRC standards, but asserted that the intent of the New Jersey standards "is to ensure that decommissioned facilities with residual material present do not affect the quality of any surface water near the facility. The [NJDEP] and the [New Jersey Commission on Radiation Protection]'s intent in referencing the surface water quality rules was to ensure that the surface water standards for radioactivity at N.J.A.C. 7:9B-1.14(c)6 are met in order to verify that health and safety of humans and the environment are sufficiently protected."[13] The NJDEP did not explicitly address the absence of restricted release criteria in its regulations,[14] nor the failure to provide for increased levels of residual radioactivity after decommissioning if certain conditions are met.[15]

The regulatory requirements and standards for facility decommissioning in the NJ Program are thus vastly different from those which the NRC has established and applies to licensed facilities undergoing decommissioning. The NJ Program creates conflicts and gaps with the essential objectives of the NRC regulations and is therefore fundamentally incompatible with the NRC regulatory framework.

3. The NJ Program Fails to Satisfy Compatibility Criterion 12

Compatibility Criterion 12 states: "Additional Requirements and Exemptions. Consistent with the overall criteria here enumerated and to accommodate special cases and circumstances, the State regulatory authority shall be authorized in individual cases to impose additional requirements to protect health and safety, or to grant necessary exemptions which will not jeopardize health and safety" (emphasis added). Contrary to that criterion, the NJ Regulations fail to provide for granting necessary exceptions to the regulatory standards that do not jeopardize health and safety. There are at least four instances of the failure of New Jersey's regulatory scheme to comply with Criterion 12:

> (1) As discussed above, the NJ Regulations will not allow consideration of alternate remediation standards that would increase the allowed incremental dose criterion of 15 mrem/yr

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[11] *Id.* at 5-6.

[12] *State of New Jersey v. NRC* (Third Circuit), Brief for the Federal Respondents (Aug. 27, 2007), Attachment 3 hereto, at 55-57.

[13] NJ Regulations at 6.

[14] However, NJ has strongly opposed implementation of the NRC's restricted release criteria at SMC's Newfield site. Such opposition has manifested itself by a legal challenge to the NRC guidance that would apply to the implementation of the criteria to SMC's Newfield facility, as well as an administrative challenge (currently ongoing) to SMC's decommissioning plan for that facility. *See New Jersey v. NRC*, 526 F.3d 98 (3d Cir. 2008); *Shieldalloy Metallurgical Corp.* (License Amendment Request for Decommissioning of the Newfield, New Jersey Facility), CLI-09-01, __ NRC __ (2009).

[15] The increased levels of radioactivity allowed by the NRC and rejected by New Jersey are part of the restricted conditions for license termination that include implementation of the ALARA principle. 10 C.F.R. § 20.1403(e).

> (itself significantly lower than the maximum allowable dose of 25 mrem/yr set by the NRC regulations in 10 C.F.R. § 20.1402), even if justified through an ALARA analysis. *See, e.g.,* NJ Regulations at 7:28-12.11(b).
>
> (2) As also discussed above, the NJ Regulations do not allow for any alternative remediation standards if they would result in doses exceeding 100 mrem/yr for an "all controls fail" scenario. NJ Regulations at 7:28-12.11(e).
>
> (3) The NJ Regulations require that the calculations of doses from radiological decommissioning use only tables of parameters based on specific exposure scenarios. NJ Regulations at 7:28-12.11(b).
>
> (4) When modeling the "all controls fail" scenario, the NJ Regulations allow no credit for any engineering controls, such as a fence or cover, to be taken when performing the model to determine if the 100 mrem annual dose is exceeded. The NRC, however, allows the licensee to take credit for controls that may degrade but have not completely failed.

The first two failures to comply with Compatibility Criterion 12 are discussed above, for they are also failures of comply with Criterion 9. With respect to the postulated exposure scenarios, the NJ Regulations allow licensees to request consideration of alternate parameters only for site-specific characteristics, but not for site-specific exposure scenarios. NJ Regulations at 7:28-12.11(c). SMC's comments on the proposed regulations noted that NRC guidance allows the use of realistic site-specific scenarios with justification for the reasons stated in *License Termination Rule Analysis*, SECY-03-0069 (NRC 2003); *Consolidated Decommissioning Guidance*, NUREG-1757 ("NUREG-1757"), Vol. 2, Ch. 5.[16] In rejecting SMC's comment, the NJDEP acknowledged that New Jersey has failed to adopt the alternative exposure scenarios defined in the NRC guidance:

> In proposing the adopted rules, the [NJDEP] and the [New Jersey Commission on Radiation Protection] considered the updated NRC guidance, but the basis for Tables 6 and 7 at N.J.A.C. 7:28-12.11(b) (which tables were not amended in the adopted rules) was provided when the rules were proposed at 31 N.J.R. 1723(a), and the parameters in the tables remain justified. . . . The [NJDEP] and the [New Jersey Commission on Radiation Protection] established sufficiently conservative bounds on the exposure scenarios in Tables 6 and 7 of adopted N.J.A.C. 7:28-12.11(b) to ensure that the dose criteria would be met for the length of time the residual radionuclides would be present (thousands to billions of years).

NJ Regulations at 7. New Jersey's position is directly contrary to the NRC guidance, which allows licensees to use reasonably foreseeable land uses and resulting exposure scenarios. *See, e.g.*, NUREG-1757, Vol. 2, Ch. 5 at 5-4, 5-5.

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[16] SMC Comments at 5.

On the failure to allow credit for degraded, but not totally failed, engineering controls, SMC commented that the NRC approach reflects that engineered structures degrade by known physical processes. Instead, New Jersey assumes that engineered structures and other institutional controls instantaneously vanish, an assumption for which there is no reasoned basis, since progressive degradation over time is consistent with the behavior of the known physical world.[17] The NJDEP rejected SMC's comment as follows:

> The adopted rules do not assume that the engineered barriers fail instantaneously. Rather, the rules require the Department to consider the public health consequences in the event that the engineered barriers completely fail at some point in the future. This is a reasonable approach to ensure an adequate degree of protection to the public health and safety. The NRC approach of assuming that engineered structures degrade over time does not take into account intentional human intervention.

NJ Regulations at 7. Again, New Jersey's position is directly contrary to the NRC guidance, which allows licensees to assume that barrier degradation occurs over time in the absence of institutional controls. *See* NUREG-1757, Vol. 2, Section 3.5.2 at 3-12: ". . . When evaluating the loss of institutional controls (active monitoring and maintenance not performed), the barriers may degrade over time. An assumption of instantaneous and complete failure of a barrier is not required."

The NJ Regulations provide no justification for requiring stricter remediation standards than those provided by the NRC, or for not allowing licensees to apply the Federal standards when appropriate. They fail to allow the flexibility "to grant necessary exemptions which will not jeopardize health and safety," and have the practical impact of preventing the return of land to productive uses in appropriate cases, even when doing so would be allowed by Federal regulations. Therefore, the NJ Regulations are incompatible with the NRC regulatory framework.

4. The NJ Program Fails to Satisfy Compatibility Criterion 17

Compatibility Criterion 17 states: "Inspections Compulsory. Licensees shall be under obligation by law to provide access to inspectors." Contrary to this criterion, the governing New Jersey statute, the New Jersey Radiation Protection Act, NJSA 26:2D-1 *et seq.*, does not authorize inspections without either consent of the licensee or an order. Therefore, the NJ Regulations purporting to authorize warrantless inspections (NJ Regulations at 7:28-4.14) lack an adequate legal basis in New Jersey law and Compatibility Criterion 17 is not met.

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[17] SMC Comments at 5-6.

5. The NJ Program Fails to Satisfy Compatibility Criterion 23

Compatibility Criterion 23 states:

> Fair and Impartial Administration. State practices for assuring the fair and impartial administration of regulatory law, including provision for public participation where appropriate, should be incorporated in procedures for:
>
> a. Formulation of rules of general applicability;
>
> b. Approving or denying applications for licenses or authorization to process and use radioactive materials; and
>
> c. Taking disciplinary actions against licensees.

Many of the NJ Regulations are aimed specifically and uniquely at the SMC Newfield site. Thus, New Jersey acknowledges that the imposition of stand-alone limits on radioactive releases to the surface waters affects only "one facility in the State." NJ Regulations at 7. New Jersey seeks to defend its biased standard as follows:

> The fact that there may be only one facility in the State now affected by the rule does not mean that other facilities will not be affected in the future. In fact, each facility at which there is a potential for radioactive materials to migrate to a stream could be affected. Creating an open class is not the equivalent of special legislation, which is prohibited, nor is it arbitrary or discriminatory.

Id. That could arguably be seen as a reasonable position were it not coupled with, among others: (a) the refusal to apply the ALARA standard, (b) the refusal to allow restricted release criteria for license termination, (c) the requirement of peak dose computation beyond 1,000 years, (d) the requirement to calculate exposures only on specific exposure scenarios, and (e) the failure to allow credit for degraded engineering controls over time. All of these features of the NJ Regulations appear to apply only to the SMC facility, and their combined effect if implemented would be to preclude the possibility that the SMC site could be decommissioned in accordance with the permissible standards in 10 C.F.R. Part 20.

That the applicable NJ Regulations are indeed "special legislation" directed specifically at SMC is further demonstrated by the NJDEP's statements at a meeting with SMC representatives on December 10, 2008. A summary of the meeting prepared by the NJDEP makes it clear that the intent of the NJ Program is to force SMC to remove the licensed materials at the Newfield site instead of decommissioning them in place, as the NRC regulations allow. The letter states unequivocally: "We explained that your current approach to decommissioning will not comply with our regulations and that the slag pile, as currently characterized, would have to be removed."[18]

[18] Letter from Nancy Wittenberg (NJDEP) to Hoy Frakes (SMC) dated Dec. 23, 2008, Attachment 4 hereto, at 1.

For these reasons, the NJ Program fails to provide "[s]tate practices for assuring the fair and impartial administration of regulatory law," and particularly does not formulate "rules of general applicability" but its decommissioning rules are, instead, single-purpose legislation aimed exclusively at SMC. As such, the NJ Program fails to meet Compatibility Criterion 23 and is fundamentally incompatible with the NRC regulatory framework. Moreover, the "special legislation" nature of the NJ Program makes it unlawful as in violation of the New Jersey State Constitution, art. IV, § 7, ¶ 7, which provides that "[n]o general law shall embrace any provision of a private, special or local character." *See also, Phillips v. Curiale*, 128 N.J. 608, 627 (1992).

6. The NJ Program Fails to Satisfy Criterion 25

Compatibility Criterion 25 states:

> Existing NRC Licenses and Pending Applications. In effecting the discontinuance of jurisdiction, appropriate arrangements will be made by NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer. For example, one approach might be that the State, in assuming jurisdiction, could recognize and continue in effect, for an appropriate period of time under State Law, existing NRC licenses, including licenses for which timely applications for renewal have been filed, except where good cause warrants the earlier reexamination or termination of the license.

New Jersey has not sought to make "appropriate arrangements" with the NRC to ensure there will be no interference with the processing of license applications by reason of the transfer. SMC has filed a proposed decommissioning plan ("DP") for the Newfield facility which is currently under review by the NRC. Instead of ensuring the smooth processing of SMC's DP application, New Jersey has opposed it at every turn. It has requested a hearing, currently pending before an Atomic Safety and Licensing Board of the NRC, raising numerous contentions against approval of the DP.[19] It has unsuccessfully challenged in the courts the NRC guidance under which the DP would be implemented.[20] It has filed an unsuccessful request for a hearing and a stay petition with the NRC seeking to rescind the NRC guidance.[21] It has filed a rulemaking petition, again seeking to rescind the guidance;[22] and it has made other filings with the Commission challenging the DP.[23]

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[19] *Shieldalloy Metallurgical Corp.* (License Amendment Request for Decommissioning of the Newfield, New Jersey Facility), LBP-07-5, 65 NRC 341, 353-59 (2007) and CLI-09-01, __ NRC __ (2009).

[20] *State of New Jersey v. NRC*, 526 F.3d 98 (3d Cir. 2008).

[21] *Shieldalloy Metallurgical Corporation and NUREG-1757*, Order (January 12, 2007).

[22] Petition for Rulemaking on NUREG01757 and Request for Stay (December 22, 2006.) NJ's rulemaking petition is still pending with the NRC.

[23] State of New Jersey's Reply to the July 3, 2008 NRC Staff and Shieldalloy Submissions to the Commission (July 10, 2008).

In short, instead of ensuring that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer, New Jersey has done everything possible to interfere with the processing of SMC's DP application, an interference that continues to this day. Thus, the NJ Program does not meet Compatibility Criterion 25 and is fundamentally incompatible with the NRC regulatory framework.

B. The New Jersey Radiation Protection Program is not Satisfactory Under the NRC Implementation Standards

After entering into an agreement with a State, the NRC is required to periodically review the State program and the actions taken by the State thereunder for compliance with the provisions of the Act.[24] Following established practice, the NRC is expected to conduct inspections under its Integrated Materials Performance Evaluation Program ("IMPEP") to verify the adequacy of implementation of the NJ Radiation Protection Program. Therefore, the NRC's assessment of a State's formal application is also expected to evaluate whether the State's program as presented would be found satisfactory during an NRC inspection. The NRC inspection program will find a State program "satisfactory" if it is both adequate and compatible.[25] The NJ program will not be found "satisfactory" under the NRC IMPEP evaluation criteria for inspections of Agreement State programs for at least the following reasons:[26]

- There are numerous inconsistencies between the NJ Program and the NRC regulations, as discussed above, that preclude a finding that the NJ program is satisfactory under the IMPEP.

- The NJ Regulations are made applicable to "all persons," not just licensees. In discussing this provision, New Jersey states:

> The Radiation Protection Act at N.J.S.A. 26:2D-10 requires "all sources of radiation" to be "shielded, transported, handled, used and kept in such a manner as to prevent all users thereof and all persons within effective range thereof from being exposed to unnecessary radiation." Accordingly, it was not appropriate, as proposed, to limit the scope of the rules to only those licensed or registered individuals. Rather, the rules must cover all persons, in order that they cover "all sources," as required under the statute. To limit the rules to only those licensed or registered by the State would not satisfy the requirements of the Radiation Protection Act.
>
> Similarly, the rules as proposed would not have applied to all of those activities that the Radiation Protection Act addresses. Unlike

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[24] 42 U.S.C. § 2021.j(1).

[25] *Integrated Materials Performance Evaluation Program* ("IMPEP"), MD 5.6, Handbook at 90. In contrast, the NRC reviews other Federal programs only for adequacy.

[26] Those criteria are set forth in MD 5.9, *Adequacy and Compatibility of Agreement State Programs*, Handbook 5.9.

> the previous rules, which were sufficiently comprehensive to address the requirements of the statute, the proposed rules would not have applied to the transportation, storage, handling, or shielding of sources of radiation, contrary to the statute. As modified on adoption, the rule meets the statutory requirement.

40 NJ Reg. 5196(b), Summary of Agency-Initiated Changes. By extending the reach of its regulations to cover "all persons" in New Jersey, once the Agreement is entered into the NJ Regulations would cover persons that remain licensed by the NRC, creating a duplication with the NRC regulations.

- In particular, a decommissioned nuclear power plant in New Jersey would need to meet a surface water limit of 4 mrem per year and a one-in-a-million cancer risk for ground water, and be subject to a total TEDE limit of 15 mrem per year as per DEP's regulations in, instead of the NRC limit of a single TEDE cap of 25 mrem per year for all pathways. *See* NJ Regulations at 7:28-12.8 through -12.11. The NJ Regulations would thus essentially supersede the NRC decommissioning dose limits for the NRC licensees.

- The NJDEP lacks statutory authority for all elements of its source material program. For example, there is a difference between "radioactive materials," as defined in the NRC regulations, and "sources of radiation" that the New Jersey statute authorizes the NJDEP to regulate. The NRC definition includes additional safety aspects related to source material that are not covered under the New Jersey statute. The difference between radioactive materials, as defined in the NRC regulations, and "sources of radiation" that the NJ statute authorizes the NJDEP to regulate, is that the NRC definition includes additional safety aspects related to source material that are not covered under the New Jersey statute, such as the use of source of fissile or fertile isotopes for the production of special nuclear material.[27] The NRC compatibility guidance requires that the State program definitions be "essentially identical" to those of the NRC, and an IMPEP inspection would determine that they are not. *See* MD 5.9, *Adequacy and Compatibility of Agreement State Programs*, Handbook 5.9 at 2.

While considering a State program against the IMPEP standards prior to entering an agreement is a discretionary adjunct to the evaluation process, there should be no obvious issues at the time the Agreement is implemented that would be found to lead to program unacceptability when the NRC performs its first inspection. Such obvious issues are well in evidence in the NJ Program.

C. Even if NJ Becomes an Agreement State, the NRC Can and Should Retain Jurisdiction Over the Newfield Site and its Decommissioning

Should the Commission decide to enter into the proposed Agreement with New Jersey, it has the power to exclude the Newfield site from the transfer of authority to the State. This is explicitly contemplated by the policy embodied in Compatibility Criterion 25, which directs that

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[27] *See generally*, *Licensing of Source Material Proposed Rule*, 25 Fed. Reg. 8,619 (1960).

"appropriate arrangements will be made by NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer." Exclusion of the Newfield site from the transfer of authority to NJ is also consistent with notions of fundamental fairness and efficiency, given the major expenditures of time and resources by SMC (including NRC decommissioning oversight costs of $744,000 in 2007, $995,000 in 2008 and $580,000 to date in 2009) in working with the NRC Staff to characterize the site and select the safest and environmentally soundest way of achieving its decommissioning.

Faced with a similar situation with respect to Kerr McGee's West Chicago site, the Appeal Board wrote:

> Further, the Commission policy on the state agreement process, pursuant to which the agreement was negotiated and executed, provides that, in effecting the discontinuance of jurisdiction, appropriate arrangements will be made by NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications, by reason of the transfer.
>
> The unquestionable intent of this NRC policy is that jurisdiction is to be transferred to an "agreement state" in an orderly manner, with minimal disruption to any pending licensing proceeding, such as that here. The agreement with Illinois in this case contains no indication that "appropriate arrangements" have been made to assure this orderly process; indeed, it is silent as to its effect on any pending licensing or enforcement proceedings. It is reasonable to infer from this and from the Commission's statement declining to express an opinion on how the motion to terminate and to vacate should be decided, however, that those "appropriate arrangements" are to be fashioned in and through this adjudicatory proceeding. Thus, in these circumstances, we find unpersuasive the argument that the transfer of jurisdiction to the State in and of itself demands immediate termination of this proceeding.

Kerr-McGee Chemical Corporation (West Chicago Rare Earths Facility), ALAB-944, 33 N.R.C. 81, 101-02 (1991), *vacated as moot,* CLI-96-2, 43 NRC 13 (1996). In *West Chicago*, as here, there had been a protracted examination by the NRC Staff of the licensee's decommissioning plan and an administrative proceeding had been ongoing for some time. Under these circumstances, the Appeal Board concluded that application of Commission policy required ensuring "that there will be no interference with or interruption of licensed activities or the processing of license applications," and such policy could not be given effect if the oversight of the facility was transferred to the State while in the midst of an NRC adjudication. The same conclusion should be reached here.

D. Conclusions

As demonstrated above, the NJ Program deviates significantly from established NRC regulations and regulatory policies. Accordingly, the Staff's assessment that the NJ Program is compatible with the Commission's program must be set aside and New Jersey's Application to become an Agreement State must be denied.

If you have any questions concerning these comments, please feel free to contact me or my HSE Director, David White (614-599-9582).

Sincerely,

Hoy E. Frakes, Jr.
President

Enclosures (4)

c: Matias F. Travieso-Diaz, Esq., Pillsbury Winthrop Shaw Pittman LLP
NRC, FSME
J. Hayes, NRC

PUBLIC SUBMISSION

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Comment On: NRC-2009-0142-0001
State of New Jersey: NRC Staff Assessment of a Proposed Agreement Between the Nuclear Regulatory Commission and the State of New Jersey

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Comment on FR Doc # E9-12260

Submitter Information

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(3)

Name: Hoy E. Frakes, Jr.
Address:
35 S. W. Boulevard
P. O. Box 768
Newfield, NJ, 08344
Submitter's Representative: President
Organization: Shieldalloy Metallurgical Corporation

General Comment

THIS SUBMITTAL REPLACES THAT UNDER TRACKING NUMBER 809cbc47, THE ATTACHMENTS FOR WHICH FAILED TO UPLOAD PROPERLY. IT IS SUBSTANTIALLY THE SAME SUBMITTAL.

Attached are the comments of Shieldalloy Metallurgical Corporation on the Application by the State of New Jersey to enter into an agreement with the U.S. Nuclear Regulatory Commission ("NRC") pursuant to Section 274b. of the Atomic Energy Act of 1954. As set forth in the attached letter and attachments thereto, the proposed New Jersey radiation control program deviates significantly from established NRC regulations and regulatory policies. Accordingly, New Jersey's Application to become an Agreement State must be denied.

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Attachments

NRC-2009-0142-DRAFT-0003.1: Comment on FR Doc # E9-12260
NRC-2009-0142-DRAFT-0003.2: Comment on FR Doc # E9-12260

E-RIDS = ADM-03
Add = J. Taylor (JHT)
D. Sollenberger (dms4)

SUNSI Review Complete
Template = ADM-013

NRC-2009-0142-DRAFT-0003.3: Comment on FR Doc # E9-12260
NRC-2009-0142-DRAFT-0003.4: Comment on FR Doc # E9-12260

SHIELDALLOY METALLURGICAL CORPORATION

ADMINISTRATIVE OFFICES:
545 BECKETT ROAD, SUITE 208
SWEDESBORO, NJ 08085-1548

TELEPHONE (856) 241-4620
FAX (856) 241-4655

July 17, 2008

New Jersey Department of Environmental Protection
Alice A. Previte, Esq.
ATTN: 04-08-04/637
Office of Legal Affairs
401 East State Street, 4th Floor
PO Box 402
Trenton, New Jersey 08625-0402

Re: Shieldalloy Comments on Proposed Revision of New Jersey Radiation Protection Programs' Regulations in Support of Its Agreement State Initiative

Dear Ms. Previte:

This letter submits comments by Shieldalloy Metallurgical Corporation ("SMC") on the proposed revision of New Jersey Radiation Protection Programs' regulations ("N.J. Proposed Rule"). The N.J. Proposed Rule was published in the New Jersey Register on May 19, 2008 for a sixty-day comment period.[1] The N. J. Proposed Rule is intended to provide consistency between New Jersey's radiation protection and those of the U.S. Nuclear Regulatory Commission ("NRC"). NRC policy requires such consistency as a prerequisite to New Jersey and the NRC entering an agreement pursuant to 42 U.S.C. § 2021 enabling New Jersey to regulate certain radioactive materials as an "Agreement State."[2]

SMC owns a facility in Newfield, New Jersey ("the Newfield facility") for which it holds a source materials license from the NRC. The status and ultimate radiological decommissioning of the Newfield facility could be affected if the provisions of the N.J. Proposed Rule were enacted and made applicable to it. SMC has the following three general comments on the N. J. Proposed Rule, which are summarized here and provided in more detail below.

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1 40 N.J.R. 2309(a) (hereinafter "N. J. Proposed Rule").

2 *Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States through Agreement*, 46 Fed. Reg. 7540 (1981), as amended by policy statements published at 46 Fed. Reg. 36,969 (1981) and 48 Fed. Reg. 33,376 (1983); *Statement of Principles and Policy for the Agreement State Program; Policy Statement on Adequacy and Compatibility of Agreement State Programs*, 62 Fed. Reg. 46,517 to 46,525 (1997).

- The remediation standards in the N. J. Proposed Rule do not provide the reasonable flexibility generally found appropriate by other radiation programs nationwide, and to the contrary creates an unnecessarily restrictive regulatory regime for radiological decommissioning that is not rationally related to the stated purpose of the regulations. Applying this generic approach to widely disparate sites has the potential to be deleterious to the public interest.
- The proposed regulations conflate the definitions of "source material" and "Diffuse NARM," erasing the distinction between them. The N. J. Proposed Rule would appear to make the definition of Diffuse NARM applicable to SMC's Newfield facility. In fact, SMC's Newfield facility contains material which has long been classified as source material by the NRC. Confusing the regulation of materials such as laboratory trash from accelerator produced radiopharmaceuticals (Diffuse NARM) with by-products from processing of naturally occurring ores (source material) does not make sense and the N. J. Proposed Rule should be revised to ensure source material is not defined as Diffuse NARM.
- The fee provisions to charge licensees for remediation efforts by New Jersey do not comply with the governing New Jersey statute.

SMC's specific comments are as follows:

1. The N.J. Proposed Rule Does Not Provide Reasonable Flexibility For Radiological Decommissioning

Nationwide, radiation control programs have found it appropriate for efficient and timely radiological decommissioning to provide flexibility in the analysis approach to address the wide variations in the regulated facilities. As discussed below, the method for calculating compliance with radiological decommissioning criteria in the N. J. Proposed Rule is overly restrictive. The N. J. Proposed Rule (a) requires analysis for thousands (or even billions) of years into the future without a rational basis, (b) does not allow for any radioactive contamination above background in surface waters, (c) does not allow for reasonable alternate scenarios in dose calculations, (d) requires calculations to arbitrarily assume that engineering controls instantaneously fail, rather than degrade over time, and (e) does not allow any increase in the remediation dose criteria even if justified on the basis of the ALARA principal.

a. Analyzing Dose From Radiological Decommissioning For More Than A Thousand Years Into the Future Is Meaningless

The N.J. Proposed Rule requires that dose calculations for remediation must be conducted until the time of peak dose is reached or a thousand years, whichever is longer. *See, e.g.,* N. J. Proposed Rule 7:28-12.10(d); 7:28-12.11(a)4; 7:28-12.11(f)2.iii. First, if the time of peak dose is less than a thousand years, there is no rational basis to analyze a thousand year period. Second, for the types of activities that would be regulated by New Jersey as an Agreement State, calculation of dose beyond a thousand years would be meaningless, as discussed below. The reliance by the N. J. Proposed Rule on statements by the NRC is misplaced as it mischaracterizes the statements.

In promulgating a final rule that limited dose calculations to no more than a thousand years, the NRC addressed comments arguing that the time period for calculating dose was too short. According to the NRC, "[s]ome commenters objected to the proposed 1000-year time frame for calculating dose and wanted it lengthened to better predict health effects over the hazardous life of *each isotope*." *Final Rule, Radiological Criteria for License Termination*, 62 Fed. Reg. 39,058, 39,083 (July 21, 1997) ("Final Rule") (emphasis added). The NRC rejected this argument, reiterating the rationale that it had stated in the proposed rule for limiting the time period to 1,000 years:

> As previously discussed in the preamble to the proposed rule, the Commission believes the use of 1000 years in its calculation of its maximum dose is reasonable based on the nature of the levels of radioactivity at decommissioned sites and the potential for changes in the physical characteristics at the site over long periods of time. . . .where the consequences of exposure to residual radioactivity at levels near background are small and peak doses for radionuclides of interest in decommissioning occur within 1000 years, long term modeling thousands of years into the future of doses that are near background may be virtually meaningless.

Id. Thus, the NRC explicitly rejected the argument that dose assessments should be conducted over periods that were dependent on the half-life of the nuclide at issue. The 1,000-year time period in NRC regulations applies to *all* facilities covered by the regulation, and *all* radionuclides residing at a given site.[3] The N. J. Proposed Rule should be revised to delete requirements for dose calculations where the results would be meaningless.

In addition, the time calculation appears intended only to apply to SMC's Newfield facility, for which it will have a discriminatory economic impact. The N. J. Proposed Rule states, "The proposed amendment to *N.J.A.C. 7:28-12.10(d)*, extending the time period of dose calculations to the time of peak dose, will have an economic impact on licensees only if the licensees have large amounts of contaminated material that will leach into the groundwater and the peak dose occurs after 1,000 years. The Department and Commission estimate that there are only one or two NRC licensees in the State that would fall into this category. These licensees are former manufacturing facilities and are in the process of decommissioning." N. J. Proposed

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[3] The N.J. Proposed Rule cites the NRC as intending to apply the rule only to short-lived radionuclides and agreeing that for long-lived nuclides "future calculations beyond 1000 years would be valuable." In fact, what the NRC actually said was:

> Unlike analyses of situations where *large quantities* of long-lived radioactive material may be involved (e.g., a *high-level waste repository*) and where distant future calculations *may* provide some insight into consequences, in the analysis for decommissioning . . . long term modeling thousands of years into the future of doses that are near background may be virtually meaningless.

62 Fed. Reg. at 39,083 (emphasis added). Contrary to the characterization in the N.J. Proposed Rule, the NRC stated that calculation beyond a thousand years is meaningless except for special cases similar to a high-level waste repository that are not within the authority that would be held by N.J. as an Agreement State.

Rule, Compliance Costs discussion. SMC's Newfield facility is one of the facilities affected by this definition. These proposed decommissioning regulations should be revised to ensure the regulations have a rational basis, are consistent with the NRC rules and comparable programs in the rest of the country, and do not have a discriminatory impact on a single facility.

b. Applying New Jersey Surface Water Quality Standards To Radioactivity Lacks a Rational Basis

The N.J. Proposed Rule requires compliance with the New Jersey Surface Water Quality Standards ("SWQS"). *See, e.g.,* N. J. Proposed Rule 7:28-12.8(c); 7:28-12.11(a)4. The SWQS contain "anti-backsliding" provisions. N.J.A.C. 7:9B-1.5(d). If applied to radioactive discharges to surface waters, these provisions would preclude detectable radioactivity releases above background, even if the levels are significantly below those required to protect the health and safety of the public, because the SWQS do not allow measurable changes in water quality. "Category One Waters shall be protected from any measurable changes (including calculable or predicted changes) to the existing water quality." N.J.A.C. 7:9B-1.5(d)6(iii). Comparable provisions apply to surface waters other than Category One Waters. N.J.A.C. 7:9B-1.5(d)6(iv) The SWQS allow exceptions to the backsliding provisions only if "some change in ambient water quality should be allowed because of necessary and justifiable social or economic development." N.J.A.C. 7:9B-1.8(a); *see also* N.J.A.C. 7:9B-1.9(a)1(i). A decommissioning site may not be able to demonstrate that its discharges are necessary for "social or economic development", particularly given the overly vague standard which the Proposed Rule would adopt. Essentially, New Jersey is proposing to ban altogether any radioactive discharges to surface waters from remediation sites, an impractical standard for radioactivity that is not related to a rational public health and safety goal.

As the N. J. Proposed Rule notes, the NRC regulations allow radioactive discharges to surface waters, provided all pathways for exposure are considered and resulting doses are within limits. The N. J. Proposed Rule recognizes that New Jersey rules do not consider exposures through consumption of fish, use of irrigation water on crops, or bathing, but asserts that implementing the SWQS takes "into account the potential dose that could result from the contamination of surface water." N. J. Proposed Rule, Federal Standards Analysis. The N. J. Proposed Rule provides no further analysis as to how the effective ban proposed on discharges of radioactivity to surface waters by decommissioning sites in the N. J. Proposed Rule is consistent with the NRC approach to allow radioactive discharges to surface waters within limits.

Furthermore, the N. J. Proposed Rule does not consider that the NRC rules require that radioactive discharges to surface waters be minimized to the extent reasonable considering a balance of competing compliance costs and public health and safety benefits. *See* 10 C.F.R. § 20.1101(b). The N. J. Proposed Rule does not and can not explain the equivalence between its proposed impractical ban on discharges with the NRC approach of minimizing discharges consistent with a balance of cost and benefits. The application of SWQS to radioactivity should be deleted from the N. J. Proposed Rule as there is no rational relationship to its public health objectives.

The N. J. Proposed Rule appears to recognize that this effective ban would only apply to SMC's Newfield facility and result in an economic impact that is not justified in accordance with the New Jersey Code. The N. J. Proposed Rule states, "Proposed amended *N.J.A.C. 7:28-*

12.8(c) requires licensees to adhere to the New Jersey Surface Water Quality standards, *N.J.A.C. 7:9B*. The proposed amendment will have an economic impact only on those licensees whose activities have resulted in contamination to surface water. The Department knows of only one such facility in the State, which is a former manufacturing facility." N. J. Proposed Rule, Compliance Costs discussion. Again, although not mentioned by name, SMC's Newfield facility is the facility discussed. Furthermore, New Jersey appears to recognize that this regulation will have a discriminatory impact on SMC. These proposed decommissioning regulations should be revised to ensure the regulations are not arbitrary, have a rational basis focused on protection of human health and the environment, are consistent with the NRC rules and comparable programs in the rest of the country, and do not have a discriminatory impact on a single facility. This is particularly the case where radioactive discharges to surface water in New Jersey are not only permitted by Federal (NRC) regulations but routinely take place with no impact to the public health and safety.

c. The N. J. Proposed Rule Should Allow Calculation of Dose Based on Realistic Scenarios

The N. J. Proposed Rule requires from the use of default clean up criteria for radiological decommissioning whose basis are specific exposure scenarios. N. J. Proposed Rule 7:28-12.11(b). Furthermore, licensees may request consideration of alternate parameters for site-specific characteristics, but not for site-specific exposure scenarios. N. J. Proposed Rule 7:28-12.11(c). New Jersey has previously stated that this approach is based on the assumption that only the specific scenarios assumed by New Jersey "would endure for the length of time the residual radionuclides would be present." *Soil Remediation Standards for Radioactive Material, Summary of Public Comments and Responses*, DEP Docket 11-99-06/697, adopted June 21, 2000, response to comment 93. In contrast, NRC guidance allows the use of realistic site-specific scenarios with justification for the reasons stated in *License Termination Rule Analysis*, SECY-03-0069 (NRC 2003). *See Consolidated Decommissioning Guidance*, NUREG-1757, Vol. 2, Ch. 5. New Jersey should reevaluate its approach to exposure scenario selection considering the more recent NRC guidance.

d. Dose Calculations Based on Realistic Degradation of Engineering Controls Over Time Should Be Allowed

The N. J. Proposed Rule states:

> Under the Department's rules, the licensee would also have to provide for durable institutional controls and provide sufficient financial assurance to enable a responsible government entity or independent third party to carry out checks of the facility every five years and to maintain the controls. When modeling the all controls fail scenario, the Department interprets failure of all institutional and engineering controls strictly. This means that no credit for any engineering controls, such as a fence or cover, can be taken when performing the model to determine if the 100 mrem annual dose is exceeded. The NRC, however, allows the licensee to take credit for controls that have degraded, but not completely failed. So the NRC would allow a small hole in a cover rather, for

> example, which could result in a significant difference in the resultant dose.

N. J. Proposed Rule, Compliance Costs discussion. The NRC approach reflects that engineered structures degrade by known physical processes. Instead, New Jersey proposes to assume that engineered structures instantaneously fail at the precise moment when institutional controls are presumed to end. The N. J. Proposed Rule does not and can not provide a reasoned basis for assuming engineered structures simply vanish, rather than degrading through processes consistent with the known physical world. Furthermore, the assumption is inconsistent with the objectives of the regulations as it discourages licensees from providing robust barriers as engineering controls. Contrary to the NRC approach, the New Jersey approach would treat even the most robust engineering control like it is a sand castle on the beach. The N. J. Proposed Rule should be revised to provide for calculations based on realistic degradation of engineering controls over time.

e. The N. J. Proposed Rule Should Allow Use of NRC Remediation Dose Criteria When Appropriate

The N.J. Proposed Rule will not allow consideration of alternate remediation standards if they would result in increasing in any manner the allowed incremental dose criterion of 15 mrem/yr. *See, e.g.,* N. J. Proposed Rule 7:28-12.11(b); 7:28-12.15(a) and (b). The N.J. Proposed Rule will not allow consideration of alternate remediation standards if they would be supported by increasing in any manner the allowed 100 mrem/yr incremental dose criterion in the event controls fail. *See, e.g.,* N. J. Proposed Rule 7:28-12.11(e).

The N. J. Proposed Rule concedes that the NRC remediation standards differ from New Jersey's.

> Under the existing Federal and State rules, the NRC requires remediation to a dose of 25 mrem per year (mrem/y) with an as low as reasonably achievable (ALARA) requirement. The Department's and the Commission's existing rules require remediation to a dose of 15 mrem/y. (See *N.J.A.C. 7:28-12.8.*) The NRC does not require a state to adopt the NRC's remediation dose criterion in order to become an Agreement State; consequently, the Department is continuing its remediation dose criterion of 15 mrem/y.

N. J. Proposed Rule, Subchapter 12 discussion. The N. J. Proposed Rule provides no justification for requiring stricter remediation standards than those provided by the NRC, nor for not allowing licensees to apply the Federal standards. Specifically, the N. J. Proposed Rule recognizes that the NRC and New Jersey remediation standards are equivalent as a practical matter. *Id.* The consequence of not allowing consideration of the NRC standards in appropriate cases is that New Jersey would prohibit returning land to productive use when allowed by Federal regulations. The N. J. Proposed Rule should be revised to either adopt the NRC criteria or allow for consideration of alternate dose criteria, such as the NRC criteria, in appropriate cases.

2. **New Jersey Improperly Redesignates Source Material as "Diffuse NARM" Without a Rational Basis**

The N. J. Proposed Rule defines "Diffuse NARM" such that the definition could improperly cover source material subject to NRC regulation. The N. J. Proposed Rule descriptive material seems to recognize that Diffuse NARM does not include material regulated by the NRC as source material.

> The Department and the Commission propose to amend Subchapter 4, and its heading, so that it applies only to diffuse sources of NARM. Because Congress amended the Energy Policy Act to change the definition of byproduct material to include discrete sources of NARM, the State must have regulations that encompass diffuse sources of NARM, in order that these sources are regulated.
>
> Diffuse NARM is a radionuclide that has become concentrated, but not for the purpose of use in commercial, medical, or research activities. An example of diffuse NARM is the concentrated naturally occurring radioactive materials in a waste pile from a mineral extraction facility. In the process of extracting one or more non-radioactive minerals from soil, the naturally occurring radioactive materials become concentrated above licensing criteria in the waste pile. Because the waste has no use in commercial, medical, or research activities, it is not discrete and, therefore, not regulated under Federal (or Agreement State) authority.
>
> The existing subchapter applies to all sources of NARM. Once the Federal Energy Policy Act of 2005 goes into effect in August 2009, NARM materials that the NRC would otherwise regulate will be regulated by the Agreement States, including New Jersey. The appropriate Federal regulations are incorporated throughout the chapter for that purpose. However, diffuse NARM is not a NRC-regulated material, and is not included in the Agreement State rules. Therefore, the State must amend its rules in order that they apply to diffuse NARM. Therefore, the Department and the Commission are proposing to amend *N.J.A.C. 7:28-4.1* to insert the word "diffuse" before accelerator produced and naturally occurring radioactive materials.

N. J. Proposed Rule, Subchapter 4 discussion. The N. J. proposed rule apparently is only intended to cover material not currently regulated by the NRC ("diffuse NARM is not a NRC-regulated material"). However, the proposed regulation at N. J. Proposed Rule 7:28-4.1(b) is ambiguous. The NRC defines as source material naturally occurring uranium or thorium above certain threshold criteria. 10 C.F.R. § 40.4. However, Subchapter 4 of the Proposed Rule (quoted above) provides as an example of Diffuse NARM "concentrated naturally occurring radioactive material in a waste pile for a mineral extraction facility."[4] Since this material could well be NRC-licensed source material, the N.J. Proposed Rule seems to trying to create an ambiguity between what is, and what is not, NRC-licensed materials. Therefore, it appears that the N. J. Proposed Rule should not be read to regulate the source material currently licensed by the NRC at SMC's Newfield facility as Diffuse NARM.

The N. J. Proposed Rule also appears to suffer from a drafting error. Currently, source, byproduct and special nuclear material are explicitly excluded from the definition of Diffuse NARM. The N. J. Proposed Rule deletes the exception for source material from the scope of New Jersey regulations of Diffuse NARM. N. J. Proposed Rule 7:28-4.1(b). The N. J. Proposed Rule attempts to justify the deletion, stating: "This sentence is no longer necessary because this subchapter applies only to diffuse NARM. Regulation of byproduct, source, and special nuclear material are addressed in the Federal rules that are proposed to be incorporated by reference elsewhere in these proposed rules." N. J. Proposed Rule, Subchapter 4 discussion. As drafted, the definition of Diffuse NARM would also cover the material that contains naturally occurring or accelerator-produced isotopes covered in the other proposed subchapters if the exception is deleted. The N. J. Proposed Rule should be corrected to ensure that source material does not fall within the definition of N. J. Proposed Rule 7:28-4.1(b).

[4] To the extent that the description in the N.J. Propose Rule (quoted above) of the general mineral extraction process as concentrating is meant to describe the SMC's Newfield facility, the description is factually incorrect. The SMC process added significant weights of aluminum powder as part of the process resulting in a tough, volcanic rock-like slag that is diluted, not concentrated, in uranium and thorium compared to the incoming raw material.

3. **The Basis For Calculating Certain Fees Is Inconsistent With The Governing New Jersey Statute**

In Table 2 of Subchapter 64 of the N. J. Proposed Rule, two categories of decommissioning or reclamation work are charged at "Full Cost." However, no definition of "Full Cost" is provided, nor is there an explanation of whether this fee is an annual or periodic fee. In addition, the annual fee adjustment factors in 7:28-64.10 of the N. J. Proposed Rule have no relationship to the actual costs incurred by N. J. The governing New Jersey statute requires that fees shall be annual or periodic; shall "be based on criteria contained in the fee schedule;" and shall "reflect the actual or projected expense incurred by the department in the performance of the service." N.J.S.A. 26.2D-9(l). The fee provisions in the Proposed Rule do not comply with the requirements of N.J.S.A. 26.2D-9(l) and must be corrected.

If you have any questions or comments concerning this matter, please feel free to contact me at 740 432 6345 ext 246 or my HSE Director, David White at 614 599-9582.

Sincerely,

Hoy E. Frakes, Jr.
President

cc: Robert Haemer, Esq., Pillsbury Winthrop Shaw Pittman LLP USNRC,
Federal and State Materials and Environmental Management
Jack Hayes, USNRC
David Smith, SMC RSO
David White, SMC

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RULE ADOPTIONS

ENVIRONMENTAL PROTECTION
ENVIRONMENTAL REGULATION
DIVISION OF ENVIRONMENTAL SAFETY AND HEALTH
COMMISSION ON RADIATION PROTECTION

40 N.J.R. 5196(b)

Adopted Repeals: N.J.A.C. 7:28-3.5, 3.8, 3.11, 3.13, 4.19, 5.4, 7.5, 8.3, 8.4, 9, 10.4, 10.5, 10.9 and 11

Adopted New Rules: N.J.A.C. 7:28-2.13, 4.16, 12.10, 12.15, and 50 through 64

Adopted Repeals and New Rules: N.J.A.C. 7:28-6

Adopted Amendments: N.J.A.C. 7:28-1.1, 1.4, 1.5, 3.1, 3.2, 3.6, 3.10, 4.1 through 4.18, 5.1 through 5.3, 7.1 through 7.3, 8.1, 8.2, 10.6, 10.8, 12.2 through 12.5, 12.8 through 12.12, 12 Appendix A, 13.1, 13.2, 17.1 through 17.6, 17.8, 18.1, and 48.2

Radiation Protection Programs

Proposed: May 19, 2008 at 40 N.J.R. 2309(a).

Adopted: August 20, 2008 by Lisa P. Jackson, Commissioner, Department of Environmental Protection and August 12, 2008 by the Commission on Radiation Protection, Julie K. Timins, M.D., Chair.

Filed: August 21, 2008 as R.2008 d.281, **with substantive and technical changes** not requiring additional public notice and comment (see N.J.A.C. 1:30-6.3).

Authority: N.J.S.A. 13:1B-1 et seq., 13:1D-1 et seq. and 26:2D-1 et seq.

DEP Docket Number: 04-08-04/637.

Effective Date: September 15, 2008.

Operative Date: Operative upon publication of notice in the New Jersey Register by the Department of Environmental Protection that the U.S. Nuclear Regulatory Commission and the State of New Jersey have entered into an Agreement for the State to regulate source, certain special nuclear, and by-product material.

Expiration Date: June 21, 2010.

The Department of Environmental Protection (Department) and the Commission on Radiation Protection (Commission) are adopting new rules, repeals and amendments to the Radiation Protection Programs' rules, N.J.A.C. 7:28, which new rules, repeals and amendments are part of New Jersey's becoming an Agreement State with the U.S. Nuclear Regulatory Commission (NRC).

New Jersey has a comprehensive radiation protection program encompassing x-ray machines, naturally occurring or accelerator produced radioactive materials (NARM), radon, clean up of radioactively contaminated sites, monitoring around nuclear power plants, emergency preparedness and response to radiological incidents including transportation accidents, and requirements for non-ionizing sources of radiation. Additionally, there are requirements for licensure and certification of people - radiological technologists, nuclear medicine technologists, radon testers and mitigators, and qualified medical physicists.

States have the option to assume responsibility for regulation of radioactive materials that are governed under the Atomic Energy Act (AEA) through an agreement between the Governor of the state and the United States Nuclear Regulatory Commission (NRC). (See 42 U.S.C. §2021.) This is known as becoming an "Agreement State." The AEA requires that an Agreement State's regulations be compatible with the NRC's regulations, and that the state's regulations be adequate to protect the public health and safety, with respect to such materials. (See 42 U.S.C. §2021(d).)

Prior to the 2005 Energy Policy Act (42 U.S.C. §§13201 et seq.), the definition of byproduct material included any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material. This type of byproduct material includes nuclear medicine produced by a reactor (instead of an accelerator). In August 2005, President Bush signed the Energy Policy Act (42 U.S.C. §§13201 et seq.)). By changing the definition of byproduct material to include discrete sources of NARM, the Energy Policy Act gives the NRC control over every aspect of almost all radioactive materials beginning in August 2009, unless a state enters into an Agreement with the NRC. In other words, the existing New Jersey program, except for a limited amount of material, will be Federally preempted, unless New Jersey becomes an Agreement State. In light of this approaching deadline, and mindful of the State's history and experience in regulating radioactive materials, the State notified the NRC of its decision to become an Agreement State by letter dated May 23, 2006, from Governor Corzine to NRC Chairman Nils J. Diaz.

New Jersey is seeking approval from the NRC to regulate source, certain special nuclear, and byproduct material. If the NRC grants New Jersey Agreement State status, New Jersey will have authority to regulate these materials instead of the NRC. The within rules establish New Jersey's regulation of source, certain special nuclear (states can only assume authority to regulate small quantities of special nuclear material), and byproduct material, in order that New Jersey can become an Agreement State.

When the NRC grants New Jersey Agreement State status, which is anticipated to be in late summer 2009, the Department will publish a notice in the New Jersey Register, advising that the within amendments, repeals and new rules are operative. Until the new rules, repeals and amendments are operative, New Jersey must continue to rely on the Federal government to license and regulate source, special nuclear, and byproduct materials.

Summary of Public Comments and Agency Responses:

The following individuals, companies, organizations, and/or agencies submitted written comments on the proposal.

1. Laurence Bernson - Alcatel-Lucent
2. J. Russell Cerchiaro - Schering-Plough
3. Michael J. Drzyzga - Hoffmann-La Roche, Inc.
4. Sue M. Dupre - Princeton University Environmental Health and Safety
5. Michael Egenton - New Jersey State Chamber of Commerce
6. Hoy E. Frakes, Jr. - Shieldalloy Metallurgical Corporation
7. Halim A. Hasan - Lundbeck Research USA, Inc.
8. Debra Hrabinski
9. Tony Russo - Chemistry Council of New Jersey
10. Vincent Williams - Merck Research Laboratories

General

1. COMMENT: The comment period should be extended 60 days because the length and complexity of the proposal and the time of year has made it difficult to complete a review of the proposal and develop appropriate comments. (1, 2, 3, 4, 5, 7, 8, 9, 10)

RESPONSE: Although the proposal was lengthy, the substance of the proposal was straightforward. As stated in the Summary, 40 N.J.R. 2309(a) at 2310, New Jersey rules must be compatible with the Nuclear Regulatory Commission (NRC) regulations; accordingly, the Department and the Commission elected to incorporate the NRC's regulations by reference. NRC licensees in New Jersey had the opportunity to review and comment on NRC regulations when they were proposed. If a facility is in compliance with NRC regulations, the facility should have no difficulty complying with the New Jersey rules. The difference is that the regulator will be the Department instead of the NRC.

As was discussed in the Summary, 40 N.J.R. 2310, if New Jersey does not become an Agreement State by August 2009, the NRC could assume authority over all NARM, which is currently regulated by New Jersey. The State can continue to regulate NARM under a waiver that expires on August 8, 2009.

It was not practical for the Department and the Commission to extend the comment period, in light of the NRC's schedule for reviewing New Jersey's application to become an Agreement State. Appendix C from the NRC's Office of Federal and State Materials and Environmental Management (FSME) Programs State Agreement procedure on Processing an Agreement (SA-700), includes a schedule for processing a new Agreement (http://nrc-stp.ornl.gov/procedures/sa700hb_appc.pdf). The amount of time projected by the NRC to process an Agreement once the NRC receives a formal Agreement application is 39 weeks (between nine and 10 months), provided the application requires little or no revision, the Commission reviews and votes on the two required NRC staff papers in a timely manner (the NRC staff submit a paper to the Nuclear Regulatory Commission members on the proposed Agreement and another paper on the final Agreement), and the state has the required number of employees hired and trained. If the Agreement is to be in place by August 2009, New Jersey should submit its application no later than September 2008, which gives the NRC 11 months to review and approve the application. Part of a complete application is adopted rules. If the comment period had been extended, the rules would likely not be in place to submit a complete application with sufficient time before August 2009 for the NRC to complete its process.

2. COMMENT: Many current NRC licensees in New Jersey are not currently licensed by the Department, and do not have access to the existing Department regulations. An outdated and incomplete version of N.J.A.C. 7:28 is available "on-line." The rules must be purchased as part of the entire Department code at a cost of over $ 500.00. In order for the proposed new rules to be effectively evaluated by those New Jersey based NRC licensees, they must obtain the current N.J.A.C. 7:28. This purchase process significantly delays the review, and therefore supports extending the comment period. (3, 7, 8)

RESPONSE: The Department's regulations webpage explains that the posted statutes and regulations are "courtesy copies" of the documents. The link on the rules page for how to get copies of the Department's rules states that the official current version of the code must be purchased from LexisNexis. However, another link from the rules page takes one to New Jersey Office of Administrative Law, www.nj.gov/oal/rules.html, where there is a link to LexisNexis, which provides free on-line public access to the New Jersey Administrative Code and the New Jersey Register, www.lexisnexis.com/njoal. As an alternative, the New Jersey Register and the New Jersey Administrative Code are available for review at public and university libraries throughout the State.

The majority of the amendments to the rules incorporate the NRC regulations by reference. The NRC regulations are available on the NRC website, http://www.nrc.gov/reading-rm/doc-collections/cfr/, through the Federal Government Printing Office website at http://www.gpoaccess.gov/CFR/INDEX.HTML, and at public and university libraries throughout the State.

3. COMMENT: There were an insufficient number of stakeholder meetings about the proposed rules. (3, 10)

RESPONSE: As part of the rulemaking, there were six public stakeholder meetings. Department representatives gave presentations about the rules at the meeting of the New Jersey Chapter of the Health Physics Society, Somerset, December 5, 2006; and the meeting of the Commission on Radiation Protection, Ewing, March 21, 2007. The Department met with the Medical Physicists and other industry groups at the Radiation Protection office, Ewing, on July 17, 2007; and made a presentation to the Mid-Atlantic States and New Jersey Health Physics Society in Lambertville, October 16, 2007; and a presentation to the New Jersey Society of Nuclear Medical Technologists in Atlantic City on March 7, 2008. On December 6, 2007, the Department met with radiological remediation consultants to discuss Decommissioning Regulations.

In addition, the Department posted a link to Agreement State issues on its website, which included a list of Frequently Asked Questions. The Department and the Commission believe that they provided ample opportunities for stakeholders to meet with the Department and the Commission, to learn about the proposed rules and to discuss the rules with Department representatives.

Domestic Treatment Works Discharge Limits

4. COMMENT: There is an inconsistency between the Summary and the rule text at N.J.A.C. 7:28-6 regarding release limits for H-3 and C-14. The Summary at 40 N.J.R. 2317 states that a limit of one curie would apply to both H-3 and C-14, but the rule incorporates the NRC regulation by reference. The NRC discharge limits are five curies per year for H-3 and one curie per year for C-14. (3, 4, 8, 10)

RESPONSE: The Summary is not correct when it states that the limit will be one curie for H-3 and C-14. The rule text is correct, in which 10 CFR 20.1301 is incorporated by reference, replacing the term "sanitary sewer" with "domestic treatment works." There is no change from the current NRC discharge limits, which are five curies per year for H-3 and one curie per year for C-14.

Throughout the Summary, the Department and Commission indicated that the intention is to be adequate and compatible with the Federal rules, as is required if New Jersey is to be an Agreement State. A limit of one curie per year for H-3 would not be compatible with the Federal rules. Consequently, the rule text governs.

Personnel Monitoring

5. COMMENT: Proposed Subchapter 7 no longer contains any reference to personnel monitoring and, therefore, cross references from different subchapters are no longer valid. (4)

RESPONSE: In Subchapter 7, personnel monitoring is mentioned only in N.J.A.C. 7:28-7.4, Use of personnel monitoring equipment. The Department and Commission neither proposed nor adopted amendments to N.J.A.C. 7:28-7.4. (Although the Summary, 40 N.J.R. 2319, does refer to amendments to N.J.A.C. 7:28-7.4 to remove references to radioactive materials or licensees, no such amendment was necessary or proposed.)

The section remains in the rules and cross references to it are valid.

Decommissioning

6. COMMENT: The rules should contain a definition of real property, since the term is used in the decommissioning subchapter (N.J.A.C. 7:28-12). (4)

RESPONSE: The Department and Commission believe that the term "real property," as it is customarily used, is clear. The term includes land and things permanently attached to the land, such as buildings, and stationary mobile homes. Anything that is not real property would be materials and equipment, for purposes of Subchapter 12, Remediation Standards for Radioactive Material, where the term "real property" is used. The rules' dose criterion at N.J.A.C. 7:28-12.8 applies to the land and buildings. The contribution from residual radioactivity from buildings and land together must not exceed 15 millirem per year.

7. COMMENT: Subchapter 12 is not clear with regard to release levels for building surfaces and materials and equipment. The NRC does not include such levels in its rules; however, the NRC refers to Regulatory Guidance documents to support a licensee's "free release" of buildings and equipment. The rule should be clarified or supplemented by cross referencing the NRC guidance upon adoption. (3)

RESPONSE: As stated in the Response to Comment 6, the Department and Commission's dose criterion of 15 mrem per year at N.J.A.C. 7:28-12.8 applies to land and buildings. The NRC guidance documents related to "free release" of materials and equipment are not part of the Federal rules, and are not incorporated into these rules; however, because the adopted rules incorporate the NRC's rules by reference, the NRC's guidance is useful for interpretation. Therefore, the Commission and the Department will use the NRC's current approach for "free release" of materials and equipment outlined in NRC Regulatory Guide (NUREG) 1757, Vol.1, Rev. 2, Consolidated Decommissioning Guidance, which is to review specific cases on an individual basis.

NUREG 1757 provides a description of the current NRC approach to releasing solid materials, which is on a case by case basis. For materials and equipment with surface contamination, the NRC uses either the criteria in Regulatory

Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors," or the criteria in Fuel Cycle Policy and Guidance Directive FC 83-23, entitled "Guidelines for Decontamination for Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Byproduct, Source or Special Nuclear Materials Licenses." Both guidance documents can be found on the NRC website (www.nrc.gov).

The release of materials and equipment with volumetric contamination is implemented by the NRC under the provisions of the December 27, 2002, NRC Memorandum, "Update on Case-Specific Licensing Decisions on Controlled Release of Concrete from Licensed Facilities" (referenced in U.S. Nuclear Regulatory Commission, All-Agreement States Letter No. STP-03-003, "Update on Case- Specific Licensing Decisions on Controlled Release of Concrete from Licensed Facilities," January 15, 2003.). This memorandum indicates that controlled releases of volumetrically contaminated concrete may be approved under an annual dose criterion of a "few mrem." NUREG 1757 goes on to state that a few mrem means zero to five mrem per year total effective dose equivalent (TEDE).

8. COMMENT: The Department and Commission propose to delete text referencing acceptable testing procedures for water and soil at N.J.A.C. 7:28-12.5(c) and (d), and replace it with certification by the Department's Office of Quality Assurance. This could be interpreted to mean that the only acceptable testing methods would be laboratory analysis. Would surveys by hand held instruments still be allowed for determining building surface contamination? (3)

RESPONSE: In 1999, when the Department and the Commission proposed amendments to Subchapter 12, the Department's Office of Quality Assurance did not certify laboratories for radionuclides in soil analyses. Therefore, the Department was compelled to propose and adopt N.J.A.C. 7:28-12.5(c) and (d), which contain requirements on acceptable procedures and intercomparison testing. (See (31 N.J.R. 1723(a) at 1730, 32 N.J.R. 2866(a) at 2884.) Since then, the Office of Quality Assurance has updated its laboratory certification process to include certification of radiological analyses in soil, which make the specific language in the previous rules at N.J.A.C. 7:28-12.5(c) and (d) unnecessary.

The Department's existing regulation at N.J.A.C. 7:28-12.5(e) addresses surveys, requiring surveying with hand held instruments to be done in accordance with the Department's Field Sampling Procedures Manual. The Department and Commission did not propose amendments to N.J.A.C. 7:28-12.5(e), other than to recodify it as (d). Thus, surveys by hand instruments continue to be allowed.

9. COMMENT: The method for calculating compliance with radiological decommissioning criteria in the proposed rule is overly restrictive. Nationwide, radiation control programs have found it appropriate for efficient and timely radiological decommissioning to provide flexibility in the analysis approach to address the wide variation in the regulated facilities. Specifically, analyzing dose from radiological decommissioning sites for more than 1,000 years into the future, as required at proposed N.J.A.C. 7:28-12.10(d) and 12.11(f)2iii, is meaningless, and the Department misinterpreted the NRC's response to comment document regarding calculations beyond 1,000 years being valuable for long-lived radioactive material. The NRC has stated that modeling should be specific to each radionuclide as:

> Unlike analyses of situations where *large quantities* of long-lived radioactive material may be involved (e.g. *a high-level waste repository*) and where distant future calculations may provide some insight into consequences, in the analysis for decommissioning. . .long term modeling thousands of years into the future of doses that are near background may be virtually meaningless. (Emphasis added by commenter.)

52 Fed. Reg. 39058, 39083 (July 21, 1997) (Response F.7.3)

If the peak dose occurs in less than 1,000 years, there is no rational basis to analyze for a thousand-year period. (6)

RESPONSE: The existing regulation at N.J.A.C. 7:28-12.10(f)2iii requires dose calculations to be extended for 1,000 years. Thus, the requirement that dose calculations be measured for 1,000 years is not new. The Department and the Commission proposed new N.J.A.C. 7:28-12.10(d) and amended N.J.A.C. 7:28-12.11(f)2iii to require dose calculations to be extended to the time of peak dose or 1,000 years, whichever is longer.

The NRC decommissioning regulation at 10 CFR 20.1401(d) requires that when calculating the total effective dose equivalent to the average member of the critical group, the licensee shall determine the peak annual total effective does equivalent (TEDE) expected within the first 1,000 years after decommissioning. The commenter's interpretation of the NRC's response to a comment on making the time period correlate with the half-life of the specific nuclide is different than the Department and the Commission's interpretation. A clear point that the NRC made is that the 1,000-year modeling requirement does not apply to long-lived nuclides. Specifically, the NRC responded:

> As previously discussed in the preamble to the proposed rule, the [Nuclear Regulatory] Commission believes use of 1000 years in its calculation of maximum dose is reasonable based on the nature of the levels of radioactivity at decommissioned sites and the potential for changes in the physical characteristics at the site over long periods of time. Unlike analyses of situations where large quantities of long-lived radioactive material may be involved (e.g., a high-level waste repository) and where distant future calculations may provide some insight into consequences, in the analysis for decommissioning, where the consequences of exposure to residual radioactivity at levels near background are small and *peak doses for radionuclides of interest in decommissioning occur within 1000 years*, long term modeling thousands of years into the future of doses that are near background may be virtually meaningless.

52 Fed. Reg. 39058, 39083 (July 21, 1997) (Response F.7.3) (emphasis added).

Long-lived radionuclides, such as uranium and thorium, have half-lives in the millions and billions of years and peak doses may well occur after 1,000 years. The Department and Commission believe it is vital to consider the peak dose, whenever it occurs, to ensure that adequate measures are taken to protect the public health and safety. Moreover, in its review of the proposed Agreement State rules, the NRC did not object to the proposed language requiring modeling to the time of peak dose beyond 1,000 years, and agreed that this language met the compatibility requirements for becoming an Agreement State.

With regard to the mandate in N.J.A.C. 7:28-12.10(d) and 12.11(f)2iii that modeling be to the time of peak dose or 1,000 years, whichever is longer, one will not know when peak dose occurs unless it can be demonstrated that the dose decreases over time. For these reasons, the Department and the Commission do not agree that N.J.A.C. 7:28-12.10(d) or 12.11(f)2iii should be modified or deleted on adoption.

10. COMMENT: The Department and the Commission's requirement at N.J.A.C. 7:28-12.8(c) and 12.11(a)4 for decommissioned sites to meet the surface water quality standards would prohibit surface water discharges because of the "anti-backsliding" provisions in the surface water rules. Specifically, the surface water quality standard at N.J.A.C. 7:9B-1.5(d) would preclude detectable radioactivity releases above background, even if the levels are significantly below those required to protect the health and safety of the public, because provisions of the Surface Water Quality Standards do not allow measurable changes in water quality. Exceptions to the backsliding provisions apply only if some change in ambient water quality should be allowed because of necessary and justifiable social or economic development, and that a decommissioned facility may not be able to demonstrate that.

The proposed rules do not consider that the NRC rules allow radioactive discharges to surface waters, provided that all pathways for exposure are considered and resulting doses are within limits and that they are minimized to the extent reasonable considering a balance of costs and benefits. The Department and the Commission have proposed a ban on any radioactive discharges to surface waters from remediation sites and this is an impractical standard for radioactivity that is not related to a rational public health and safety goal.

The proposal does not explain the equivalence between its proposed impractical ban on discharges with the NRC approach of minimizing discharges consistent with a balance of cost and benefits. Application of the Surface Water Quality Standards to radioactivity should be deleted from the rules. The proposed provision has a discriminatory impact on the one facility that would be affected by this provision. (6)

RESPONSE: The intent of N.J.A.C. 7:28-12.8(c) and 12.11(a)4 is to ensure that decommissioned facilities with residual material present do not affect the quality of any surface water near the facility. The Department and the Commission's intent in referencing the surface water quality rules was to ensure that the surface water standards for radioactivity at N.J.A.C. 7:9B-1.14(c)6 are met in order to verify that health and safety of humans and the environment are sufficiently protected.

The Department's provisions on backsliding and antidegradation in N.J.A.C. 7:9B apply to permitted discharges, not potential runoff from decommissioned sites. Accordingly, they would apply to a decommissioned facility only if it seeks a new or expanded wastewater discharge permit.

To ensure that licensees do not have to search through the Surface Water Quality Standards rules (N.J.A.C. 7:9B) to find the rule relating to radioactivity, the Department and the Commission are modifying N.J.A.C. 7:28-12.8(c) on adoption to replace the reference to the entire surface water chapter to the specific provision that contains the standards for radioactivity. The Department is making a similar modification at N.J.A.C. 7:28-12.11(a)4.

As explained above, there is not an impractical ban on surface water discharges; rather, the licensee must ensure that runoff to surface water from a decommissioned site is not over the surface water quality standards for radioactivity. The NRC's approach of minimizing discharges consistent with a balance of cost and benefits is termed ALARA. As explained in the Response to Comment 13 below, the Brownfield and Contaminated Site Remediation Act does not allow this approach.

The fact that there may be only one facility in the State now affected by the rule does not mean that other facilities will not be affected in the future. In fact, each facility at which there is a potential for radioactive materials to migrate to a stream could be affected. Creating an open class is not the equivalent of special legislation, which is prohibited, nor is it arbitrary or discriminatory.

11. COMMENT: The rules should allow calculation of dose based on realistic scenarios. Proposed N.J.A.C. 7:28-12.11(b) requires the use of default clean up criteria whose bases are specific exposure scenarios. Licensees may request consideration of alternate parameters for site-specific characteristics, but not for site-specific exposure scenarios. NRC guidance allows the use of realistic site-specific scenarios with justification for the reasons stated in their License Termination Rule Analysis, and Consolidated Decommissioning Guidance, NUREG 1757, Vol. 2, Ch. 5. Reevaluate the approach to exposure scenario selection, in light of the more recent NRC guidance. (6)

RESPONSE: The Department and the Commission do allow the use of some, but not all, alternate site-specific exposure scenarios. For example, adopted N.J.A.C. 7:28-12.11(c)4 (formerly N.J.A.C. 7:28-12.10(c)4) allows the Department to consider alternate indoor and outdoor occupancy times, if they are justified by land uses other than residential or commercial.

In proposing the adopted rules, the Department and the Commission considered the updated NRC guidance, but the basis for Tables 6 and 7 at N.J.A.C. 7:28-12.11(b) (which tables were not amended in the adopted rules) was provided when the rules were proposed at 31 N.J.R. 1723(a), and the parameters in the tables remain justified.

> An explanation on how these values were derived is provided in the Department's publication Development of Generic Standards for Remediation of Radioactively Contaminated Soils in New Jersey. This document may be obtained by contacting the Bureau of Environmental Radiation at (609) 984-5400 or from the Radiation Protection Program's web site at http://www.state.nj.us/dep/rpp/index.htm. The allowed minimum soil radionuclide concentrations are different for each radionuclide because of their differing properties. For example, the radionuclide thorium-232 is a strong gamma emitter; therefore, the external exposure pathway is the major contributor to dose, whereas uranium-238 contributes the most dose via the groundwater pathway. (31 N.J.R. 1723(a))

The Department and the Commission established sufficiently conservative bounds on the exposure scenarios in Tables 6 and 7 of adopted N.J.A.C. 7:28-12.11(b) to ensure that the dose criteria would be met for the length of time the residual radionuclides would be present (thousands to billions of years).

12. COMMENT: Dose calculations based on realistic degradation of engineering controls over time should be allowed. The NRC approach reflects that engineered structures degrade by known physical processes. N.J.A.C. 7:28-12.11(e) assumes that engineered structures instantaneously fail at the precise moment when institutional controls are presumed to end. The proposed rule does not and can not provide a reasoned basis for assuming engineered structures simply vanish, rather than degrading through processes consistent with the known physical world. (6)

RESPONSE: The Department and the Commission amended N.J.A.C. 7:28-12.11(e) only to make it applicable to licensees, as well as petitioners. Consequently, it remains in all other respects the same as previous N.J.A.C. 7:28-12.10(e), including the provision regarding institutional and engineering controls.

The adopted rules do not assume that the engineered barriers fail instantaneously. Rather, the rules require the Department to consider the public health consequences in the event that the engineered barriers completely fail at some point in the future. This is a reasonable approach to ensure an adequate degree of protection to the public health and safety. The NRC approach of assuming that engineered structures degrade over time does not take into account intentional human intervention.

In the Department's experience, human intervention greatly increases radiation exposure at radiologically contaminated sites. At some sites, signs indicating that radioactive materials are present are missing, fences have holes cut into them, and there is evidence (including the presence of a mattress and warm coffee cup) of persons residing on sites that

are restricted due to the presence of radioactive materials. This human-caused degradation of engineering controls occurred after only 10 years.

Whenever engineering controls fail, under adopted N.J.A.C. 7:28-12.11(e) the licensee would have to show that the all control fails dose criterion (100 mrem/y) is met. This level is over six times the unrestricted dose criterion of 15 mrem per year.

13. COMMENT: The Department and the Commission should allow use of NRC remediation dose criteria when appropriate and when justified based on the As Low As Reasonably Achievable (ALARA) principle. Proposed N.J.A.C. 7:28-12.11(e) would not allow consideration of alternate remediation standards if they would result in increasing in any manner the allowed incremental dose criterion of 15 mrem per year, and would not allow consideration of remediation standards if they would be supported by increasing in any manner the allowed 100 mrem per year all controls fail dose criterion.

The proposal contains no justification for requiring stricter remediation standards than those provided by the NRC, nor for not allowing licensees to apply the Federal standards in appropriate cases. The proposed rule would prohibit returning land to productive use when allowed by Federal regulations. (6)

RESPONSE: Neither the remediation criterion of 15 mrem per year at N.J.A.C. 7:28-12.8(a)1 nor the all controls fail dose criterion of 100 mrem per year is new, nor is either amended in the adopted rules. These dose criteria have been in the rules since August 2000 (31 N.J.R. 1723(a), 32 N.J.R. 2866(a)). At the time they proposed the criteria, the Department and the Commission justified the 15 mrem per year incremental dose limit in a publication entitled, Development of Generic Standards for Remediation of Radioactively Contaminated Soils in New Jersey, which was made available to the public on the Department's website, and by hard copy if requested. The 100 mrem per year all controls fail dose criterion was justified in the Summary to the proposed Soil Remediation Standards for Radioactive Materials (31 N.J.R. 1724-1725).

The fact that these dose criteria do not have an explicit associated ALARA requirement is also not new. ALARA determinations allow the use of cost as a factor for determining what level of remediation is cost effective below the standards. The Department and the Commission did not include a provision for ALARA in meeting these dose criteria because the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq., does not allow such a provision.

As explained in the Response to Comment 9 above, there is flexibility in complying with the remediation standards, including the availability of a petition for alternative remediation standards, N.J.A.C. 7:28-12.11.

14. COMMENT: The Department and the Commission improperly designated source material as "diffuse NARM" without a rational basis. Proposed amended Subchapter 4 is intended to cover only material that is not currently regulated by the NRC; however proposed N.J.A.C. 7:28-4.1(b) is ambiguous. The NRC defines as source material naturally occurring uranium or thorium above certain threshold criteria (10 CFR 40.1). The Summary of Subchapter 4, 40 N.J.R. 2312, provides as an example of diffuse NARM, "concentrated naturally occurring radioactive material in a waste pile for a mineral extraction facility." This creates an ambiguity between what is and what is not NRC-licensed materials.

The proposed deletion of the exception for source, special nuclear and byproduct material at N.J.A.C. 7:4.1(b), could be used to regulate source material as diffuse NARM. (6)

RESPONSE: The Department and the Commission can understand the confusion this may have caused for source material licensees. There are several facilities in the State that in the past extracted minerals either from native sand or imported material, concentrated naturally occurring radioactive materials (NORM) in the process and are now left with waste piles with technologically enhanced NORM (TENORM). This TENORM does not meet the definition of source material (the uranium and thorium are below 0.05 percent by weight), but the concentration of uranium and/or thorium is above the exemption for licensing NARM. Any facility that possesses uranium or thorium or any combination thereof above 0.05 percent by weight will be regulated as source material through N.J.A.C. 7:28-60 (which is 10 CFR Part 40 incorporated by reference).

Since replacing the deleted text will not affect the original intent of the proposal, and will avoid confusion for licensees that possess source material and TENORM, the Department and the Commission are modifying the rule on adoption to reinsert the exception for source, special nuclear, and byproduct material at N.J.A.C. 7:28-4.1(b).

Broad Scope Licensing

15. COMMENT: Proposed N.J.A.C. 7:28-54 incorporates by reference the Federal rules at 10 CFR Part 33, which include a provision that licensees cannot add or cause the addition of byproduct material to any food, beverage, cosmetic, drug or other product designed for ingestion or inhalation, or application to, a human being (10 CFR 33.17(a)(4)). Currently, pharmaceutical companies that discover new molecular entities and develop them into medicine will in some way formulate a radio-labeled version of the drug which is then transferred to a NRC Medical Use licensee (10 CFR Part 35 or equivalent Agreement State licensee) for clinical testing in humans. Therefore, all pharmaceutical companies that engage in this practice have a condition in their broad scope license that excludes them from the limitation of 10 CFR 33.17(a)(4). How will the Department and the Commission address this issue, with a similar license condition or new regulations? (3, 10)

RESPONSE: The Department and the Commission are incorporating the Federal regulations at 10 CFR Part 33 by reference. There is no proposed change to the Federal requirement at 10 CFR 33.17(a)(4). Accordingly, unless a licensee has an exemption, the prohibition in the Federal rules will apply.

N.J.A.C. 7:28-2.8, Special exemptions, allows the Department, with the approval of the Commission, to grant an exemption from any requirement of the rules, provided the conditions of N.J.A.C. 7:28-2.8 are met. The pharmaceutical companies may apply for an exemption from N.J.A.C. 7:28-54.1 (and the prohibition of the Federal rules) through N.J.A.C. 7:28-2.8.

Fees

16. COMMENT: The basis for calculating certain fees is inconsistent with the governing New Jersey statute. N.J.S.A. 26.2D-9(l) requires that fees shall be annual or periodic, shall be based on criteria contained in the fee schedule, and shall reflect the actual or projected expense incurred by the Department in the performance of the service. Proposed N.J.A.C. 7:28-64.10, where the fees are adjusted annually based on the consumer price index, does not comply with the requirements of N.J.S.A. 26.2D-9(l). (6)

RESPONSE: The adopted fees are based directly on the Department's cost to provide the services for which the fees are charged. Subsequent adjustment by the Consumer Price Index, as the rules allow, is a reasonable projection of the anticipated increase in the Department's costs. In the event that the inflation adjusted fees do not keep pace with the Department's actual costs, the Department can propose amended fees in accordance with the requirements of the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq.

17. COMMENT: The term "full cost" is used in Tables 2 of N.J.A.C. 7:28-64.2, Schedule of fees. No definition of full cost was provided in the proposal and it is unclear whether this fee will be annual or periodic. (6)

RESPONSE: As stated in the Summary at 40 N.J.R. 2359, and as provided in N.J.A.C. 7:28-64.4(d), the Department incorporates by reference the fee provisions of 10 CFR Parts 170 and 171 for the purpose of calculating fees. Since the NRC charges full cost for decommissioning, the Department also charges full cost, which is consistent with the Legislative mandate in N.J.S.A. 26D-9(l). Full cost means that the Department will assign unique job numbers to a licensee and staff will code their timesheets appropriately. The Department will then bill the licensee semi-annually for the actual cost the Department incurs (based on the salary of the specific staff members that coded time, fringe and indirect costs, and support services, such as laboratory costs).

18. COMMENT: The Department proposes to charge fees for non-routine inspections (at full cost) and license amendments, but the NRC incorporates the cost of these activities in its annual fee. It will be difficult for the regulated community to budget for unforeseen events. Including the costs of these items in the annual fee would reduce paperwork for the Department and the licensee. (3, 4, 7, 8)

RESPONSE: To ensure that the Department collects sufficient funds to administer and implement the Agreement State program, the Department investigated the fee structures of other Agreement States. The majority of the Agreement States charge full cost for non-routine inspections and a graduated cost for license amendments.

Under the adopted rules, there is no separate fee for license amendment requests that involve little staff time to complete, such as facility name changes, and removal of authorized users. These are routine tasks, and are requested by numerous licensees; accordingly, payment of the annual fee is sufficient at this time to cover the cost of these services.

The rules do contain specific fees for amendments that require significant staff time to complete. These include a request to add isotopes, change procedures, add authorized users, add a process, or relocate a facility, or a request that

requires a site visit. By charging separate fees for non-routine tasks, the Department is ensuring that the cost is passed on to only those licensees that use the service and not shared among all licensees.

19. COMMENT: Reconsider charging a fee to universities and non-profit institutions. The NRC does not currently charge a fee. (8)

RESPONSE: As stated in the Summary, 40 N.J.R. 2363, the Federal government reimburses the NRC for the costs associated with providing services to university and non-profit institutions. This reimbursement is provided for in the Omnibus Budget Reconciliation Act of 1990, as amended.

Unlike the NRC, the Department does not have a mechanism to receive fee relief for those activities for which is does not charge fees or charges reduced fees. The Department is required to recover in fees 100 percent of the cost of services it provides. If the Department were to eliminate or further reduce the fee to universities and non-profits from payment of fees, the Department would have to spread the cost among the remaining licensees, who would incur higher fees as a result.

A fee for non-profit educational institutions is not new. The previous rules at N.J.A.C. 7:28-4.19 did not exempt non-profit educational institutions from fees.

20. COMMENT: There should not be a fee to non-profit educational institutions and private medical practices for non-contiguous additional use sites. Facilities with additional use sites within four miles of each other are now administered under a single Department license. Some universities have various sites across New Jersey, but all operate under the same NRC license. (4, 8)

RESPONSE: As stated in the Summary, 40 N.J.R. 2363, the Department considered the added costs to non-profit educational institutions and proposed relief by charging a reduced fee, or no fee, for certain additional use sites. Some colleges and universities have many buildings that are not adjacent or contiguous; that is, a campus may have buildings where radioactive materials are used that are more than five miles from the main facility that holds the radioactive materials license. In such cases, instead of charging the full fee, the adopted rules provide for a reduced fee of the 25 percent of the usual annual fee. In the case of the facility with an additional use site within less than five miles of the main facility, no additional use fee will be charged because there will be minimal additional cost to the Department to license and inspect such closely located facilities.

In the case of a university with sites across the State, the additional use fee would be charged, and is appropriate, because the Department incurs additional expense by traveling throughout the State to perform inspections.

A comparison to the NRC license is not appropriate, since the NRC does not charge a fee to non-profit educational institutions.

Summary of Agency-Initiated Changes:

N.J.A.C. 7:28-1.1(b) is modified on adoption to reinstate the language of the previous rule, making the chapter applicable to "all persons," as well as those licensed or registered by the Department. The rule is also modified on adoption to apply to those licensed or registered to install, handle, transport and store the equipment and materials identified in the rule. These activities were also included in the previous rule.

The Radiation Protection Act at N.J.S.A. 26:2D-10 requires "all sources of radiation" to be "shielded, transported, handled, used and kept in such a manner as to prevent all users thereof and all persons within effective range thereof from being exposed to unnecessary radiation." Accordingly, it was not appropriate, as proposed, to limit the scope of the rules to only those licensed or registered individuals. Rather, the rules must cover all persons, in order that they cover "all sources," as required under the statute. To limit the rules to only those licensed or registered by the State would not satisfy the requirements of the Radiation Protection Act.

Similarly, the rules as proposed would not have applied to all of those activities that the Radiation Protection Act addresses. Unlike the previous rules, which were sufficiently comprehensive to address the requirements of the statute, the proposed rules would not have applied to the transportation, storage, handling, or shielding of sources of radiation, contrary to the statute. As modified on adoption, the rule meets the statutory requirement.

N.J.A.C. 7:28-6.1(d)6 is modified on adoption to delete redundant text.

N.J.A.C. 7:28-12.12(c)1ii is modified on adoption to clarify that there is determined to be substantial public interest in public outreach events related to restricted release license termination of contaminated sites if the Department receives a petition containing the signatures of 25 or more people. The proposal stated that the petition must contain the signatures of 25 people.

N.J.A.C. 7:28-17.4(k) is modified on adoption by replacement of the reference to a license with reference to a registration. This subchapter will regulate machine source radiography. Machine sources of radiation are registered with the State, not issued licenses.

N.J.A.C. 7:28-53.1(c) is modified on adoption to correct a cross reference.

N.J.A.C. 7:28-58.1(c)3 is modified on adoption to correct the punctuation. The beginning quotation marks are missing from the word "No," which will replace the wording to be deleted from the incorporated 10 CFR 40.6.

N.J.A.C. 7:28-61.1(c)10 is modified on adoption to delete duplicative words.

N.J.A.C. 7:28-64.2, Table 1, Fee Category 7.C is modified on adoption to correct the punctuation by adding a period to the end of the sentence that concludes ". . . when authorized on the same license." The proposal had omitted the period.

N.J.A.C. 7:28-64.8 is modified on adoption by replacement of the phrase "[a]n application for" with the phrase "[a] letter requesting." The proposed text refers to applications for license amendments. There are no such applications. Requests for an amendment to a license will be in the form of a letter to the Department.

Federal Standards Analysis

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. require State agencies that adopt, readopt or amend State regulations that exceed any Federal standards or requirements to include in the rulemaking document a Federal Standards Analysis.

The Department and the Commission are adopting new rules, repeals and amendments in order that the State's rules are compatible with the NRC regulations, so that New Jersey can become an Agreement State. Except as discussed below, the adopted new rules and amendments do not exceed Federal standards.

The NRC regulations at 10 CFR 20.1401(d) require modeling to 1,000 years; whereas, the adopted amendment at N.J.A.C. 7:28-12.10(d) requires modeling to the time of peak dose. The adopted amendment appears to be more stringent than the NRC regulations at 10 CFR 20.1401(d). However, in the NRC's response to comment on their proposed decommissioning regulations, 62 Fed. Reg. at 39083 (Response F.7.3), the NRC explains that the 1,000-year provision is intended to apply only to short-lived nuclides. Short-lived nuclides are defined as having half-lives between 5.3 and 30 years and which would decay to unrestricted dose levels in about 10 to 60 years. (62 Fed. Reg. at 39069.) For long-lived nuclides, future calculations beyond 1,000 years would be valuable. (62 Fed. Reg. at 39083.) Thus, the intent of 10 CFR 20.1401(d) is to require additional longer dose assessments, depending on the duration of the nuclides. Therefore, based on the regulatory intent of 10 CFR 20.1401(d), the adopted amendment to increase the time period of interest is not more stringent than the Federal regulation at 10 CFR 20.1401(d). The short-lived nuclides to which the 1,000 years was intended to apply would have decayed to unrestricted levels by 1,000 years. Accordingly, the proposed rule is not more stringent than the Federal rule, and no further analysis is required.

Although the NRC rules do not require compliance with specific water quality standards, the adopted amendments to N.J.A.C. 7:28-12.8, which include adherence to the Surface Water Quality standards for radioactivity, can be compared to the NRC's requirement of an all pathways dose criterion. The "all pathways" requirement, as applied to surface water, means that surface water contamination that results in human exposure must be assessed as part of the 25 mrem/year dose criterion. Surface water that is contaminated with radiation could result in contaminated fish, contamination of irrigation water used for crops, and human exposure to radiation through recreational bathing. The Department does not require consideration of these pathways in dose assessments to demonstrate compliance with the Department's dose decommissioning criterion. By requiring adherence to the Surface Water Quality Standards, the Department and the Commission are both taking into account the potential dose that could result from contamination of surface water, resulting in no significant difference between the two approaches. Therefore, the adopted rule is consistent with the Federal rule and no further analysis is required.

Adopted Subchapter 55, Medical Use of Radioactive Materials, incorporates by reference the Federal rules at 10 CFR Part 35; however, the Department and the Commission are requiring licensees to use a dose calibrator before administering radiopharmaceuticals. NRC currently requires the use of this instrument for only certain administrations to humans. Dose calibrators provide a check on the prescribed dose, as well as the prescribed radionuclide of radiopharmaceuticals. The Department and the Commission considered an actual example of a misadministration of a dose of radiopharmaceuticals to demonstrate that the benefits of using a dose calibrator outweigh the costs.

The cost of a new dose calibrator is about $ 7,000. The cost of personnel time to use the calibrator is estimated to be about 40 hours per year, at a pay rate of about $ 33.00/hour (2006 pay rate obtained from the New Jersey Nuclear Medicine Technologist Board). The cost of personnel time to ensure that the calibrator is properly calibrated (a linearity check) may require a consultant, and is estimated to take about five hours per year at a pay rate of $ 50.00 per hour, for a total cost of $ 8,570.

The benefit from using a dose calibrator is the avoidance of administering an improper dose. The Department and Commission are aware of a reported incident in which four mCi of Thallium-201 were administered to a patient, instead of the prescribed dose of Tc-99m pertechnate. The administration resulted in a whole body dose of 5.2 rem, which could have been avoided had a dose calibrator been used. The NRC uses $ 2,000 per person-rem in its ALARA analyses. (Appendix N of NUREG-1757, Consolidated Decommissioning Guidance, Vol. 2, Rev.2.) Thus, the cost of the improperly administered dose was $ 2,000 times 5.2 rem, or $ 10,400. Even if only one misadministration happens per year, the benefit of the averted dose ($ 10,400) outweighs the cost of buying and using a new dose calibrator ($ 8,570).

In practice, the costs associated with this analysis are overestimated. The majority of medical facilities already possess dose calibrators and use them.

Full text of the adoption follows (additions to proposal indicated in boldface with asterisks ***thus***; deletions from proposal indicated in brackets with asterisks *[thus]*):

SUBCHAPTER 1. GENERAL PROVISIONS

7:28-1.1 Purpose and scope

(a) (No change.)

(b) This chapter applies to ***all persons and*** persons licensed or registered by the Department to receive, possess, use, transfer, ***install, handle, transport, store,*** or dispose of ionizing radiation producing machines, non-ionizing radiation producing sources, diffuse technologically enhanced naturally occurring radioactive materials, diffuse accelerator-produced radioactive materials, by-product, source, or certain special nuclear material or to operate a production or utilization facility under N.J.A.C. 7:28-51 through 60. The limits in this chapter do not apply to doses due to background radiation, to exposure of patients to radiation for the purpose of medical diagnosis or therapy, to exposure from individuals administered radioactive material and released under N.J.A.C. 7:28-55.1, or to exposure from voluntary participation in medical research programs.

(c) The rules in this chapter establish standards for protection against ionizing radiation resulting from activities conducted under registrations or licenses issued by the Department.

(d) It is the purpose of the rules in this chapter to control the receipt, possession, use, transfer, and disposal of licensed material, ionizing radiation producing machines, or non-ionizing radiation producing sources by any licensee or registrant in such a manner that the total dose or exposure to an individual (including doses resulting from licensed and unlicensed radioactive material and from radiation sources other than background radiation) does not exceed the standards for protection against radiation prescribed in the rules in this chapter. However, nothing in this chapter shall be construed as limiting actions that may be necessary to protect health and safety.

7:28-1.4 Definitions

(a) The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise. Additional words and terms applicable to the chapter, incorporated from 10 CFR 20, are

located at N.J.A.C. 7:28-6. Additional words and terms applicable to a specific subchapter only, will be found in that subchapter.

1. General Terms:

. . .

"Annually" means occurring once per year at intervals of not less than 51 consecutive weeks nor more than 53 consecutive weeks.

. . .

"Semi-annually" means occurring twice per year at intervals of not less than 25 consecutive weeks nor more than 27 consecutive weeks.

. . .

2. Ionizing radiation terms:

. . .

"Diffuse" means a radionuclide that has become concentrated, but not for the purpose of use in commercial, medical, or research activities.

"Domestic sewage" means waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

"Domestic treatment works" or "DTW" means all publicly owned treatment works as well as any other treatment works processing primarily domestic sewage and pollutants together with any ground water, surface water, storm water or process wastewater that may be present.

. . .

"Radioactive materials registrant" means a person who is required to register radioactive byproduct material, source material or special nuclear material with the Department pursuant to this chapter.

"Radiographer" means any individual who is in attendance at a site where ionizing radiation-producing machines are being used and who uses or supervises their use in industrial radiographic operations and who is responsible to the owner for assuring compliance with the requirements of this chapter.

"Radiographer's assistant" means any individual who, under the personal supervision of a radiographer, uses ionizing radiation-producing machines, related handling tools, or survey instruments in industrial radiography.

"Radiography" means the examination of humans or animals, or of the structure of materials by non-destructive methods, utilizing ionizing radiation-producing machines. This term is not intended to apply to techniques such as electron microscopy or x-ray diffraction.

"Registrant" means a person who is required to register an ionizing radiation-producing machine source of radiation with the Department pursuant to this chapter.

. . .

"Sewage sludge" means the solid, semi-solid, or liquid residue generated by the processes of a domestic treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and any material derived from sewage sludge.

. . .

[(c)] ***3.*** (No change in text.)

7:28-1.5 Communications

(a) Communications concerning this chapter, or matters relating to radiation protection, may be addressed to the New Jersey Department of Environmental Protection, Radiation Protection and Release Prevention Element, PO Box 415, Trenton, New Jersey 08625-0415, Telephone: (609) 984-5636, Fax: (609) 633-2210. The physical location of the office is 25 Arctic Parkway, Ewing, New Jersey 08638. Applications and forms may be obtained from the website at http://www.state.nj.us/dep/rpp/index.htm.

(b) All emergency notification of incidents involving sources of radiation in this State shall be immediately reported to either one of the following agencies:

1. Radiation Protection and Release Prevention Element
New Jersey Department of Environmental Protection
25 Arctic Parkway
Ewing, NJ 08638
Telephone: (609) 984-5462
Hours: 8:00 A.M. to 5:00 P.M. daily, except Saturday, Sunday, and Holidays

After hours and weekends toll free: 1 (877) 927-6337 (1 (877) WARN-DEP)

2. (No change.)

SUBCHAPTER 2. USE OF SOURCES OF IONIZING RADIATION AND SPECIAL EXEMPTIONS

7:28-2.8 Special exemptions

The Department, upon application and a showing of hardship or compelling need, with the approval of the Commission, may grant an exemption from any requirement of these rules should it determine that such exemption will not result in any exposure to radiation in excess of the limits permitted by N.J.A.C. 7:28-6, Standards for Protection Against Radiation.

7:28-2.13 Violations

(a) The Department may obtain an injunction or other court order to prevent a violation of the provisions of:

1. The Act; or

2. A regulation or order issued pursuant to the Act.

(b) The Department may impose a civil penalty for a violation of:

1. Any provision of this chapter or order issued hereunder;

2. Any term, condition, or limitation of a license issued under this chapter; or

3. A revocation under N.J.A.C. 7:28-4.17, 51 through 60, or 63.

SUBCHAPTER 3. REGISTRATION OF IONIZING RADIATION-PRODUCING MACHINES

7:28-3.1 Registration for possession of ionizing radiation-producing machines

(a) Any person, manufacturer, dealer or State, county or local government shall register with the Department every ionizing radiation-producing machine possessed within the State of New Jersey except as exempted by N.J.A.C. 7:28-3.2.

(b) Any person, manufacturer, dealer or State, county or local government shall apply for such registration within 30 days after taking possession, custody or control of ionizing radiation-producing machines on forms available from the Department.

(c) (No change.)

7:28-3.2 Exemptions from registration for possession of ionizing radiation-producing machines

(a)-(c) (No change.)

7:28-3.5 (Reserved)

7:28-3.6 Transfer of registration for ionizing radiation-producing machines

Registrations for ionizing radiation-producing machines are not transferable.

7:28-3.8 (Reserved)

7:28-3.10 Denial of an application for registration, and suspension, modification, or revocation of registration of ionizing radiation-producing machines

(a) The Department, in addition to any penalties authorized by the Act, may deny an application for registration or suspend, modify or revoke a registration of ionizing radiation-producing machines by reason of amendments to the Act, adoption of rules, orders issued by the Department pursuant to said Act or if the applicant or registrant:

1.-7. (No change.)

(b) (No change.)

(c) The Department may terminate a registration upon request submitted by the registrant to the Department in writing.

7:28-3.11 (Reserved)

SUBCHAPTER 4. LICENSING OF DIFFUSE NATURALLY OCCURRING OR DIFFUSE ACCELERATOR PRODUCED RADIOACTIVE MATERIALS

7:28-4.1 Scope and general provisions

(a) This subchapter shall apply to persons who manufacture, produce, transfer, distribute or arrange for the distribution, sell, lease, receive, acquire, own, possess or use any diffuse naturally occurring or diffuse accelerator produced radioactive materials, including TENORM, in this State.

(b) No person shall manufacture, produce, transfer, distribute or arrange for the distribution, sell, lease, receive, acquire, own, possess or use any diffuse naturally occurring or diffuse accelerator produced radioactive materials, including TENORM, in this State unless authorized by a specific license issued by the Department as provided by N.J.A.C. 7:28-4.7 and 4.8, a general license as provided in N.J.A.C. 7:28-4.5, or an exemption as provided in N.J.A.C. 7:28-4.3.
Excepted from this provision are by-product, source and special nuclear materials.

(c) A person who sells, transfers, distributes or arranges for the distribution of a device containing diffuse naturally occurring or diffuse accelerator produced radioactive materials manufactured by another person, but which is sold, transferred or distributed under its own name, shall obtain a license in accordance with this subchapter.

40 N.J.R. 5196(b)

7:28-4.2 Recognition of licenses for diffuse NARM from other jurisdictions

(a) Any person who possesses a specific license or equivalent licensing document issued by a Federal agency or any other state is granted a general license in this State provided that the provisions of (b)1 through 4 below have been met.

(b) Any person who possesses a specific license or equivalent licensing document issued by a Federal agency or any other state may, pursuant to the general license in (a) above, transport, receive, possess, or use the radioactive materials specified in such license within this State for a period not in excess of 180 days in any period of 12 consecutive months without obtaining a specific license from the Department provided that:

1. (No change.)

2. The licensee notifies the Department in writing at least three days prior to the time that such radioactive material is brought into this State. Such notification shall indicate the location, period, and type of proposed possession and use within this State, and shall be accompanied by a copy of the pertinent licensing document. If in a specific case the three-day period would impose an undue hardship on the user, he may, upon application to the Department, obtain permission to proceed sooner;

3.-4. (No change.)

(c) (No change in text.)

7:28-4.3 Exemption from requirement for a license for manufacture, production, transfer, distribution or arrangement of distribution, sale, lease, receipt, acquisition, ownership, possession or use of all diffuse naturally occurring or diffuse accelerator produced radioactive materials

(a) A person shall be exempt from the requirement to obtain a license for the following activities:

1.-2. (No change.)

3. The person manufactures, produces, receives, possesses, uses, transfers, distributes or arranges for the distribution, sells, leases, owns or acquires products or materials containing diffuse naturally occurring or diffuse accelerator produced radioactive materials in concentrations not in excess of those exempted in (b) below;

Recodify existing 5.-7. as 4.-6. (No change in text.)

7. The person owns a domestic treatment works where sewage sludge is present which may contain TENORM from the separation of liquids and solids which is the outcome of normal operations of the domestic treatment works;

8. (No change in text.)

9. The person owns property where residual contamination remaining at the site was remediated under the Radiation Protection Act (N.J.S.A. 26:2D-1 et seq.) and/or the other authorities listed in the Soil Remediation Standards at N.J.A.C. 7:28-12.2(a). Such residual concentrations may be greater than the limits specified in (a)5 above, but be under restricted conditions imposed by the Department (such as engineering and institutional controls), and meet the dose criteria specified in N.J.A.C. 7:28-12.8.

(b) The following concentrations of diffuse naturally occurring radioactive materials, including TENORM, and diffuse accelerator-produced radioactive materials, when obtained from naturally occurring materials or when produced by an accelerator are exempt from the requirements for a license:

Exempt Concentrations

Column 1	Column 2

40 N.J.R. 5196(b)

	Exempt Concentrations	
	Gas concentration	Liq & solid Concentration
Element (nuclide)	(uCi/ml)	(uCi/ml)***
. . .		

* The values for those diffuse naturally occurring radioactive materials and diffuse accelerator produced radioactive materials, including TENORM, that are followed by a single asterisk(*) are based upon multiplying 20 times the most restrictive release concentrations specified in 10 CFR 20 Appendix B, Table 2, Columns 1 (air) and 2 (water).

** These concentrations do not apply to source material for thorium and uranium.

*** uCi/g for solids

1.-2. (No change.)

(c) If a person manufactures, produces, transfers, distributes or arranges for the distribution, sells, leases, receives, acquires, owns, possesses or uses diffuse naturally occurring radioactive materials or diffuse accelerator produced radioactive materials, including TENORM, in quantities less than those listed in N.J.A.C. 7:28-4.5(c), they are exempt from the requirement for a license.

7:28-4.4 Types of licenses for manufacture, production, transfer, distribution or arrangement for distribution, sale, lease, receipt, acquisition, ownership, possession or use of all diffuse naturally occurring or diffuse accelerator produced radioactive materials

(a) General licenses described in N.J.A.C. 7:28-4.5 are effective without the filing of an application with the Department or the issuance of licensing documents to particular persons.

(b) Specific licenses are issued to named persons upon application filed pursuant to the requirements of this subchapter.

7:28-4.5 General licenses for the transfer, distribution or arrangement for distribution, sale, lease, receipt, acquisition, ownership, possession or use of diffuse naturally occurring or diffuse accelerator produced radioactive materials and certain devices and equipment

(a) Any person who uses, transfers, distributes or arranges for the distribution, sells, leases, receives, acquires, owns or possesses the following devices and equipment incorporating diffuse naturally occurring or diffuse accelerator produced radioactive material, when manufactured, tested and labeled by the manufacturer in accordance with the specifications contained in a specific license issued by the Department, or a specific license of a Federal agency or any other state, shall be deemed to have a general license:

1.-3. (No change.)

(b) The devices described in (a) above shall not be transferred, abandoned or disposed of except by transfer to a person duly authorized to receive such device by a specific license issued by the Department, a Federal agency, or any other state.

(c) The following quantities of radioactive substances, when obtained from diffuse naturally occurring materials or diffuse accelerator produced radioactive materials, are generally licensed provided that no person shall at any one time possess or use more than a total of 10 such quantities:

40 N.J.R. 5196(b)

Radioactive Material	Column A Not as a Sealed Source (microcuries)	Column B As a Sealed Source (microcuries)
---	---	---
. . .		

(d)-(e) (No change.)

(f) Persons who transfer, distribute or arrange for the distribution, sell, lease, receive, acquire, own, possess or use items and quantities of radioactive materials set forth in (a) and (c) above pursuant to a general license shall not:

1.-4. (No change.)

(g) Persons who receive, acquire, possess or use a device pursuant to a general license specified in (a) above:

1.-2. (No change.)

3. Shall have the device tested for leakage of radioactive material and proper operation of the on-off mechanism and indicator, if any, at intervals not to exceed six months;

4.-6. (No change.)

7. Shall be exempt from the requirements of this subchapter, except the provisions of N.J.A.C. 7:28-4.4(a), 4.9, 4.14, 4.19, records of surveys, records of radioactive materials, and reports of theft, loss, or incidents pursuant to the requirements in N.J.A.C. 7:28-6, Standards for Protection Against Radiation.

7:28-4.6 Application for and renewal of specific licenses for manufacture, transfer, distribution or arrangement for distribution, sale, lease, receipt, acquisition, ownership, possession or use of diffuse naturally occurring or diffuse accelerator produced radioactive materials

(a) Upon approval of an initial or renewal application, a specific license may be issued by the Department for a period of 10 years commencing on the date the license is issued.

(b) Application for specific licenses and renewals shall be filed with the Department, on forms available from the Department.

(c) All applications shall contain the following signature and certification:

1. (No change.)

2. The certification shall be signed by the highest ranking corporate, partnership, or governmental officer or official at the facility or the individual for which or for whom the specific license is requested.

(d) An application for a specific license may include a request for a license authorizing one or more activities.

(e) Information included in the specific license application will be incorporated in and made a part of the terms and conditions of such license by reference.

(f) All applicants for initial and renewal applications for specific licenses shall complete the application in its entirety with no reference to previously filed documents. The Department may accept photocopies of previous relevant applications.

(g) No initial or renewal specific licenses shall be issued unless the appropriate annual license fee required by N.J.A.C. 7:28-64.4 is paid.

(h) Except as provided in N.J.A.C. 7:28-4.19, applications and documents submitted to the Department will be made available for public inspection.

(i) Upon the request of the Department at any time after the filing of the original or renewal specific license application, and before the expiration of the license, the applicant shall submit further information to enable the Department to determine whether the application should be granted or denied or whether a license should be modified or revoked.

(j) All applications for a license or amendment shall be signed by the applicant or licensee or a person duly authorized to act for and on his behalf.

(k) The Department may deny an application for a specific license if the applicant:

1.-3. (No change.)

7:28-4.7 General requirements for approval of an application for an initial specific license or renewal of a specific license for use of diffuse naturally occurring or diffuse accelerator produced materials

(a) If the Department determines that an applicant meets the requirements of this subchapter and the Act, it may issue an initial specific license or renew a specific license for non-human use of radioactive materials provided:

1.-3. (No change.)

7:28-4.8 Special requirements for approval of an application for an initial specific license or renewal of a specific license for use of diffuse naturally occurring or diffuse accelerator produced radioactive materials

(a) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific license or renewal of a specific license may be issued for use of multiple quantities or types of radioactive material provided:

1. The applicant satisfies the general requirements for approval of specific license applications in N.J.A.C. 7:28-4.7;

2.-4. (No change.)

(b) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific license or renewal of a specific license may be issued for use of multiple quantities or types of radioactive material in processing for distribution to other authorized persons provided:

1. The applicant satisfies the general requirements for approval of specific license application in N.J.A.C. 7:28-4.7;

2.-3. (No change.)

(c) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific license or renewal of a specific license may be issued to distribute certain devices to persons generally licensed under N.J.A.C. 7:28-4.5(a) and (e) provided:

1. The applicant satisfies the general requirements for approval of specific license applications in N.J.A.C. 7:28-4.7;

2. The applicant submits sufficient information relating to the design, manufacturer prototype testing, quality control procedures, labeling, proposed uses and potential hazards of the device to provide reasonable assurance that:

i. (No change.)

ii. No person possessing, using, transporting or exposed to the device will receive a radiation dose to a major portion of his body in excess of 0.1 rem in any one year under ordinary circumstances of use;

iii.-iv. (No change.)

3. (No change.)

(d) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific license or renewal of a specific license will be issued to transfer, possess, or control products or materials containing exempt concentrations of radioactive material specified in N.J.A.C. 7:28-4.3(b) which the transferor has introduced into the product or material provided:

1. The applicant satisfies the general requirements for approval of specific license applications in N.J.A.C. 7:28-4.7;

2.-3. (No change.)

4. Within 30 days subsequent to the end of the reporting period, each specific licensee shall file an annual report with the Department describing kinds and quantities of products transferred, the concentration of radioactive material contained and the quantity of radioactive material transferred during the reporting period which shall be the 12-month period ending June 30 of each calendar year.

7:28-4.9 Terms and conditions of general and specific licenses

(a) Each license issued pursuant to this subchapter shall be subject to all the provisions of the Act, now or hereafter in effect, and to this chapter and orders of the Department.

(b) No license to possess or utilize radioactive material pursuant to this subchapter shall be transferred or assigned.

(c) Each person licensed by the Department pursuant to this subchapter shall confine his or her possession and use of radioactive material to the locations and purposes authorized by such license, and shall not use or permit the use of radioactive materials contrary to the applicable requirements of this chapter. Persons licensed under the provisions of this subchapter may transfer radioactive material within the State only to the persons licensed to receive such material or as otherwise authorized by the Department in writing.

(d) The Department may incorporate in any license at the time of issuance, or thereafter, all such additional requirements and conditions with respect to the licensee's manufacture, distribution or arrangement for the distribution, sale, lease, receipt, possession, use, ownership or transfer of radioactive material as it deems appropriate or necessary in order to assure compliance with this chapter and the Act.

(e) Each licensee authorized under N.J.A.C. 7:28-4.8(c) to distribute certain devices to generally licensed persons shall:

1. (No change.)

2. Furnish to each general licensee to whom such device is transferred a copy of N.J.A.C. 7:28-4.5(a), (e) and (g), 8.3 and 8.5, records of surveys and records of radioactive materials pursuant to the requirements in N.J.A.C. 7:28-6, Standards for Protection Against Radiation.

7:28-4.10 Expiration of specific license

Except as provided in N.J.A.C. 7:28-4.11, each specific license shall expire at 12:01 A.M. of the day, in the month and year stated in the license.

7:28-4.11 Status of specific licenses pending renewal

In any case in which a specific licensee has filed a complete application in proper form for renewal of a specific license not less than 30 days prior to expiration of the existing specific license, such specific license and all its existing conditions shall not expire until the Department has acted upon the application.

7:28-4.12 Amendment of a specific license at request of licensee

(a) Applications for amendment of a specific license shall be filed in accordance with N.J.A.C. 7:28-4.6 and shall specify the amendment desired and the grounds for such amendment.

(b) The Department will evaluate only amendment applications submitted by personnel authorized by the licensee.

(c) The applicant for an amended specific license shall not engage in the activities for which an amendment has been requested until approval has been granted by the Department.

7:28-4.13 Records

All persons licensed pursuant to this subchapter shall keep records in accordance with N.J.A.C. 7:28-6, Standards for Protection Against Radiation.

7:28-4.14 Inspections

(a) All licensees shall allow the Department or its agents to inspect radioactive material and the facilities and premises where radioactive material is used or stored.

(b) (No change.)

(c) Upon request by the Department, or its agents, licensees shall make available for inspection by the Department records kept pursuant to this chapter.

7:28-4.15 Tests

(a) At the request of the Department or its agents, each licensee shall perform, or allow the Department to perform if the Department so desires, such tests as the Department deems appropriate or necessary for the administration of this subchapter, including tests of the following:

1.-4. (No change.)

7:28-4.16 Financial assurance and recordkeeping for decommissioning

(a) Except as set forth in (b) below, this section incorporates by reference 10 CFR 30.35 Financial assurance and recordkeeping for decommissioning, and the Appendices as referenced in 10 CFR 30.35.

(b) The following provisions of 10 CFR 30.35 are incorporated by reference with the specified changes:

1. "Unsealed byproduct material" and "byproduct material" shall mean "diffuse NARM";

2. "Commission," "Nuclear Regulatory Commission," "U.S. Nuclear Regulatory Commission," and "NRC," shall mean "Department of Environmental Protection";

3. 10 CFR 30.35(g), replace "Each person licensed under this part or parts 32 through 36 and 39" with "Each person licensed under this subchapter";

4. 10 CFR 30.35(g), replace "§30.34(b)," with " N.J.A.C. 7:28-4.9"; and

5. 10 CFR 30.35(g)(3)(iv), replace "10 CFR part 20, subpart E," with "N.J.A.C. 7:28-12".

7:28-4.17 Modification, revocation, suspension, and termination of general and specific licenses

(a) Each general license shall be subject to modification, suspension or revocation by reason of amendments to the Act, adoption of rules by the Commission or the Department, orders issued by the Department pursuant to authority of the Act, or for violation or failure to observe any of the terms and provisions of the Act, license or any rule of the Commission or the Department, or order of the Department.

(b) Each specific license shall be subject to modification, suspension or revocation by reason of:

1.-3. (No change.)

4. Conditions revealed by the application for a specific license or statement of fact or any report, records or inspection or other means which would warrant the Department to refuse to grant a specific license on an original application;

5. Violation of or failure to observe any of the terms and provisions of the Act or the license, or any rule of the Department or order of the Department;

6. Falsification or misleading statements in any license application;

7. Alteration of licensing document;

8. (No change.)

9. Failure to make timely payment of licensing fees.

(c) If a specific license is not to be renewed or if a licensee requests a termination of its license, the licensee shall furnish to the Department, prior to the expiration date of the license, close-out surveys, wipe tests and/or soil samples demonstrating that the facility meets the requirements of N.J.A.C. 7:28-12. The facility shall also provide a disposition certificate attesting to the disposal of radioactive material.

7:28-4.18 Requests for an adjudicatory hearing

(a) When the Department denies an initial application for or renewal of a specific license, or determines to modify, revoke, suspend or terminate a general or specific license, the Department shall send a notice of decision to the applicant or licensee by certified mail return receipt requested. The notice shall advise the applicant or licensee of the right to request a contested case hearing pursuant to the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq. and the New Jersey Uniform Administrative Procedure Rules, N.J.A.C. 1:1. The notice shall include the following information:

1.-3. (No change.)

4. The requirements for requesting a stay under N.J.A.C. 7:28-4.19.

(b)-(d) (No change.)

7:28-4.19 (No change in text.)

SUBCHAPTER 5. CONTROLLED AREAS FOR REGISTRANTS

7:28-5.1 Areas that registrants must control

Every area in which there is any reasonable possibility of an occupant receiving an exposure dose from radiation more than the dose specified in N.J.A.C. 7:28-6 for radiation levels outside a controlled area shall be set apart as a controlled area by any person having possession, custody or control of any ionizing radiation-producing machine.

7:28-5.2 Limitations on controlled areas for registrants

No area within controlled areas shall be used for residential quarters although a room or rooms in residential buildings may be set apart as a controlled area.

7:28-5.3 Precautionary procedures

(a) Any person having possession, custody or control of any ionizing radiation-producing machine shall comply with the following precautionary procedures:

1. Area surveys shall be performed in controlled areas and in adjacent areas to insure that exposure levels to individuals conform to N.J.A.C. 7:28-6. The surveys shall be performed in accordance with N.J.A.C. 7:28-7, Radiation Surveys and Personnel Monitoring for Registrants.

Recodify existing 4.-7. as 2.-5. (No change in text.)

SUBCHAPTER 6. STANDARDS FOR PROTECTION AGAINST RADIATION

7:28-6.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 20, Standards for Protection Against Radiation.

(b) The Department does not regulate nuclear reactors, special nuclear materials in quantities sufficient to form a critical mass, high-level waste disposal facilities, or byproduct material defined in Section 11e(2) of the Atomic Energy Act of 1954, as amended (42 U.S.C. §2014). Insofar as the incorporated rules refer to those facilities and/or materials previously referenced, those references are not incorporated, nor do any cross references include those facilities and/or materials.

(c) The following provisions of 10 CFR Part 20 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 20.1001, Purpose;

2. 10 CFR 20.1002, Scope;

3. 10 CFR 20.1003, Definitions, the following definitions are not incorporated by reference: "act," "Commission," "Department," and "sanitary sewerage system";

4. 10 CFR 20.1007, Communications;

5. 10 CFR 20.1009, Implementation collection requirements: OMB approval;

6. 10 CFR 20.1401, General provisions and scope;

7. 10 CFR 20.1402, Radiological criteria for unrestricted use;

8. 10 CFR 20.1403, Criteria for license termination under restricted conditions;

9. 10 CFR 20.1404, Alternate criteria for license termination;

10. 10 CFR 20.1405, Public notification and public participation;

11. 10 CFR 20.2301, Application for exemptions;

12. 10 CFR 20.2401, Violations; and

13. 10 CFR 20.2402, Criminal penalties.

(d) The following provisions of 10 CFR Part 20 are incorporated by reference with the specified changes:

1. "Nuclear Regulatory Commission," "NRC," "Commission," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 20 of the Code of Federal Regulations that are incorporated by reference, mean the New Jersey Department of Environmental Protection, except when specifically noted in this subchapter;

2. 10 CFR 20.1003, in the definition of "ALARA," replace "licensed activity" with "licensed or registered activity," and "and licensed materials" with ", licensed materials, and registered ionizing radiation producing machine sources";

3. 10 CFR 20.1003, in the definition of "background radiation," in the first sentence replace "or special nuclear material)" with "special nuclear material, or technologically enhanced naturally occurring radioactive material)," and replace in the last sentence "or special nuclear materials regulated by the Commission" with ", or special nuclear materials regulated by the State or the NRC, or diffuse NARM regulated by the State";

4. 10 CFR 20.1003, in the definition of "controlled area," replace "licensee" with "licensee or registrant";

5. 10 CFR 20.1003, in the definition of "declared pregnant woman," replace "licensee" with "licensee or registrant";

6. 10 CFR 20.1003, in the definition of "license," replace "parts 30 through 36, 39, 40, 50, 60, 61, 63, 70, or 72," with "N.J.A.C. 7:28-4, 51 through *[56 through]* 60, or 63";

7. 10 CFR 20.1003, in the definition of "licensed material," replace "special nuclear material," with "special nuclear material in quantities not sufficient to form a critical mass, diffuse NARM";

8. 10 CFR 20.1003, in the definition of "occupational dose," replace "licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person," with "licensed and unlicensed, or registered or unregistered sources of radiation, whether in possession of the licensee or registrant or other person";

9. 10 CFR 20.1003, in the definition of "public dose," replace "under the control of a licensee," with "under the control of a licensee or registrant.";

10. 10 CFR 20.1003, in the definition of "survey," replace "or other sources of radiation." with ", other sources of radiation, or radiation from ionizing radiation-producing machines." After the last sentence in the definition of "survey," add "For registrants, the survey must be made under the supervision of a qualified individual.";

11. 10 CFR 20.1003, in the definition of "unrestricted area," replace "licensee" with "licensee or registrant";

12. 10 CFR 20.1006, delete "Except as specifically authorized by the Commission in writing, no" with "No," and replace "by the General Counsel" with "signed and approved by the Commissioner of the Department,";

13. 10 CFR 20.1201, replace "licensee" with "licensee or registrant," except in 10 CFR 20.1201(e);

14. 10 CFR 20.1207, replace entire section with "The licensee or registrant shall ensure that the annual occupational dose for minors does not exceed 10 percent of the annual dose limits specified for adult workers in 10 CFR 20.1201.";

15. 10 CFR 20.1208, replace "licensee" with "licensee or registrant";

16. 10 CFR 20.1301, replace "licensee" with "licensee or registrant;" and replace "sanitary sewer system" with "domestic treatment works";

17. 10 CFR 20.1301(a)(1), replace "licensed operation" with "licensed or registered operation";

18. 10 CFR 20.2001(a)(3), replace "within the limits of §20.1301; or" with "within the limits of §20.1301, provided prior permission in writing, in the form of a New Jersey Pollutant Discharge Elimination System permit, is obtained from the Department in accordance with N.J.A.C. 7:14A for discharges to ground or surface waters; or";

19. 10 CFR 20.2003, replace "sanitary sewerage" with "domestic treatment works";

20. Replace the text of 10 CFR 20.2201(a)(2) with "Reports must be made to the address and telephone numbers indicated in N.J.A.C. 7:28-1.5";

21. 10 CFR 20.2201(b)(2)(ii), replace "Administrator of the appropriate NRC Regional Office listed in Appendix D to part 20" with "Supervisor, Radioactive Materials Section of the Department";

22. Replace the text of 10 CFR 20.2202(d) with "Reports made by licensees in response to the requirements of this section must be made to the address and telephone numbers indicated in N.J.A.C. 7:28-1.5.";

23. 10 CFR 20.2203(b)(2), replace "Privacy Act Information" with "New Jersey Open Public Records Act, N.J.S.A. 47:1A-1 et seq.";

24. Replace the text of 10 CFR 20.2203(d) with "All licensees, who make reports under paragraph (a) of this section shall submit the report in writing either by mail or by hand delivery to the Supervisor, Radioactive Materials Section of the Department at the addresses indicated in N.J.A.C. 7:28-1.5";

25. 10 CFR 20.2204, replace "Administrator of the appropriate NRC Regional Office listed in Appendix D to part 20" with "Supervisor, Radioactive Materials Section of the Department";

26. 10 CFR 20.2206(c), replace the second sentence with "The licensee shall submit the report to the Supervisor, Radioactive Materials Section of the Department at the address indicated in N.J.A.C. 7:28-1.5."; and

27. Replace the language at 10 CFR 20.2402 with "Section 26:2D-22 of the Radiation Protection Act of 1958, as amended, provides for criminal sanctions for violation of any provision of the Act."

(e) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 7. RADIATION SURVEYS AND PERSONNEL MONITORING FOR REGISTRANTS

7:28-7.1 Surveys inside controlled areas

(a) The registrant shall ensure that controlled areas shall be surveyed by, or under the direction of, a qualified individual to determine if the installation is maintained and operations are conducted in compliance with this chapter.

(b) The registrant shall ensure that radiation levels shall be determined with the use of suitable instruments and methods.

(c) The registrant shall ensure that the record of a survey shall contain, but shall not be limited to the radiation levels, the time the radiation is produced, the workweek and the fraction of the workweek that any individual may be exposed to the radiation.

(d) The registrant shall ensure that subsequent surveys shall be conducted at such times and as frequently as may be necessary to assure that the controlled areas and operations remain in compliance with this chapter.

7:28-7.2 Surveys outside controlled areas

Surveys shall be made outside controlled areas at sufficient intervals and locations as may be necessary to insure compliance with N.J.A.C. 7:28-6.

7:28-7.3 Statement in lieu of actual survey

A written statement signed by a qualified individual and including his calculations and analysis of the dose rates in the vicinity of a radiation source may be acceptable in place of the survey required in N.J.A.C. 7:28-7.1, Surveys inside controlled areas.

SUBCHAPTER 8. RECORDS FOR REGISTRANTS

7:28-8.1 Personnel-monitoring records

(a) Clear and legible records shall be maintained by the owner for calendar quarters on Form RH-26, or on a clear and legible form containing all the information required on RH-26. These records shall show the radiation exposures of all individuals who are required to wear personnel-monitoring equipment according to N.J.A.C. 7:28-7.4, Use of personnel-monitoring equipment.

(b) Each employee, at his or her request, shall be supplied by the owner with an annual statement of his or her radiation exposure record.

(c)-(g) (No change.)

7:28-8.2 Records of surveys

(a) Records shall be maintained showing the results of such surveys as are required pursuant to N.J.A.C. 7:28-7, Radiation Surveys and Personnel Monitoring for Registrants.

(b)-(c) (No change.)

(d) The owner of any installation covered in N.J.A.C. 7:28-14 through 16 shall submit to the Department within 30 days of receipt a copy of each report of radiation surveys made in compliance with N.J.A.C. 7:28-7, Radiation Surveys and Personnel Monitoring for Registrants.

7:28-8.3 (No change in text.)

SUBCHAPTER 9. (RESERVED)

SUBCHAPTER 10. LABELING, POSTING, AND CONTROLS FOR REGISTRANTS

7:28-10.1 General requirement

(a) (No change.)

(b) In addition to the language prescribed in the various sections of this subchapter, any supplementary information which might be appropriate in aiding individuals to minimize exposure to radiation may be provided on or near such required signs or labels.

7:28-10.4 Labeling of equipment

All ionizing radiation-producing machines capable, when operated, of producing a radiation area shall be labeled in a manner which cautions individuals of this fact.

7:28-10.5 (No change in text.)

7:28-10.6 Exceptions from posting and labeling requirements

Radiation areas and high radiation areas which result from the operation of therapeutic x-ray machines operated at potentials of 60 kv and below or from the operation of diagnostic x-ray machines shall be exempt from the posting requirements of N.J.A.C. 7:28-10.2, 10.3 and 10.4 provided that the operator of the equipment has taken precautions to insure that no individual other than the patient shall be in the radiation area.

SUBCHAPTER 11. (RESERVED)

SUBCHAPTER 12. REMEDIATION STANDARDS FOR RADIOACTIVE MATERIALS

7:28-12.2 Applicability

(a) The standards and/or dose criteria in this subchapter are applicable to:

1. Remediation of radioactive contamination of real property by any technologically enhanced naturally occurring radioactive materials, source, by-product, certain special nuclear material, and diffuse NARM; and

2. Any other remediation of radioactive contamination including, without limitation, any remediation pursuant to: the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq.; the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.; the Industrial Site Recovery Act, N.J.S.A. 13:1K-6 et seq.; the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.; the Comprehensive Regulated Medical Waste Management Act, N.J.S.A. 13:1E-48.1 et seq.; the Major Hazardous Waste Facilities Siting Act, N.J.S.A. 13:1E-49 et seq.; the Sanitary Landfill Facility Closure and Contingency Fund Act, N.J.S.A. 13:1E-100 et seq.; the Regional Low Level Radioactive Waste Disposal Facility Siting Act, N.J.S.A. 13:1E-177 et seq.; any law or regulation by which the State may compel a person or licensee to perform remediation activities; or N.J.A.C. 7:26C.

(b) (No change.)

(c) The Department shall apply the radiation remediation standards and dose criteria in this chapter at applicable sites as "Applicable or Relevant and Appropriate Requirements" as defined in the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq.

7:28-12.3 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the context clearly indicates otherwise:

"Appropriate period of time" means the length of time determined by the Department, taking into consideration the radioactive half-life, total activity, concentration, and physical condition of the residual radioactivity, geologic stability of the area, and current and projected future demographics.

. . .

"Contaminated site" means a site as defined pursuant to the Technical Requirements for Site Remediation rules at N.J.A.C. 7:26E-1.8.

. . .

"Engineering controls" means any physical mechanism to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls under this subchapter may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, radon remediation systems, signs, fences, physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

40 N.J.R. 5196(b)

. . .

"Radioactive contamination or radioactive contaminant" means the collective amount of radiation emitted from one or more radionuclides in the soil, and on/in building materials and/or equipment at concentrations above natural background levels.

. . .

"Remediation standards" means the combination of numeric standards that establish a level or concentration, and narrative standards, to which radioactive contaminants must be treated, removed or otherwise cleaned for soil, ground water or surface water, as established by the Department pursuant to N.J.S.A. 58:10B-12 and this chapter, in order to meet the health risk or environmental standards.

"Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's or person responsible for the remediation's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee or person responsible for the remediation, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of U.S. NRC regulations at 10 CFR Part 20 or the provisions of N.J.A.C. 7:28-12.15.

. . .

"Uncontaminated surface soil" means soil whose average natural background radionuclide total concentrations are less than the remediation standards for radionuclides, and cannot exceed the background established for the site by more than two standard deviations.

. . .

7:28-12.4 General requirements

(a) Any person or licensee conducting remediation pursuant to this subchapter shall comply with the requirements of N.J.A.C. 7:26E, Technical Requirements for Site Remediation, excluding those sections related to sampling, surveying, and background investigations. Sampling, surveying and laboratory requirements shall be in accordance with N.J.A.C. 7:28-12.5.

(b) The Department shall require a licensee to provide a decommissioning plan that addresses historical site assessment, scoping, characterization, remedial action options and selection, and a final status survey report when, based on the types, quantities, and half-lives of the licensed material, such elements of the decommissioning plan are appropriate.

(c) Compliance with this subchapter shall not relieve any person or licensee from complying with more stringent cleanup standards or provisions imposed by any other applicable statute, rule or regulation.

(d) Upon Departmental approval of the remedial action workplan or similar plan, the Department may not subsequently require a change to that workplan or similar plan in order to compel a different remediation standard due to the fact that the established remediation standards have changed; however, the Department may compel a different remediation standard if the difference between the new remediation standard and the remediation standard approved by the Department in the workplan or similar plan differs by an order of magnitude.

7:28-12.5 Sampling, surveying and laboratory requirements

(a) Facilities licensed under 10 CFR Part 50 that have Nuclear Regulatory Commission-approved quality assurance plans are exempt from the requirements of this section. Otherwise, in addition to the requirements in N.J.A.C. 7:26E Appendix A IV.1, persons responsible for conducting remediations or licensees shall include the following in the radionuclide analysis reports:

40 N.J.R. 5196(b)

1.-6. (No change.)

(b) If available, persons responsible for conducting remediations or licensees shall provide:

1.-5. (No change.)

(c) Any laboratory providing radiological analysis for soil or water shall be certified pursuant to N.J.A.C. 7:18.

(d) (No change in text.)

7:28-12.8 Radiation dose standards applicable to remediation of radioactive contamination of all real property

(a) Sites shall be remediated so that the incremental radiation dose to any person from any residual radioactive contamination at the site above that due to natural background radionuclide concentration, under either an unrestricted use remedial action, limited restricted use remedial action, or a restricted use remedial action, shall be as specified below:

1.-2. (No change.)

(b) (No change in text.)

(c) Radioactively contaminated surface water shall be remediated to comply with the New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B***-1.14(c)6***.

7:28-12.9 Minimum remediation standards for TENORM and source material contamination

(a) For radioactive contamination, the requirements of N.J.A.C. 7:28-12.8 shall be considered to be met for a specific radionuclide if:

1. Where only one radionuclide adds to the radioactive contamination of the site, the incremental concentration of the radionuclide above the natural background radionuclide concentration does not exceed the value in Table 1A, 1B (for unrestricted use), 2A, 2B (for limited restricted use), 3A, or 3B (for restricted use) below;

Tables 1A-2B (No change.)

Table 3A Allowed Incremental Derived Concentration Guideline Level of
Individual Radionuclides in Soils;
Restricted Use Standards for Radioactive Contamination (pCi/g)<(1)>

Feet of Uncontaminated Surface Soil (USS)		Feet of Vertical Extent of Residual Radionuclides (VE)								
...		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
Ac227	USS 1	17	9	6	5	5	5	5	4	4
	USS 2	17	10	7	7	6	5	5	5	5
	USS 3	17	10	10	8	6	6	6	6	6
	USS 4	17	15	10	8	8	8	8	8	8
	USS 5	17	15	10	10	10	10	10	10	10

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Th232	USS 1	13	9	7	5	4	2	3	3	3
	USS 2	13	10	7	5	4	3	3	3	3
	USS 3	13	10	7	5	4	4	4	4	4
	USS 4	13	10	7	5	5	5	5	5	5
	USS 5	13	10	7	6	6	6	6	6	6

Table 3B Allowed Incremental Derived Concentration Guidance Level of Individual Radionuclides in Soils;

Restricted Use Standards for Radioactive Contamination (Bq/g) <(1)>

Feet of Uncontaminated Surface Soil (USS) . . .		Feet of Vertical Extent of Residual Radionuclides (VE)								
		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
Ac227	USS 1	0.62	0.34	0.24	0.18	0.18	0.18	0.17	0.17	0.17
	USS 2	0.63	0.36	0.24	0.24	0.23	0.20	0.19	0.19	0.19
	USS 3	0.63	0.36	0.36	0.29	0.23	0.23	0.23	0.23	0.23
	USS 4	0.63	0.54	0.37	0.29	0.28	0.28	0.28	0.28	0.28
	USS 5	0.63	0.54	0.37	0.36	0.36	0.36	0.36	0.36	0.36
Th232	USS 1	0.48	0.35	0.25	0.19	0.15	0.13	0.11	0.10	0.10
	USS2	0.48	0.39	0.26	0.19	0.15	0.13	0.12	0.12	0.12
	USS3	0.48	0.39	0.26	0.19	0.15	0.14	0.14	0.14	0.14
	USS4	0.48	0.39	0.26	0.19	0.17	0.17	0.17	0.17	0.17
	USS 5	0.48	0.39	0.26	0.22	0.22	0.22	0.22	0.22	0.22

<(1)-(3)> (No change.)

2.-3. (No change.)

(b) (No change.)

7:28-12.10 Minimum remediation standards for accelerator-produced, by-product, and certain special nuclear materials

40 N.J.R. 5196(b)

(a) Remediation standards shall meet the requirements at N.J.A.C. 7:28-12.8.

(b) Computer models acceptable to the Department shall be used to determine the remediation standards.

(c) Modeling parameters used in developing unrestricted and restricted use standards shall be equivalent to those used in the NJDEP's model, RaSoRS, as supplemented or amended, and incorporated herein by reference, which is available on the Radiation Protection Program's website at http://www.state.nj.us/dep/rpp/index.htm.

(d) Dose calculations shall be performed out to the time of peak dose or 1,000 years, whichever is longer.

(e) Restricted use remediation standards shall meet requirements at N.J.A.C. 7:28-12.11(e) and 12.12.

7:28-12.11 Petition for alternative remediation standards for radioactive contamination

(a) In lieu of using the minimum remediation standards for radioactive contamination found at N.J.A.C. 7:28-12.9 or developed under N.J.A.C. 7:28-12.10, a person or licensee may petition the Department for an alternative remediation standard for radioactive contamination. Such an alternate remediation standard:

1. (No change.)

2. Shall not result in incremental concentrations exceeding three pCi/L (111 Bq/m<3>) of radon in indoor air in the lowest level of the building;

3. Shall not result in radionuclide in groundwater levels exceeding those in the New Jersey Groundwater Quality Standards in N.J.A.C. 7:9C; and

4. Shall not result in radionuclide in surface water levels exceeding those in the New Jersey Surface Quality Standards in N.J.A.C. 7:9B***-1.14(c)6***.

(b) The Department shall not consider a petition for an alternative remediation standard for radionuclides that is supported by increasing, in any manner, the allowed incremental dose criterion of 15 mrem/yr (0.15 mSv/yr) or the allowed incremental radon in air concentration of three pCi/L (111 Bq/m 3), or varying the parameters listed in Tables 6 or 7 below.

Tables 6 and 7 (No change.)

(c) The Department shall consider petitions only in cases where site-specific or waste specific factors, and/or site design features are used in performing the dose assessment, which are different than those used by the Department in establishing the remediation standards in N.J.A.C. 7:28-12.9 or 12.10. Factors which the Department shall consider in a petition for an alternate remediation standard include, but are not limited to:

1.-4. (No change.)

(d) A petition for an alternate remediation standard shall include an analysis demonstrating how and why the difference in factors such as those in Tables 8 and 9 above and/or indoor and outdoor occupancy times will result in substantially different remediation standards than those in N.J.A.C. 7:28-12.9.

(e) Regardless of the factors used by the petitioner or licensee, the Department shall not approve alternative standard petitions that include institutional and engineering controls where failure of those controls, not including the failure of a radon remediation system, would result in more than 100 mrem (one mSv) total annual effective dose equivalent.

(f) In the event the Department determines that sufficient evidence exists to support consideration of an alternative remediation standard, the petitioner or licensee shall submit a written analysis which demonstrates compliance with the dose limits in N.J.A.C. 7:28-12.9 or 12.10 including:

40 N.J.R. 5196(b)

1. (No change.)

2. A dose assessment analysis, including:

i. An estimate of the radiation doses received by a post-remediation on-site resident for an unrestricted use remedial action, or by an employee (of a proposed commercial use facility) for a limited restricted use or restricted use remedial action;

ii. (No change.)

iii. Dose calculations which shall be extended for a period of 1,000 years or to the time of peak dose, whichever is longer;

iv.-vii. (No change.)

(g) (No change.)

(h) Computer models acceptable to the Department may be used by the petitioner or licensee for an alternative remediation standard to confirm that the requirements of N.J.A.C. 7:28-12.9 or 12.10 have been and will continue to be met.

7:28-12.12 Requirements pertaining to engineering or institutional controls

(a) All remediation proposals shall designate the intended use(s) of the property. Such intended use(s) shall be restricted as necessary to prevent future exposure, and shall otherwise be consistent with current and projected State and local zoning designations or land uses. For sites not remediated to the unrestricted use standards in N.J.A.C. 7:28-12.9 or 12.10, the Department shall define the nature and duration of all appropriate engineering or institutional controls necessary to meet the standards in N.J.A.C. 7:28-12.9, 12.10, or 12.11(a), based upon the particular conditions of the site.

(b) In order for any remediation under this subchapter requiring engineering controls or institutional controls to meet the standards in N.J.A.C. 7:28-12.9, 12.10, or 12.11(a), the person responsible for conducting the remediation, or licensee, shall, in addition to meeting the provisions of N.J.S.A. 58:10B-13:

1. (No change.)

2. Provide sufficient financial assurance for the costs of implementing and maintaining the requisite active engineered or institutional controls for an appropriate period of time. Acceptable financial assurance mechanisms are set forth at 10 CFR 20.1403(c), incorporated herein by reference.

(c) A person responsible for conducting the remediation, or the licensee, shall conduct public outreach if the Department determines that outreach is needed, or when the Department determines that there is substantial public interest in activities concerning restricted release license termination.

1. The Department may determine that there is substantial public interest when it receives:

i. A petition containing the signatures of 25 or more people that live or work within 200 feet of the site, if contamination has not migrated from the site boundary;

ii. A petition containing the signatures of 25 ***or more*** people that live or work within 200 feet of the extent of contamination, if contamination has migrated from the site boundary; or

iii. A written request by a municipal official, such as a mayor or chairperson of an environmental commission, or a designated local health official.

2. When the Department determines that there is substantial public interest, the Department shall notify the person responsible for conducting the remediation or the licensee and post a summary of findings on the Department's web site at www.state.nj.us/dep; and

3. The person responsible for conducting the remediation or the licensee shall develop and implement enhanced public notice based on the expressed needs of the community and may include the following:

i. Publicizing and hosting an information session or public meeting;

ii. Publishing a notice containing basic information about the site in the local paper of record; or

iii. Establishing a local information repository.

4. The notifications required pursuant to this section are not intended to satisfy the public participation requirements applicable to sites subject to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. and the National Contingency Plan, 40 CFR Part 300.

7:28-12.13 Requirements pertaining to a change in land use

(a) Any subsequent proposed use of a property that is different from the intended use (other than unrestricted use remedial actions) described in the original remediation proposal shall require a prior review and prior approval by the Department. To initiate this review, 90 calendar days prior to a proposed change in land use, the person or licensee proposing such use shall prepare and submit to the Department, at the Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 08625-0415, and to each affected municipality, a brief written description of the new proposed use as compared to the intended use upon which the original remediation was based including all planned soil excavations, and any additional remedial actions to be implemented.

(b) If the Department determines that the proposed new use may cause the dose limitations of N.J.A.C. 7:28-12.8 to be exceeded, the person or licensee requesting the use change shall be required to prepare and submit to the Department's Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 08625-0415, a dose assessment analysis, containing the information required under N.J.A.C. 7:28-12.11(f)2, (g), and (h), to ascertain whether the dose limitation requirements of N.J.A.C. 7:28-12.8 will be met for the proposed new use.

(c) In preparing the dose assessment analysis, the person or licensee may incorporate into the new use plan new remedial measures such as different radionuclide in soil concentrations, or radioactive contamination vertical extents, and/or new engineering or institutional controls, provided that for engineering or institutional controls, the person responsible for conducting the remediation or licensee provides for the cost of implementing and maintaining them as specified in N.J.A.C. 7:28-12.12(c)3.

7:28-12.14 (No change in text.)

7:28-12.15 Requirements pertaining to onsite burial or capping

(a) No owner or licensee shall bury or construct an engineered barrier (cap) over radioactive material onsite unless the requirements of N.J.A.C. 7:28-12.8 and 12.11 are met.

(b) Owners or licensees with sites that have been used for burial of radioactive materials or where radioactive material has been capped, shall not be allowed to convert these sites to other uses unless the requirements of N.J.A.C. 7:28-12.8 and 12.11 are met.

(c) The owner or licensee of any burial ground or capped material shall notify the Department in writing not less than 30 days in advance of any transfer of title to the property involved.

APPENDIX A

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. . .

Allowed Incremental Derived Concentration Guideline Levels (pCi/g) for the Gamma and Intake Pathways <(1)>

Feet of Uncontaminated Surface Soil (USS)		Feet of Vertical Extent of Residual Radionuclides (VE)								
		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
Ra226 Restricted Standards	USS 1	18	15	10	8	6	5	5	4	4
	USS 2	18	15	10	8	6	5	5	5	5
	USS 3	18	15	10	8	6	6	6	6	6
	USS 4	18	15	10	8	7	7	7	7	7
	USS 5	18	15	10	9	9	9	9	9	9

Allowed Incremental Derived Concentration Guideline Levels (Bq/g) for the Gamma and Intake Pathways <(1)>

Nuclide	Feet of Vertical Extent of Residual Radionuclides (VE)								
	VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
Ra226 Unrestricted Use Standards	0.13	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08
Ra226 Limited Restricted Use Standards	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.15	0.15

Allowed Incremental Derived Concentration Guideline Levels (Bq/g) for the Gamma and Intake Pathways <(1)>

Feet of Uncontaminated Surface Soil (USS)	Feet of Vertical Extent of Residual Radionuclides (VE)								
	VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
Ra226									

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Restricted Standards	USS 1	0.67	0.55	0.37	0.30	0.22	0.18	0.18	0.15	0.15
	USS 2	0.67	0.56	0.37	0.30	0.22	0.18	0.18	0.18	0.18
	USS 3	0.67	0.56	0.37	0.30	0.22	0.22	0.22	0.22	0.22
	USS 4	0.67	0.56	0.37	0.30	0.23	0.23	0.26	0.26	0.26
	USS 5	0.67	0.56	0.37	0.33	0.33	0.33	0.33	0.33	0.33

<(1)> (No change in text.)

SUBCHAPTER 13. REPORTS OF THEFTS AND RADIATION INCIDENTS FOR REGISTRANTS

7:28-13.1 Reports of theft or loss

A registrant shall immediately notify the Department by telephone, telefax or telegraph of any theft or loss of any ionizing radiation-producing machine under such circumstances that a substantial radiation hazard may result.

7:28-13.2 Reportable radiation incidents

(a) A registrant shall immediately notify the Department by telephone, telefax or telegraph of any radiation incident which may have caused or threatens to cause the following:

1. (No change.)

Recodify existing 3. and 4. as 2. and 3. (No change in text.)

(b) (No change.)

(c) A registrant shall notify the Department within 24 hours by telephone, telefax or telegraph of any radiation incident which may have caused or threatens to cause the following:

1. (No change.)

Recodify existing 3. and 4. as 2. and 3. (No change in text.)

(d) (No change.)

(e) A registrant shall notify the Department in writing within 30 days of the following:

1. Each exposure of an individual to radiation in excess of any applicable limit of N.J.A.C. 7:28-6;

2. (No change.)

3. Levels of radiation not involving exposure of any individual in excess of any applicable limit of N.J.A.C. 7:28-6 outside a controlled area in excess of 10 times the limits of N.J.A.C. 7:28-6, Standards for Protection Against Radiation.

(f) The reports set forth in (e) above shall describe the extent of exposure of individuals to radiation, the levels of radiation, the cause of the exposure and/or levels, and corrective steps taken or planned to assure against a recurrence.

(g) In each case where (e)1 above requires a report to the Department of exposure of an individual, the owner shall:

1. (No change.)

2. Concurrently give written notification to the individual of the nature and extent of the exposure. Such notice shall contain the following statement: "This report is furnished to you under the provisions of N.J.A.C. 7:28-13, Reports of Thefts and Radiation Incidents for Registrants. You should preserve this report for future reference."

SUBCHAPTER 17. INDUSTRIAL AND NONMEDICAL X-RAY RADIOGRAPHY

7:28-17.1 Scope

(a) This subchapter establishes radiation-safety requirements for persons utilizing ionizing radiation-producing machines for industrial and nonmedical radiography.

(b)-(d) (No change.)

7:28-17.2 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the context clearly indicates otherwise:

. . .

"Temporary job site" means any location where industrial radiography is performed other than the location(s) listed in a registration issued by the Department pursuant to N.J.A.C. 7:28-3.

7:28-17.3 Registration requirements

All owners of ionizing radiation-producing machines shall comply with N.J.A.C. 7:28-3.

7:28-17.4 Equipment control

(a) (Reserved.)

(b) (No change.)

(c) All ionizing radiation-producing machines shall be kept locked at all times except when under the direct surveillance of a radiographer or of a radiographer's assistant or as provided in N.J.A.C. 7:28-17.6(a).

(d) (Reserved.)

(e) (No change.)

(f)-(j) (Reserved)

(k) Each owner shall maintain current logs, which shall be kept available for inspection by the Department at the address specified in the *[license]* ***registration***, showing for each radiation source the following information.

1. A description, or make and model number of the ionizing radiation-producing machine;

2.-3. (No change.)

(l) Each owner conducting industrial radiography at a temporary job site shall make the following records available at the site for inspection by the Department:

1. (Reserved.)

2. A copy of the owner's current registration of a ionizing radiation-producing machine issued by the Department pursuant to N.J.A.C. 7:28-3;

3. (Reserved.)

4.-6. (No change.)

7. Daily pocket dosimeter records for the period of operation at the site required to be made pursuant to N.J.A.C. 7:28-17.5; and

8. A copy of the latest instrument calibration and the original log of daily instrument operational check source test results for the specific devices in use at the site required to be made pursuant to (e)1 and 2 above.

7:28-17.5 Personal radiation safety requirements for radiographers

(a) The owner shall not permit any person to act as a radiographer until such person:

1.-2. (No change.)

3. Has demonstrated competence to use the ionizing radiation-producing machines and survey instruments which will be employed in his or her assignment.

(b) The outline of the course for radiographer's training is as follows:

1. Fundamentals of radiation safety:

i.-iii. (No change.)

iv. Levels of radiation from ionizing radiation-producing machines;

v. (No change.)

2. (No change.)

3. Radiographic equipment to be used:

i. (No change.)

ii. (Reserved)

iii.-iv. (No change.)

4.-5. (No change.)

(c) The owner shall not permit any person to act as a radiographer's assistant until such person:

1. (No change.)

2. Has demonstrated competence to use under the personal supervision of the radiographer the ionizing radiation-producing machines and radiation-survey instruments which will be employed in his or her assignment; and

3. (No change.)

(d) The owner shall prepare written operating and emergency procedures which shall include instructions in at least the following:

1. The handling and the use of ionizing radiation-producing machines to be employed such that no person is likely to be exposed to radiation doses in excess of the limits established in N.J.A.C. 7:28-6;

2.-3. (No change.)

4. Methods and occasions for locking and securing ionizing radiation-producing machines;

5. (No change.)

6. (Reserved.)

7.-9. (No change.)

(e) (No change.)

7:28-17.6 Precautionary procedures in radiographic operations

(a)-(c) (No change.)

(d) In addition to the requirements of N.J.A.C. 7:28-7, no radiographic operation shall be conducted unless the owner ensures that radiation surveys are made and recorded as follows:

1. (No change.)

2. (Reserved.)

3. (Reserved.)

4. Clear and legible records shall be kept of the surveys that are required by (d)1 above and maintained for inspection by the Department.

7:28-17.8 Shielded room radiography

(a) No person shall operate or permit the operation of any ionizing radiation-producing machine used in shielded room radiography unless the equipment, installation, and personnel meet the requirements of N.J.A.C. 7:28-17.1 through 17.6 and this section.

(b) No person shall operate or permit any person to operate an ionizing radiation-producing machine used in shielded room radiography until such operator has completed the following requirements:

1.-3. (No change.)

(c) Each owner shall supply appropriate personnel monitoring equipment and shall require that it be used by every individual who operates, makes "set-ups," or performs maintenance on an ionizing radiation-producing machine used in shielded room radiography.

(d) (No change.)

(e) No person shall enter an enclosed room in which shielded room radiography is performed until after a physical radiation survey is conducted to determine whether the ionizing radiation producing machine is off. A record shall be maintained of the date and exposure rate measured for each physical radiation survey and shall be made available for inspection by the Department.

(f)-(g) (No change.)

(h) All ionizing radiation-producing machines used in shielded room radiography and all objects exposed thereto shall be confined within an installation or structure designed or intended for radiography and in which radiography is regularly performed in accordance with the following requirements:

1.-6. (No change.)

SUBCHAPTER 18. MAJOR NUCLEAR FACILITIES

7:28-18.1 Scope

(a)-(b) (No change.)

(c) The intent of this section is to insure that individuals outside of these facilities receive no radiation exposures from environmental or direct radiation that are in excess of the limits of N.J.A.C. 7:28-6.

SUBCHAPTER 48. FEES FOR THE REGISTRATION OF NONIONIZING RADIATION PRODUCING SOURCES

7:28-48.2 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the context clearly indicates otherwise.

. . .

"Radiation area" means an area which is accessible to a worker and in which there exists levels of nonionizing radiation that exceed the maximum permissible levels of such radiation as specified in the rules of the Commission.

. . .

SUBCHAPTER 49. (RESERVED.)

SUBCHAPTER 50. NOTICES, INSTRUCTIONS AND REPORTS TO WORKERS: INSPECTION AND INVESTIGATIONS

7:28-50.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 19, Notices, Instructions and Reports to Workers: Inspection and Investigations.

(b) The following provisions of 10 CFR Part 19 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 19.5, Communications; and

2. 10 CFR 19.8, Information collection requirements: OMB approval.

(c) The following provisions of 10 CFR Part 19 are incorporated by reference with the specified changes:

1. At 10 CFR 19.2, Scope, delete references to 10 CFR Parts 50, 60, 63, 72 and 76;

2. At 10 CFR 19.3, Definitions, "Commission" shall mean the New Jersey Department of Environmental Protection;

3. "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 19 of the Code of Federal Regulations that are incorporated by reference, mean the New Jersey Department of Environmental Protection, except when specifically noted in this subchapter;

4. 10 CFR 19.4, delete "Except as specifically authorized by the Commission in writing, no" with "No," and replace "by the General Counsel" with "signed and approved by the Commissioner of the Department,";

5. 10 CFR 19.11(a)(1), replace "Part 20" with "N.J.A.C. 7:28-6";

6. 10 CFR 19.13(b), replace "§20.2106 of 10 CFR Part 20" with "N.J.A.C. 7:28-6";

7. 10 CFR 19.13(c)(1)(i), replace "§20.2106" with "N.J.A.C. 7:28-6";

8. 10 CFR 19.13(c)(1)(i), replace "§20.1502" with "N.J.A.C. 7:28-6";

9. 10 CFR 19.13(d), replace "§§20.2202, 20.2203, 20.2204, or 20.2206 of this Chapter" with "N.J.A.C. 7:28-6";

10. 10 CFR 19.17(a), replace all references to "Executive Director for Operations" with "Chief, Bureau of Environmental Radiation of the Department";

11. 10 CFR 19.17(a) and (b), replace all references to "Administrator of the appropriate Regional Office" with "Supervisor, Radioactive Materials Section";

12. 10 CFR 19.18(b), replace "Office of the General Counsel" with "Office of the Attorney General of New Jersey";

13. 10 CFR 19.20, delete references to 10 CFR Parts 50, 60, 63, 72 and 76; and

14. 10 CFR 19.32, add "Allegations of discrimination are to be reported to the Division on Civil Rights, Department of Law and Public Safety, 140 East Front Street, P.O. Box 089, Trenton, New Jersey, 08625-089."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees," and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 51. RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

7:28-51.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 30, Rules of General Applicability to Domestic Licensing of Byproduct Material.

(b) The following provisions of 10 CFR Part 30 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 30.4, Definitions, the following definitions are not incorporated by reference: "act," "byproduct material," "curie," "decommission," "department" and "Department of Energy," "effective dose equivalent," "government agency," "license," "medical use," "person," "source material" and "special nuclear material";

2. 10 CFR 30.6, Communications;

3. 10 CFR 30.8, Information collection requirements: OMB approval;

4. 10 CFR 30.21(c), Radioactive drug: Capsules containing carbon-14 urea for "in vivo" diagnostic use for humans;

5. 10 CFR 30.34(d), (e)(1) and (e)(3), Terms and conditions of licenses;

6. 10 CFR 30.41(a)(6), Transfer of byproduct material; and

7. 10 CFR 30.55, Tritium reports.

(c) The following provisions of 10 CFR Part 30 are incorporated by reference with the specified changes:

1. 10 CFR 30.4, Definitions, "Commission" shall mean the New Jersey Department of Environmental Protection;

2. "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 30 of the Code of Federal Regulations that are incorporated by reference, mean the New Jersey Department of Environmental Protection, except when specifically noted in this subchapter;

3. 10 CFR 30.5, delete "Except as specifically authorized by the Commission in writing, no" with "No," and replace "by the General Counsel" with "signed and approved by the Commissioner of the Department,";

4. 10 CFR 30.9(b), replace all references to "Administrator of the appropriate Regional Office" with "Supervisor, Radioactive Materials Section";

5. 10 CFR 30.10(b), replace "10 CFR part 2, subpart B" with " N.J.S.A. 26:2D-13";

6. 10 CFR 30.12, replace "when the Commission determines that the exemption of the prime contractor or subcontractor is authorized by law" with "when the Department and the Commission on Radiation Protection determine that the exemption of the prime contractor or subcontractor is in accordance with N.J.A.C. 7:28-2.8";

7. 10 CFR 30.14(c), add "the Department" after "holding a specific license issued by";

8. 10 CFR 30.14(c), "Commission" shall mean the U.S. Nuclear Regulatory Commission;

9. 10 CFR 30.15(a), delete "20 and" and add "and N.J.A.C. 7:28-6" after "of this Chapter";

10. 10 CFR 30.16, delete "20 and" and add "and N.J.A.C. 7:28-6" after "of this Chapter";

11. 10 CFR 30.19(a), delete "20 and" and add "and N.J.A.C. 7:28-6" after "of this Chapter";

12. 10 CFR 30.20(a), delete "20 and" and add "and N.J.A.C. 7:28-6" after "of this Chapter";

13. 10 CFR 30.32(a), replace the first sentence with "Application for specific licenses and renewals from the State shall be filed with Department on forms available from the Department";

14. 10 CFR 30.32(e), replace all references to 10 CFR Part 170 with N.J.A.C. 7:28-64;

15. 10 CFR 30.33(a)(5), replace "Director Office of Federal and State Materials and Environmental Management Program," with "Manager, Bureau of Environmental Radiation";

16. 10 CFR 30.35(c)(5), replace "10 CFR Part 20, Appendix G" with "N.J.A.C. 7:28-6";

17. 10 CFR 30.35(c)(5), replace "10 CFR Part 20" with "N.J.A.C. 7:28-12";

18. 10 CFR 30.35(g)(3)(i), replace " 10 CFR 20.1003" with "N.J.A.C. 7:28-6";

19. 10 CFR 30.35(g)(3)(iii), replace " 10 CFR 20.2108" with "N.J.A.C. 7:28-6";

20. 10 CFR 30.35(g)(3)(iv), replace "10 CFR Part 20, subpart E" with "N.J.A.C. 7:28-12";

21. 10 CFR 30.35(g)(3)(iv), replace " 10 CFR 20.2002" with "N.J.A.C. 7:28-6";

22. 10 CFR 30.36(j)(2), replace "10 CFR Part 20, subpart E" with "N.J.A.C. 7:28-12";

23. 10 CFR 30.36(k)(3)(i), replace "10 CFR Part 20, Subpart E" with "N.J.A.C. 7:28-12";

24. 10 CFR 30.36(k)(3)(ii), replace "10 CFR Part 20, subpart E" with "N.J.A.C. 7:28-12";

25. 10 CFR 30.37(a), replace the wording of (a) with "Application for renewal of a specific State license shall be filed with the Department on forms available from the Department";

26. 10 CFR 30.38, Change the title of the section from "Application for amendment of licenses" to "Amendment of licenses." Replace "Applications for amendment of a license shall be filed on Form NRC-313 in accordance with 30.32" with "Requests to amend a license shall be shall be submitted in letter form to the Department";

27. 10 CFR 30.50(b)(1)(ii), replace "appendix B of §§20.1001-20.2401 of 10 CFR Part 20" with " N.J.A.C. 7:28-6.1";

28. 10 CFR 30.50(b)(4)(i), replace "appendix B of §§20.1001-20.2401 of 10 CFR Part 20" with " N.J.A.C. 7:28-6.1";

29. 10 C.F.R 30.50(c)(2), replace "appropriate NRC Regional office listed in appendix D to part 20 of this Chapter" with "Department";

30. 10 CFR 30.51(d), replace "appropriate NRC Regional Office" with "Department";

31. 10 CFR 30.51(d)(1), replace "§§20.2002 (including burials authorized before January 28, 1981), 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-6";

32. 10 CFR 30.51(d)(2), replace "§20.2103(b)(4)" with N.J.A.C. 7:28-6";

33. 10 CFR 30.51(e)(1), replace "§§20.2002 (including burials authorized before January 28, 1981), 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-6";

34. 10 CFR 30.51(e)(2), replace "§20.2103(b)(4)" with N.J.A.C. 7:28-6"; and

35. 10 CFR 30, Appendix B to Part 30--Quantities of Licensed Material Requiring Labeling, end Note, replace "§20.303" with "N.J.A.C. 7:28-6."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radia-

tion," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 52. GENERAL DOMESTIC LICENSES FOR BYPRODUCT MATERIAL

7:28-52.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 31, General Domestic Licenses for Byproduct Material.

(b) The following provisions of 10 CFR Part 31 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR Part 31.4, Information collection requirements: OMB approval.

(c) The following provisions of 10 CFR Part 31 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 31 of the Code of Federal Regulations that are incorporated by reference, means the Department, except when specifically noted in this subchapter;

2. 10 CFR 31.2, delete "20," and add "and N.J.A.C. 7:28-6" after "of this chapter";

3. 10 CFR 31.5(c)(5), replace "§20.1402" with "N.J.A.C. 7:28-12";

4. 10 CFR 31.5(c)(9)(i), replace "20.2201, and 20.2202" with "and N.J.A.C. 7:28-6";

5. 10 CFR 31.5(c)(10), replace "§§20.2201, and 20.2202 of this chapter" with "N.J.A.C. 7:28-6";

6. 10 CFR 31.5(c)(10), delete "20," and add "and N.J.A.C. 7:28-6" after "of this chapter";

7. 10 CFR 31.5(c)(13)(ii), after "fee required by" replace "Section 170.31" with "N.J.A.C. 7:28-64";

8. 10 CFR 31.5(c)(13)(iv), the terms "NRC" and "Commission" mean the U.S. Nuclear Regulatory Commission;

9. 10 CFR 31.5(c)(14), replace "Director of Nuclear Material Safety and Safeguards, ATTN: GLTS, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001" with "Department";

10. 10 CFR 31.7(b), delete "20," and add "N.J.A.C. 7:28-6" after "of this chapter";

11. 10 CFR 31.7(b), replace "§§20.2201, and 20.2202" with "N.J.A.C. 7:28-6";

12. 10 CFR 31.8(c), delete "20," and add ", as well as N.J.A.C. 7:28-6" after the second "of this chapter";

13. 10 CFR 31.10(b)(1), replace "§20.2001" with "N.J.A.C. 7:28-6";

14. 10 CFR 31.10(b)(3), delete "20," and add "and N.J.A.C. 7:28-6,";

15. 10 CFR 31.10(b)(3), replace "§§20.2001, 20.2201, and 20.2202 of this chapter" with "N.J.A.C. 7:28-6";

16. 10 CFR 31.11(c)(5), replace "§20.2001" with "N.J.A.C. 7:28-6";

17. 10 CFR 31.11(e), add "radioactive materials" prior to "registrant";

18. 10 CFR 31.11(f), delete "20," and add "and N.J.A.C. 7:28-6" after "of this chapter"; and

19. 10 CFR 31.11(f), replace "§§20.2001, 20.2201, and 20.2202" with "N.J.A.C. 7:28-6."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees," shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license for radioactive materials from both the Department and the NRC shall post both the NRC's Form 3, "Notice to Employees," and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 53. SPECIFIC DOMESTIC LICENSES TO MANUFACTURE OR TRANSFER CERTAIN ITEMS CONTAINING BYPRODUCT MATERIAL

7:28-53.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 32, Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material.

(b) The following provisions of 10 CFR Part 32 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 32.8, Information collection requirements: OMB approval;

2. 10 CFR 32.11, Introduction of byproduct material in exempt concentrations into products or materials, and transfer of ownership or possession: Requirements for license;

3. 10 CFR 32.12, Same: Records and material transfer reports;

4. 10 CFR 32.14, Certain items containing byproduct material; requirements for license to apply or initially transfer;

5. 10 CFR 32.15, Same: Quality assurance, prohibition of transfer, and labeling;

6. 10 CFR 32.16, Certain items containing byproduct material: Records and reports of transfer;

7. 10 CFR 32.18, Manufacture, distribution and transfer of exempt quantities of byproduct material: Requirements for license;

8. 10 CFR 32.19, Same: Conditions of licenses;

9. 10 CFR 32.20, Same: Records and material transfer reports;

10. 10 CFR 32.21, Radioactive drug: Manufacture, preparation or transfer for commercial distribution of capsules containing carbon-14 urea each for "in vivo" diagnostic use for humans to persons exempt from licensing; Requirements for a license;

11. 10 CFR 32.21a, Same: Conditions of license;

12. 10 CFR 32.22, Self-luminous products containing tritium, krypton-85 or promethium 147: Requirements for license to manufacture, process, produce, or initially transfer;

13. 10 CFR 32.23, Same: Safety criteria;

14. 10 CFR 32.25, Conditions of licenses issued under Part 32.22: Quality control, labeling, and reports of transfer;

15. 10 CFR 32.26, Gas and aerosol detectors containing byproduct material: Requirements for license to manufacture, process, produce, or initially transfer;

16. 10 CFR 32.27, Same: Safety criteria;

17. 10 CFR 32.28, Same: Table of organ doses;

18. 10 CFR 32.29, Conditions of licenses issued under 32.26: Quality control, labeling, and reports of transfer;

19. 10 CFR 32.40, Schedule A-Prototype tests for automobile lock illuminators; and

20. 10 CFR 32.210, Registration of product information.

(c) The following provisions of 10 CFR Part *[30]* ***32*** are incorporated by reference with the specified changes:

1. 10 CFR 32.52(a), replace "Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001," with "New Jersey Department of Environmental Protection, Radioactive Materials Section, P.O. Box 415, Trenton, New Jersey 08625-0415";

2. 10 CFR 32.56, replace "Director of Nuclear Material Safety and Safeguards," with "Department";

3. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 32 of the Code of Federal Regulations that are incorporated by reference, mean the Department, except when specifically noted in this subchapter;

4. 10 CFR 32.2, in the definition of "nationally tracked source," replace "part 20 of this Chapter" with "10 CFR part 20 as incorporated by reference in N.J.A.C. 7:28-6";

5. 10 CFR 32.51(a)(2)(ii), replace "§20.1201(a) of this chapter" with "N.J.A.C. 7:28-6";

6. 10 CFR 32.51(a)(4), replace "§20.1901 of this chapter" with "N.J.A.C. 7:28-6";

7. 10 CFR 32.51(a)(5), replace "§20.1901 of this chapter" with "N.J.A.C. 7:28-6";

8. 10 CFR 32.51(c), replace "§20.1201(a) of this chapter" with "N.J.A.C. 7:28-6";

9. 10 CFR 32.51a(a)(2), add "and" between "31.2," and "30.51";

10. 10 CFR 32.51a(a)(2), delete "20.2201, and 20.2202" and add "and N.J.A.C. 7:28-6" after "of this chapter";

11. 10 CFR 32.51a(b)(1), add "and" between "31.2" and "30.51" in both locations;

12. 10 CFR 32.51a(b)(1), delete "20.2201, and 20.2202" from both locations and add "and N.J.A.C. 7:28-6" after "of this chapter" in both locations;

13. 10 CFR 32.54(a), replace "§20.1901 of this chapter" with "N.J.A.C. 7:28-6";

14. 10 CFR 32.61(d), replace "§20.1901(a) of this chapter" with "N.J.A.C. 7:28-6";

15. 10 CFR 32.71(c)(2), replace "§20.1901(a) of this chapter" with "N.J.A.C. 7:28-6"; and

16. 10 CFR 32.71(e), replace "§20.2001" with "N.J.A.C. 7:29-6."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees," and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 54. SPECIFIC DOMESTIC LICENSES OF BROAD SCOPE FOR BYPRODUCT MATERIAL

7:28-54.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 33, Specific Domestic Licenses of Broad Scope for Byproduct Material.

(b) The following provisions of 10 CFR Part 33 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 33.8, Information collection requirements: OMB approval.

(c) The following provisions of 10 CFR Part 33 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 33 of the Code of Federal Regulations that are incorporated by reference, mean the Department; and

2. 10 CFR 33.12, replace with "Application for specific licenses from the State and renewals shall be filed with Department on forms available from the Department."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees," shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees," and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 55. MEDICAL USE OF BYPRODUCT MATERIAL

7:28-55.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 35, Medical Use of Byproduct Material.

(b) The following provisions of 10 CFR Part 35 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 35.8, Information collection requirements: OMB approval; and

2. 10 CFR 35.63(b)(2)(i).

(c) The following provisions of 10 CFR Part 35 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 35 of the Code of Federal Regulations, that are incorporated by reference, means the Department, except when specifically noted in this subchapter;

2. 10 CFR 35.1, delete "20," and add "and N.J.A.C. 7:28-6" after "of this chapter";

3. 10 CFR 35.12(b)(1), replace "Filing an original and one copy of NRC Form 313, "Application for Material License," with "Filing an original application for a specific license from the State with the Department on forms available from the Department,";

4. 10 C.F.R 35.12(c), delete the wording "amendment or";

5. 10 CFR 35.12(c)(1), delete the wording "and one copy" and "either";

6. 10 CFR 35.12(c)(1)(i), delete the wording "NRC Form 313, 'Application for Material License,'; or" and replace with "an initial application or renewal application form available from the Department";

7. 10 CFR 35.12(c)(1)(ii), delete wording "or renewal";

8. 10 CFR 35.12(d), create new wording for (d) to state "A request for an amendment must be made by submitting a letter requesting the amendment with relevant supporting documentation as required by 35.610, 35.642, 35.643, and 35.645, as applicable";

9. 10 CFR 35.12(d), change existing citation to 35.12(e);

10. 10 CFR 35.12(e), change existing citation to 35.12(f);

11. 10 CFR 35.18(a)(1), delete the wording "NRC Form 313 'Application for Material License,' and replace with "an original application for a specific license from the State";

12. 10 CFR 35.24(a), replace "§20.1101 of this chapter" with "N.J.A.C. 7:28-6";

13. 10 CFR 35.61(a), replace "10 CFR Part 20" with "N.J.A.C. 7:28-6";

14. 10 CFR 35.70(a), replace "Part 20 of this chapter" with "N.J.A.C. 7:28-6";

15. 10 CFR 35.80(a)(4), replace "Part 20 of this chapter" with "N.J.A.C. 7:28-6";

16. 10 CFR 35.310(a)(2)(i), replace "§20.1301(a)(1) of this chapter" with "N.J.A.C. 7:28-6";

17. 10 CFR 35.310(a)(2)(ii), replace "§20.1301(c) of this chapter" with "N.J.A.C. 7:28-6";

18. 10 CFR 35.410(a)(4)(i), replace "§20.1301(a)(1) of this chapter" with "N.J.A.C. 7:28-6";

19. 10 CFR 35.410(a)(4)(ii), replace "§20.1301(c) of this chapter" with "N.J.A.C. 7:28-6";

20. 10 CFR 35.652(a), replace "§20.1501 of this chapter" with "N.J.A.C. 7:28-6";

21. 10 CFR 35.3045(c), replace "NRC Operations Center" with "Department";

22. 10 CFR 35.3047(c), replace "NRC Operations Center" with "Department";

23. 10 CFR 35.3047(d), replace "appropriate NRC Regional Office listed in §30.6 of this chapter" with "Department"; and

24. 10 CFR 35.3067, replace "appropriate NRC Regional Office listed in §30.6 of this chapter" with "Department" and delete ", with a copy to the Director, Office of Nuclear Material Safety and Safeguards."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 56. LICENSES AND RADIATION SAFETY REQUIREMENTS FOR IRRADIATORS

7:28-56.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 36, Licenses and Radiation Safety Requirements for Irradiators.

(b) The following provisions of 10 CFR Part 36 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 36.8, Information collection requirements: OMB approval.

(c) The following provisions of 10 CFR Part 36 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 36 of the Code of Federal Regulations that are incorporated by reference, means the Department, except when specifically noted in this subchapter;

2. 10 CFR 36.1(a), delete "20," and add "N.J.A.C. 7:28-6" after "of this chapter";

3. 10 CFR 36.11, replace "Form NRC 313, 'Application for Material License,'" with "forms available from the Department," delete "and one copy," and replace "appropriate NRC Regional Office listed in appendix D to part 20 of this chapter" with "Department";

4. 10 CFR 36.17, replace "Commission" with "Department, with approval of the Commission on Radiation Protection," and replace "by law and will not endanger life or property or the common defense and security and are otherwise in the public interest" with "in accordance with the provisions of N.J.A.C. 7:28-2.8";

5. 10 CFR 36.23(g), replace " 10 CFR 20.1902" in both locations with "N.J.A.C. 7:28-6";

6. 10 CFR 36.55(a), replace " 10 CFR 20.1501(c)" with "N.J.A.C. 7:28-6";

7. 10 CFR 36.57(d), replace "10 CFR part 20, table 2, column 2 or table 3 of appendix B" with "as incorporated by reference in N.J.A.C. 7:28-6"; and

8. 10 CFR 36.59(c), replace "table 2, column 2, appendix B to part 20" with "as incorporated by reference in N.J.A.C. 7:28-6."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

40 N.J.R. 5196(b)

SUBCHAPTER 57. LICENSES AND RADIATION SAFETY REQUIREMENTS FOR WELL LOGGING

7:28-57.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 39, Licenses and Radiation Safety Requirements for Well Logging.

(b) The following provisions of 10 CFR Part 39 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 39.8, Information collection requirements: OMB approval.

(c) The following provisions of 10 CFR Part 39 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 39 of the Code of Federal Regulations that are incorporated by reference, means the Department, except when specifically noted in this subchapter;

2. 10 CFR 39.1(a), delete "20," and add "and N.J.A.C. 7:28-6" after "of this chapter";

3. 10 CFR 39.11, replace "Form NRC 313, "Application for Material License." with "forms available from the Department" and replace "appropriate NRC Regional Office listed in appendix D of part 20 of this chapter" with "Department";

4. 10 CFR 39.15(a)(5)(iii)(B), replace "§20.1901(a)" with "N.J.A.C. 7:28-6";

5. 10 CFR 39.31(a)(1), replace "§20.1901(a)" with "N.J.A.C. 7:28-6";

6. 10 CFR 39.31(a)(2), replace "§20.1901(a)" with "N.J.A.C. 7:28-6";

7. 10 CFR 39.33(a), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6";

8. 10 CFR 39.35(d)(2), replace "appropriate NRC Regional Office listed in appendix D of part 20 of this chapter" with "Department";

9. 10 CFR 39.61(a)(2)(i), delete "20," and add "and N.J.A.C. 7:28-6" after "of this chapter";

10. 10 CFR 39.61(b)(1), delete "parts 19 and 20 of this chapter" and add "part 19 of this chapter and N.J.A.C. 7:28-6";

11. 10 CFR 39.63(h), replace "§20.1906 of this chapter" with "N.J.A.C. 7:28-6";

12. 10 CFR 39.71(b), replace "§20.1003 of this chapter" with "N.J.A.C. 7:28-6";

13. 10 CFR 39.73(a), replace "19, 20, and 39" with "N.J.A.C. 7:28-6, 50 and 57";

14. 10 CFR 39.75(d), replace *"*§71.5" with "N.J.A.C. 7:28-61";

15. 10 CFR 39.75(e), add ", or NRC" after "Agreement State";

16. 10 CFR 39.77(a), replace "NRC Regional Office by telephone" with "Department by telephone as per N.J.A.C. 7:28-1.5";

17. 10 CFR 39.77(b), replace "§§20.2201-20.2202, §20.2203 and §30.50" with "N.J.A.C. 7:28-6 and N.J.A.C. 7:28-51"; and

18. 10 CFR 39.91, add "with the approval of the Commission on Radiation Protection," after "initiative," and replace "and will not endanger life or property or the common defense and security and are otherwise in the public interest" with "in accordance with the provisions of N.J.A.C. 7:28-2.8."

[(f)] ***(d)*** Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

[(g)] ***(e)*** Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 58. DOMESTIC LICENSING OF SOURCE MATERIAL

7:28-58.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 40, Domestic Licensing of Source Material.

(b) The following provisions of 10 CFR Part 40 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 40.2a, Coverage of inactive tailings sites;

2. 10 CFR 40.4, Definitions. The following definitions in 10 CFR 40.4 are not incorporated by reference: "Commission," "decommission," and "license";

3. 10 CFR 40.5, Communications;

4. 10 CFR 40.8, Information collection requirements: OMB approval;

5. 10 CFR 40.12(b), Carriers;

6. 10 CFR 40.20(b) and (c), Types of licenses;

7. 10 CFR 40.23, General license for carriers of transient shipments of natural uranium other than in the form of ore or ore residue;

8. 10 CFR 40.26, General license for possession and storage of byproduct material as defined in this part;

9. 10 CFR 40.27, General license for custody and long-term care of residual radioactive material disposal sites;

10. 10 CFR 40.28, General license for custody and long-term care of uranium or thorium byproduct materials disposal sites;

11. 10 CFR 40.31(c), (f) through (h), (j), (k), (l), Application for specific licenses;

12. 10 CFR Part 40.32(d), (e), (g), General requirements for issuance of specific licenses;

13. 10 CFR 40.33, Issuance of a license for a uranium enrichment facility;

14. 10 CFR 40.35(f), Conditions of specific licenses issued pursuant to §40.34;

15. 10 CFR 40.38, Ineligibility of certain applicants;

16. 10 CFR 40.41(d), (e)(1), (e)(3), and (g), Terms and conditions of licenses;

17. 10 CFR 40.51(b)(6), Transfer of source or byproduct material;

18. 10 CFR 40.64, Reports;

19. 10 CFR 40.65, Effluent monitoring reporting requirements;

20. 10 CFR 40.66, Requirements for advance notice of export shipments of natural uranium;

21. 10 CFR 40.67, Requirement for advance notice for importation of natural uranium from countries that are not party to the Convention on the Physical Protection of Nuclear Material; and

22. 10 CFR 40 Appendix A, Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material from Ores Processed Primarily for Their Source Material Content.

(c) The following provisions of 10 CFR Part 40 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 40 of the Code of Federal Regulations that are incorporated by reference, means the Department, except when specifically noted in this subchapter;

2. "Registrant" as used in the provisions of Part 40 of the Code of Federal Regulations that are incorporated by reference, means a "radioactive materials registrant" except when specifically noted;

3. 10 CFR 40.6, delete "Except as specifically authorized by the Commission in writing, no" with *"*No," and replace "by the General Counsel" with "signed and approved by the Commissioner of the Department,";

4. 10 CFR 40.9(b), replace "Administrator of the appropriate Regional Office" with "Department";

5. 10 CFR 40.14(a), replace "Commission" with "Department, with approval of the Commission on Radiation Protection," and replace "by law and will not endanger life or property or the common defense and security and are otherwise in the public interest" with "in accordance with the provisions of N.J.A.C. 7:28-2.8";

6. 10 CFR 40.21, delete "or byproduct material";

7. 10 CFR 40.22(b), replace "parts 19, 20, and 21, of this chapter" with "part 21 of this chapter and N.J.A.C. 7:28-6 and N.J.A.C. 7:28-50";

8. 10 CFR 40.25(c)(1), replace "NRC Form 244, "Registration Certificate--Use of Depleted Uranium Under General License" with "forms available from the Department";

9. 10 CFR 40.25(c)(2), replace "Director, Division of Industrial and Medical Nuclear Safety, with a copy to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in appendix D of part 20 of this chapter" with "Department";

10. 10 CFR 40.25(d)(4), replace "Director, Division of Industrial and Medical Nuclear Safety, with a copy to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in appendix D of part 20 of this chapter" with "Department";

11. 10 CFR 40.25(e), delete "parts 19, 20, and 21, of this chapter" with "part 21 of this chapter and N.J.A.C. 7:28-6 and N.J.A.C. 7:28-50";

12. 10 CFR 40.31(a), replace "NRC Form 313, 'Application for Material License,' in accordance with the instructions in §40.5 of this chapter" with "forms available from the Department";

13. 10 CFR 40.31(e), replace "§170.31" with "N.J.A.C. 7:28-64";

14. 10 CFR 40.34(a)(2), replace "§20.1201(a)" with "N.J.A.C. 7:28-6";

15. 10 CFR 40.25(c)(1), (c)(2), and (d)(3), add "or Department equivalent" after "'Registration Certificate-Use of Depleted Uranium Under General License,'";

16. 10 CFR 40.35(d)(1) and (d)(2), add "or Department equivalent" after "'Registration Certificate-Use of Depleted Uranium Under General License,'";

17. 10 CFR 40.35(e)(1), replace "Director, Office of Nuclear Material Safety and Safeguards" with "Department";

18. 10 CFR 40.31(c), replace "regulations contained in parts 2 and 9 of this chapter" with "the Open Public Records Act (N.J.S.A. 47:1A-1 et seq.)";

19. 10 CFR 40.31(e), replace "part 170" with "Subchapter 64" and "§170.31" with "Subchapter 64";

20. 10 CFR 40.36(e)(2), replace "part 30" with "Subchapter 51";

21. 10 CFR 40.36(f)(3)(i), replace " 10 CFR 20.1003" with "N.J.A.C. 7:28-6";

22. 10 CFR 40.36(f)(3)(iii), replace " 10 CFR 20.2108" with "N.J.A.C. 7:28-6";

23. 10 CFR 40.36(f)(3)(iv), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12" and replace " 10 CFR 20.2002" with "N.J.A.C. 7:28-6";

24. 10 CFR 40.41(c), replace "part 71" with "N.J.A.C. 7:28-61";

25. 10 CFR 40.41(f)(1), replace "appropriate NRC Regional Administrator" with "Department";

26. 10 CFR 40.42(j)(2), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12";

27. 10 CFR 40.42(k)(3)(i), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12";

28. 10 CFR 40.42(k)(3)(ii), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12";

29. 10 CFR 40.43(a), add "or Department equivalent" after "NRC Form 313";

30. 10 CFR 40.44, add "or Department equivalent" after "NRC Form 313";

31. 10 CFR 40.60(b)(1)(ii), replace "appendix B of §§20.1001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6";

32. 10 CFR 40.60(b)(4)(i), replace "appendix B of §§20.1001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6";

33. 10 CFR 40.60(c)(2), replace "NRC's Document Control Desk" with "Department" and replace "appropriate NRC regional office listed in appendix D to part 20 of this chapter" with "Department";

34. 10 CFR 40.61(d)(1), replace "§20.2002, (including burials authorized before January 28, 1981), 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-6";

35. 10 CFR 40.61(d)(2), replace "§20.2103(b)(4)" with "N.J.A.C. 7:28-6";

36. 10 CFR 40.61(e)(1), replace "§20.2002, 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-6"; and

37. 10 CFR 40.61(e)(2), replace "§20.2103(b)(4)" with "N.J.A.C. 7:28-6."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 59. LICENSING REQUIREMENTS FOR LAND DISPOSAL OF RADIOACTIVE WASTE

7:28-59.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 61, Licensing Requirements for Land Disposal of Radioactive Waste.

(b) The following provisions of 10 CFR Part 61 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 61.4, Communications;

2. 10 CFR 61.8, Information collection requirements: OMB approval;

3. 10 CFR 61.16, Other information; and

4. 10 CFR 61.23(i) and (j), Standards for issuance of a license.

(c) The following provisions of 10 CFR Part 61 are incorporated by reference with the specified changes:

1. "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 61 of the Code of Federal Regulations, that are incorporated by reference, means the Department, except when specifically noted in this subchapter;

2. 10 CFR 61.1(a), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6";

3. 10 CFR 61.1(b), replace "part 150 of this chapter" with "N.J.A.C. 7:28-62";

4. 10 CFR 61.1(b)(2), replace "part 40 of this chapter" with "N.J.A.C. 7:28-58";

5. 10 CFR 61.1(b)(3), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6";

6. 10 CFR 61.5, delete "Except as specifically authorized by the Commission in writing, no" with "No," and replace "by the General Counsel" with "signed and approved by the Commissioner of the Department,";

7. 10 CFR 61.6, replace "Commission" with "Department, with approval of the Commission on Radiation Protection," and replace "by law and will not endanger life or property or the common defense and security and are otherwise in the public interest" with "in accordance with the provisions of N.J.A.C. 7:28-2.8";

8. 10 CFR 61.7(c)(4), replace "Department" with "Department of Energy";

9. 10 CFR 61.12(k), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6";

10. 10 CFR 61.13(c), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6";

11. 10 CFR 61.20(c), replace "part 170 of this chapter" with "N.J.A.C. 7:28-64";

12. 10 CFR 61.23(d), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6";

13. 10 CFR 61.24(k)(1), replace "NRC Regional Administrator" with "Supervisor of the Radioactive Materials Section";

14. 10 CFR 61.43, replace "part 20 of this chapter" with "N.J.A.C. 7:28-6";

15. 10 CFR 61.52(a)(6), replace "§§20.1301 and 20.1302 of this chapter" with "N.J.A.C. 7:28-6";

16. 10 CFR 61.71, 10 CFR 61.72(a), 10 CFR 61.73(a), 10 CFR 61.73(b), and 10 CFR 61.73(c), replace "Director" with "Manager of the Bureau of Environmental Radiation";

17. 10 CFR 61.80(i)(1), delete "to the Director, Office of Federal and State Materials and Environmental Management Programs," and replace "with a copy to the appropriate NRC Regional Office shown in appendix D to part 20 of this chapter" with "to the Department";

18. 10 CFR 61.80(g), replace "§§30.55, 40.64" with "N.J.A.C. 7:28-51, N.J.A.C. 7:28-58 and §§";

19. 10 CFR 61.80(j), replace "§70.52 of this chapter" with "N.J.A.C. 7:28-60";

20. 10 CFR 61.80(k), replace "§§30.41, 40.51, and 70.42 of this chapter" with "N.J.A.C. 7:28-51, 58, and 60"; and

21. 10 CFR 61.80(l)(1)(i), replace "in 10 CFR part 20, appendix G" with "as is incorporated by reference in N.J.A.C. 7:28-6."

(d) For those facilities whose radioactive materials are licensed solely by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation," available from the Department via the Department's website at: www.nj.gov/dep/rpp/rms/rmsdown.htm, or by requesting a copy by telephone during business hours at (609) 984-5462.

(e) Those facilities which possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's Form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(g) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 60. DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

40 N.J.R. 5196(b)

7:28-60.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 70, Domestic Licensing of Special Nuclear Material.

(b) The following provisions of 10 CFR Part 70 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 70.1(c) through (e), Purpose;

2. 10 CFR 70.4, definition of "Commission";

3. 10 CFR 70.5, Communications;

4. 10 CFR 70.8, Information collection requirements: OMB approval;

5. 10 CFR 70.13, Department of Defense;

6. 10 CFR 70.14, Foreign military aircraft;

7. 10 CFR 70.20a, General license to possess special nuclear material for transport;

8. 10 CFR 70.20b, General license for carriers of transient shipments of formula quantities of strategic special nuclear material, special nuclear material of moderate strategic significance, special nuclear material of low strategic significance, and irradiated reactor fuel;

9. 10 CFR 70.21(a)1, (c), and (f) through (h), Filing;

10. 10 CFR 70.22(b), (c), and (f) through (n), Contents of application;

11. 10 CFR 70.23(a)(6) through (12), and (b), Requirements for the approval of applications;

12. 10 CFR 70.23a, Hearing required for uranium enrichment facility;

13. 10 CFR 70.24, Criticality accident requirements;

14. 10 CFR 70.25(a), Financial assurance and recordkeeping for decommissioning;

15. 10 CFR 70.31(c) through (e), Issuance of licenses;

16. 10 CFR 70.32(a)(1), (4) through (7), (b)(1), (3), (4), and (c) through (k), Conditions of licenses;

17. 10 CFR 70.37, Disclaimer of warranties;

18. 10 CFR 70.40, Ineligibility of certain applicants;

19. 10 CFR 70.42(b)(6), Transfer of special nuclear material;

20. 10 CFR 70.44, Creditor regulations;

21. 10 CFR 70.51(c), Records requirements;

22. 10 CFR 70.52, Reports of accidental criticality;

23. 10 CFR 70.55(c), Inspections;

24. 10 CFR 70.56(d), Tests;

25. 10 CFR 70.59, Effluent monitoring reporting requirements;

26. 10 CFR 70.60, Applicability;

27. 10 CFR 70.61, Performance requirements;

28. 10 CFR 70.62, Safety program and integrated safety analysis;

29. 10 CFR 70.64, Requirements for new facilities or new processes at existing facilities;

30. 10 CFR 70.65, Additional content of applications;

31. 10 CFR 70.66, Additional requirements for approval of license application;

32. 10 CFR 70.72, Facility changes and change process;

33. 10 CFR 70.74, Additional reporting requirements;

34. 10 CFR 70.76, Backfitting; and

35. 10 CFR 70.82, Suspension and operation in war or national emergency.

(c) The following provisions of 10 CFR Part 70 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 70 of the Code of Federal Regulations that are incorporated by reference, mean the Department;

2. 10 CFR 70.4, in definition of "person," replace "Department" with "Department of Energy";

3. 10 CFR 70.11, replace "Department" with "Department of Energy";

4. 10 CFR 70.17(a), replace "Commission" with "Department, with approval of the Commission on Radiation Protection," and replace "by law and will not endanger life or property or the common defense and security and are otherwise in the public interest" with "in compliance with N.J.A.C. 7:28-2.8";

5. 10 CFR 70.19(c), delete "20," and add "and N.J.A.C. 7:28-6";

6. 10 CFR 70.21(d), replace "regulations contained in part 2 of this chapter" with "Open Public Records Act (N.J.S.A. 47:1A-1 et seq.)";

7. 10 CFR 70.25(g)(3)(i), replace " 10 CFR 20.1003" with "N.J.A.C. 7:28-6";

8. 10 CFR 70.25(g)(3)(iii), replace " 10 CFR 20.2108" with "N.J.A.C. 7:28-6," replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12" and replace " 10 CFR 20.2002" with "N.J.A.C. 7:28-6";

9. 10 CFR 70.25(g)(3)(iv) replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12" and replace " 10 CFR 20.2002" with "N.J.A.C. 7:28-6";

10. 10 CFR 70.38(j)(2), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12";

11. 10 CFR 70.38(k)(3)(i), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12";

12. 10 CFR 70.38(k)(3)(ii), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12";

13. 10 CFR 70.42(b)(1), replace "Department" with "Department of Energy";

14. 10 CFR 70.50(b)(1)(ii), replace "Appendix B of §§20.1001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6";

15. 10 CFR 70.50(b)(4)(i), replace "appendix B of §§20.2001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6";

16. 10 CFR 70.50(c)(2), delete "to the NRC's Document Control Desk," and replace "with a copy to the appropriate NRC regional office listed in appendix D to part 20 of this chapter" with "to the Department";

17. 10 CFR 70.51(a)(1), replace " 10 CFR 20.2002, (including burials authorized before January 28, 1981), 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-6";

18. 10 CFR 70.51(a)(2), replace " 10 CFR 20.2103(b)(4)" with "N.J.A.C. 7:28-6";

19. 10 CFR 70.51(b)(1), replace " 10 CFR 20.2002, (including burials authorized before January 28, 1981), 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-6";

20. 10 CFR 70.51(b)(2), replace " 10 CFR 20.2103(b)(4)" with "N.J.A.C. 7:28-6"; and

21. 10 CFR 70.56, replace "(b) facilities wherein special nuclear material is utilized, produced or stored," with "and."

(d) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(e) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 61. PACKAGING AND TRANSPORTATION OF RADIOACTIVE MATERIAL

7:28-61.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 71, Packaging and Transportation of Radioactive Material.

(b) The following provisions of 10 CFR Part 71 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference.

1. 10 CFR 71.6, Information collection requirements: OMB approval;

2. 10 CFR 71.10, Public inspection of application;

3. 10 CFR 71.14(b), Exemptions for low-level materials;

4. 10 CFR 71.19, Previously approved package;

5. 10 CFR 71.31, Contents of application;

6. 10 CFR 71.33, Package description;

7. 10 CFR 71.35, Package evaluation;

8. 10 CFR 71.37, Quality assurance;

9. 10 CFR 71.38, Renewal of a certificate of compliance or quality assurance program approval;

10. 10 CFR 71.39, Requirement for additional information;

11. 10 CFR 71.41, Demonstration of compliance;

12. 10 CFR 71.43, General standards for all packages;

13. 10 CFR 71.45, Lifting and tie-down standards for all packages;

14. 10 CFR 71.51, Additional requirements for Type B packages;

15. 10 CFR 71.55, General requirements for fissile material packages;

16. 10 CFR 71.59, Standards for arrays of fissile material packages;

17. 10 CFR 71.61, Special requirements for Type B packages containing more than 10<5>A[2];

18. 10 CFR 71.63, Special requirement for plutonium shipments;

19. 10 CFR 71.64, Special requirements for plutonium air shipments;

20. 10 CFR 71.65, Additional requirements;

21. 10 CFR 71.71, Normal conditions of transport;

22. 10 CFR 71.73, Hypothetical accident conditions;

23. 10 CFR 71.74, Accident conditions for air transport of plutonium;

24. 10 CFR 71.75, Qualification of special form radioactive material;

25. 10 CFR 71.77, Qualification of LSA-III Material;

26. 10 CFR 71.101(c)(2), (d) through (e), Quality assurance requirements;

27. 10 CFR 71.107, Package design control;

28. 10 CFR 71.109, Procurement document control;

29. 10 CFR 71.111, Instructions, procedures and drawings;

30. 10 CFR 71.113, Document control;

31. 10 CFR 71.115, Control of purchased material, equipment and services;

32. 10 CFR 71.117, Identification and control of materials, parts and components;

33. 10 CFR 71.119, Control of special processes;

34. 10 CFR 71.121, Internal inspection;

35. 10 CFR 71.123, Test control; and

36. 10 CFR 71.125, Control of measuring and test equipment.

(c) The following provisions of 10 CFR 71 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 71 of the Code of Federal Regulations that are incorporated by reference, means the Department, except at:

i. 10 CFR 71.0(a)2 and (d)1;

ii. 10 CFR 71.4, definitions for "Certificate Holder," "Certificate of Compliance(CoC)" and "Package (3) Type B Package";

iii. 10 CFR 71.85(c), Preliminary determinations;

iv. 10 CFR 71.88(a)4, Air transport of plutonium;

v. 10 CFR 71.93(c), Inspections and tests;

vi. 10 CFR 71.95(a)(1) and (a)(2);

vii. 10 CFR 71.97(c)(1), (c)(3)(iii), and (f), Advance notification of shipment of irradiated reactor fuel and nuclear waste; and

viii. 10 CFR 71.101(f), Quality assurance requirements;

2. 10 CFR 71.0(b), replace "parts of this chapter (e.g., 10 CFR parts 20, 21, 30, 40, 70 and 73)," with "State Regulations (e.g. N.J.A.C. 7:28-6, 51, 58, and 60)" and add "U.S. Nuclear Regulatory Commission (NRC)" into the list of other agencies;

3. 10 CFR 71.1(a), replace rule text with "Except where otherwise specified, all communications and reports concerning the regulations in this part and applications filed under them should be sent to the Department as specified in N.J.A.C. 7:28-1.5.";

4. 10 CFR 71.2, delete "Except as specifically authorized by the Commission in writing, no" with "No," and replace "by the General Counsel" with "signed and approved by the Commissioner of the Department,";

5. 10 CFR 71.5(b), replace "Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C., 20555-0001" with "the Department in accordance with N.J.A.C. 7:28-1.5";

6. 10 CFR 71.7(b), replace "Administrator of the appropriate Regional Office" with "Department";

7. 10 CFR 71.9(c), replace "Commission licensee, certificate holder, applicant for a Commission license or a CoC" with "Department licensee, NRC certificate holder, applicant for a Department license or NRC CoC";

8. 10 CFR 71.9(e)(1), replace "Each licensee, certificate holder, and applicant for a license or CoC must prominently post the current revision of NRC Form 3, 'Notice to Employees,' referenced in §19.11(c) of this chapter" with "Each licensee, certificate holder, and applicant for a license or CoC must prominently post the current revision of Department Form RPP-14, 'Notice to Employees, Standards for Protection Against Radiation,' referenced in Subchapter 50";

9. 10 CFR 71.9(e)2, replace with "Copies of Department Form RPP-14 may be obtained from the Department in accordance with N.J.A.C. 7:28-1.5.";

10. 10 CFR 71.12, replace "Commission" with "Department, with approval of the Commission on Radiation Protection," and replace "by law and will not endanger life or property nor the common defense and security *[and security]*" with "in accordance with the provisions of N.J.A.C. 7:28-2.8";

11. 10 CFR 71.13, replace "10 CFR part 35" with "N.J.A.C. 7:28-55";

12. 10 CFR 71.47(b)(4), replace " 10 CFR 20.1502" with "N.J.A.C. 7:28-6";

13. 10 CFR 71.89, replace " 10 CFR 20.1906" with "N.J.A.C. 7:28-6";

14. 10 CFR 71.95(c), replace "§71.1(a)" with " N.J.A.C. 7:28-1.5" and replace "to: ATTN: Document Control Desk, Director, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards" with "to the Department";

15. 10 CFR 71.101(c)1, replace "§71.1(a)" with " N.J.A.C. 7:28-1.5" and replace "to: ATTN: Document Control Desk, Director, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards" with "to the Department"; and

16. 10 CFR 71.101(f), replace "NRC, in accordance with §71.1" with "Department, in accordance with N.J.A.C. 7:28-1.5."

(d) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(e) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 62. EXEMPTIONS AND CONTINUED NRC REGULATORY AUTHORITY IN AGREEMENT STATES AND IN OFFSHORE WATERS UNDER SECTION 274 (42 U.S.C. §2021)

7:28-62.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 150, Exemptions and Continued Regulatory Authority in Agreement States and in offshore waters under Section 274 [42 U.S.C. §2021].

(b) The following provisions of 10 CFR Part 150 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 150.3, Definition of "Commission";

2. 10 CFR 150.4, Communications;

3. 10 CFR 150.7, Persons in offshore waters not exempt;

4. 10 CFR 150.8, Information collection requirements: OMB approval;

5. 10 CFR 150.10, Persons exempt;

6. 10 CFR 150.14, Commission regulatory authority for physical protection;

7. 10 CFR 150.15, Persons not exempt;

8. 10 CFR Part 150.15a, Continued Commission authority pertaining to byproduct material;

9. 10 CFR Part 150.16, Submission to Commission of nuclear material transfer reports;

10. 10 CFR Part 150.17, Submission to Commission of source material reports;

11. 10 CFR Part 150.17a, Compliance with requirements of US/IAEA safeguards agreement;

12. 10 CFR Part 150.19, Submission to Commission of tritium reports;

13. 10 CFR Part 150.21, Transportation of special nuclear material by aircraft;

14. 10 CFR 150.31, Requirements for Agreement State regulation of byproduct material; and

15. 10 CFR 150.32, Funds for reclamation or maintenance of byproduct material.

(c) The following provisions of 10 CFR Part 150 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 150 of the Code of Federal Regulations that are incorporated by reference, mean the Department; and

2. 10 CFR 150.20(b), references to specific sections of 10 CFR part 30, refer to N.J.A.C. 7:28-51, sections of 10 CFR part 40, refer to N.J.A.C. 7:28-58, and sections of 10 CFR part 70, refer to N.J.A.C. 7:28-60. Replace "parts 19, 20, and 71" with "N.J.A.C. 7:28-6, 50, and 61", and replace "part 34" with "N.J.A.C. 7:28-63."

(d) The incorporation by reference of 10 CFR 150.20(b) shall not include the ability to issue general licenses to operate in areas of exclusive Federal jurisdiction and offshore waters, but only to Agreement State and NRC licensees that wish to operate within New Jersey's jurisdiction in accordance with N.J.A.C. 7:28-50.1(d).

(e) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

(f) Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 63. LICENSES FOR INDUSTRIAL RADIOGRAPHY USING SEALED SOURCES AND RADIATION SAFETY REQUIREMENTS FOR SUCH INDUSTRIAL RADIOGRAPHIC OPERATIONS

7:28-63.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 CFR Part 34, Licenses for Industrial Radiography Using Sealed Sources and Radiation Safety Requirements for Such Industrial Radiographic Operations.

(b) The following provisions of 10 CFR Part 34 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 CFR 34.8, Information collection requirements: OMB approval.

(c) The following provisions of 10 CFR Part 34 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission," as used in the provisions of Part 34 of the Code of Federal Regulations that are incorporated by reference, mean the Department, except in 10 CFR 34.41(c), and 34.27(a) and (c)(1);

2. 10 CFR 34.1, replace "parts 19, 20, 21, 30, 71, 150, 170, and 171" with "10 CFR Part 21 and N.J.A.C. 7:28-6, 50, 51, 61, 62 and 64";

3. 10 CFR 34.11, replace "on NRC Form 313, 'Application for Material License,' in accordance with the provisions of §30.32 of this chapter," with "an original application for a specific State license";

4. 10 CFR 34.13(a), replace "§30.33 of this chapter" with "N.J.A.C. 7:28-51";

5. 10 CFR 34.25(a), replace "10 CFR part 20" with "N.J.A.C. 7:28-6";

6. 10 CFR 34.27(d), replace "Director of Nuclear Material Safety and Safeguards" with "Manager, Bureau of Environmental Radiation";

7. 10 CFR 34.27(d), replace "Administrator of the appropriate Nuclear Regulatory Commission's Regional Office listed in appendix D of 10 CFR part 20 of this chapter 'Standards for Protection Against Radiation'" with "Manager, Bureau of Environmental Radiation";

8. 10 CFR 34.33(a)(1), replace "§20.1601(a)(1) of this chapter" with "N.J.A.C. 7:28-6";

9. 10 CFR 34.35(b), replace "10 CFR part 71" with "N.J.A.C. 7:28-61";

10. 10 CFR 34.42(c)(1), replace "10 CFR part 20 of this chapter" and "10 CFR part 20" with "N.J.A.C. 7:28-6" in both instances;

11. 10 CFR 34.42(c)(4), replace "§20.2203 of this chapter" with "N.J.A.C. 7:28-6";

12. 10 CFR 34.43(a)(1), replace "Director, Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in §30.6(a)" with "Manager, Bureau of Environmental Radiation, by an appropriate method listed in N.J.A.C. 7:28-51";

13. 10 CFR 34.43(b)(1), replace "in §§30.7, 30.9, and 30.10" with "N.J.A.C. 7:28-51", replace "10 CFR parts 19 and 20" with "N.J.A.C. 7:28-6 and 50", and replace "10 CFR 71" with "N.J.A.C. 7:28-61";

14. 10 CFR 34.43(c)(1), replace "in §§30.7, 30.9, and 30.10" with "N.J.A.C. 7:28-51", replace "10 CFR parts 19 and 20" with "N.J.A.C. 7:28-6 and 50", and replace "10 CFR part 71" with "N.J.A.C. 7:28-61";

15. 10 CFR 34.45(a)(1), replace "10 CFR part 20" with "N.J.A.C. 7:28-6";

16. 10 CFR 34.51, replace "10 CFR part 20" with "N.J.A.C. 7:28-6";

17. 10 CFR 34.53, replace "§20.1902" with "N.J.A.C. 7:28-6" and replace "§20.1903" with "N.J.A.C. 7:28-6";

18. 10 CFR 34.89(b)(2), replace "19, 20," with "and N.J.A.C. 7:28-6, 50, and 63";

19. 10 CFR 34.89(b)(11), replace "§71.5" with "N.J.A.C. 7:28-61";

20. 10 CFR 34.89(b)(12), and replace "§150.20" with "N.J.A.C. 7:28-62";

21. 10 CFR 34.101(a), replace "§30.50 and under other sections of this chapter, such as §21.21, each licensee shall send a written report to the NRC's Office of Nuclear Material Safety and Safeguards, Division of Industrial and Medical Nuclear Safety, by an appropriate method listed in §30.6(a) of this chapter" with "N.J.A.C. 7:28-51 and under other sections of this subchapter or Federal rule such as 10 CFR §21.21, each licensee shall send a written report to the Manager, Bureau of Environmental Radiation, by an appropriate method listed in N.J.A.C. 7:28-51";

22. 10 CFR 34.101(b), replace " 10 CFR 20.2203" with "N.J.A.C. 7:28-6";

23. 10 CFR 34.101(c), replace "appropriate NRC regional office listed in §30.6(a)(2) of this chapter" with "Department"; and

[22.] ***24.***. 10 CFR 34.111, replace "Commission" with "Department, with approval of the Commission on Radiation Protection," and replace "by law and will not endanger life or property or the common defense and security and are otherwise in the public interest" with "in accordance with the provisions of N.J.A.C. 7:28-2.8."

(d) Reports that are to be submitted to the Department pursuant to this subchapter shall be submitted to the address at N.J.A.C. 7:28-1.5.

[(f)] ***(e)*** Requests for adjudicatory hearings shall be made in accordance with N.J.A.C. 7:28-4.17, and requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested are set forth at N.J.A.C. 7:28-4.18.

SUBCHAPTER 64. RADIOACTIVE MATERIALS LICENSE FEES

7:28-64.1 Purpose and applicability

(a) This subchapter establishes fees for registration and licensing of radioactive materials. Annual license fees for radioactive materials are set forth in Tables 1 and 2 at N.J.A.C. 7:28-64.2.

(b) Fees will be effective on the (the operative date of the rules).

(c) Fees for NRC licenses that are transferred to New Jersey will be prorated to (July of the year following the operative date of these rules), when the Department will again issue invoices for annual fees.

7:28-64.2 Schedule of fees

(a) Except as set forth in (b) and (c) below, this section incorporates by reference the table in 10 CFR 171.16 entitled "Schedule of materials annual fees and fees for government agencies licensed by NRC."

(b) The Department does not regulate nuclear reactors, special nuclear materials in quantities sufficient to form a critical mass, high-level waste disposal facilities, or byproduct material defined in Section 11e(2) of the Atomic Energy Act of 1954, as amended (42 U.S.C. §2014).

(c) Insofar as the incorporated rules refer to the facilities and/or materials in (b) above, they do not apply. The following provisions of the table identified in (a) above are incorporated by reference with the specified changes:

1. Delete column 2, labeled "Annual fees";

2. Delete row labeled 2.A.(5);

3. Row labeled 3.A, replace "parts 30 and 33 of this chapter" with "N.J.A.C. 7:28-51 and 54";

4. Row labeled 3.C., replace "§§32.72 and/or 32.74 of this chapter" with "N.J.A.C. 7:28-53";

5. Row labeled 3.C., delete "This category does not apply to licenses issued to nonprofit educational institutions whose processing or manufacturing is exempt under 171.11(a)(1). The licenses are covered by fee under Category 3.D.";

6. Row labeled 3.J., replace "Subpart B of part 32 of this chapter" with "N.J.A.C. 7:28-53," and replace "part 31 of this chapter" with "N.J.A.C. 7:28-52";

7. Row labeled 3.K, replace "Subpart B of part 32 of this chapter" with "N.J.A.C. 7:28-53," and replace "part 31 of this chapter" with "N.J.A.C. 7:28-52";

8. Row labeled 3.L., replace "parts 30 and 33 of this chapter" with "N.J.A.C. 7:28-51 and 54";

9. Row labeled 3.M., replace "part 30 of this chapter" with "N.J.A.C. 7:28-51";

10. Row labeled 3.O., replace "part 40 of this chapter" with "N.J.A.C. 7:28-58";

11. Row labeled 3.R., replace " 10 CFR 31.12" with "N.J.A.C. 7:28-52";

12. Row labeled 3.R.2., replace " 10 CFR 31.12(a)(4), or (5)" with "N.J.A.C. 7:28-52";

13. Row labeled 7.A., replace "parts 30, 35, 40, and 70 of this chapter" with "N.J.A.C. 7:28-51, 55, 58, and 60";

14. Row labeled 7.B., replace "parts 30, 33, 35, 40, and 70" with "N.J.A.C. 7:28-51, 54, 55, 58, and 60";

15. Row labeled 7.C., replace "parts 30, 35, 40, and 70 of this chapter" with "N.J.A.C. 7:28-51, 55, 58, and 60"; and

16. Row labeled 14.A., replace "parts 30, 40, 70, 72, and 76 of this chapter" with "N.J.A.C. 7:28-51, 58, and 60."

(d) Fees for source, byproduct, and certain special nuclear materials are established in Table 1, Schedule of Source, Special Nuclear, and Byproduct Material Annual Fees, and are matched to the NRC categories, incorporated by reference in (a) and (b) above.

(e) Other specified fees, including fees for diffuse NARM, are established in Table 2, Schedule of Radioactive Materials Annual Fees.

(f) If, by amendment or otherwise, a license changes to another fee category, the fee for the new category will take effect on the anniversary date of the license.

(g) The fee for any category for which a fee is not provided at Table 1 below shall be calculated in accordance with N.J.A.C. 7:28-64.3(c) and 64.4(e).

Table 1

Schedule of Source, Special Nuclear, and Byproduct Material Annual Fees

FEE CATEGORY	LICENSE TYPE	ANNUAL FEE ($)
1.	Special Nuclear Material	
A.-C.	(Reserved.)	
D.	All other special nuclear material except a) licenses authorizing special nuclear material in unsealed form in combination that would constitute a critical quantity, as defined in N.J.A.C. 7:28-62; b) U-235 or plutonium for fuel	4,275

	fabrication activities; c) spent fuel and reactor-related greater than Class C (GTCC) waste at an independent spent fuel storage installation (ISFSI); d) special nuclear material in sealed sources contained in devices used in industrial measuring systems, including x-ray fluorescence analyzers; or e) licenses or certificates for the operation of a uranium enrichment facility.	
E.	(Reserved.)	
2.	Source Material	
A.	(Reserved.)	
B.	Licenses that authorize only the possession, use and/or installation of source material for shielding.	575
C.	All other source material licenses	9,825
3.	Byproduct material	
A.	Licenses of broad scope for possession and use of byproduct material issued under N.J.A.C. 7:28-51 and 54 for processing or manufacturing of items containing byproduct material for commercial distribution.	21,600
B.	Other licenses for possession and use of byproduct material issued under N.J.A.C. 7:28-51 for processing or manufacturing of items containing byproduct material for commercial distribution. This category also includes licenses for repair, assembly, and disassembly of products containing radium-226.	6,225
C.	Licenses issued under N.J.A.C. 7:28-53 authorizing the	8,850

	processing or manufacturing and distribution or redistribution of radiopharmaceuticals, generators, reagent kits and/or sources and devices containing byproduct material. This category also includes the possession and use of source material for shielding authorized under N.J.A.C. 7:28-58 when included on the same license.	
D.	(Reserved.)	
E.	Licenses for possession and use of byproduct material in sealed sources for irradiation of materials in which the source is not removed from its shield (self-shielded units).	3,000
F.	Licenses for possession and use of less than 10,000 curies of byproduct material in sealed sources for irradiation of materials in which the source is exposed for irradiation purposes. This category also includes underwater irradiators for irradiation of materials in which the source is not exposed for irradiation purposes.	5,850
G.	Licenses for possession and use of 10,000 curies or more of byproduct material in sealed sources for irradiation of materials in which the source is exposed for irradiation purposes. This category also includes underwater irradiators for irradiation of materials in which the source is not exposed for irradiation purposes.	23,100
H.-I.	(Reserved.)	
J.	Licenses issued under N.J.A.C.	1,800

	7:28-53 to distribute items containing byproduct material that require sealed source and/or device review to persons generally licensed under N.J.A.C. 7:28-52, except specific licenses authorizing redistribution of items that have been authorized for distribution to persons generally licensed under N.J.A.C. 7:28-52.	
K.	Licenses issued under N.J.A.C. 7:28-53 to distribute items containing byproduct material or quantities of byproduct material that do not require sealed source and/or device review to persons generally licensed under N.J.A.C. 7:28-52, except specific licenses authorizing redistribution of items that have been authorized for distribution to persons generally licensed under N.J.A.C. 7:28-52.	1,350
L.	Licenses of broad scope for possession and use of byproduct material issued under N.J.A.C. 7:28-51 and 54 for research and development that do not authorize commercial distribution.	11,000
M.	Other licenses for possession and use of byproduct material issued under N.J.A.C. 7:28-51 for research and development that do not authorize commercial distribution.	4,200
N.	Licenses that authorize services for other licensees, except: Licenses that authorize only calibration and/or leak testing services are subject to the fees specified in fee Category 3.P.	6,225
O.	Licenses for possession and use of byproduct material	10,575

	issued under N.J.A.C. 7:28-63 for industrial radiography operations. This category also includes the possession and use of source material for shielding authorized under N.J.A.C. 7:28-58 when authorized on the same license.	
P.	All other specific byproduct material licenses, except those in Categories 4.A through 9.D.	2,025
Q.	(Reserved.)	
R.	Possession of items or products containing radium-226 identified in N.J.A.C. 7:28-52 which exceed the number of items or limits specified in that section. (Persons who possess radium sources that are used for operational purposes in another fee category are not also subject to the fees in this category. This exception does not apply if the radium sources are possessed for storage only.)	
1.	Possession of quantities exceeding the number of items or limits in N.J.A.C. 7:28-52, but less than or equal to 10 times the number of items or limits specified.	1,575
2.	Possession of quantities exceeding 10 times the number of items or limits specified in N.J.A.C. 7:28-52.	2,025
S.	Licenses for production of accelerator-produced radionuclides.	8,100
4.	Waste Processing	
A.-C.	(Reserved.)	
5.	Well Logging	

A.	Licenses for possession and use of byproduct material, source material, and/or special nuclear material for well logging, well surveys, and tracer studies other than field flooding tracer studies.	3,225
B.	(Reserved.)	
6.	Nuclear Laundry	
A.	(Reserved.)	
7.	Medical	
A.	Licenses issued under N.J.A.C. 7:28-51, 55, 58 and 60 for human use of byproduct material, source material, or special nuclear material in sealed sources contained in teletherapy devices. This category also includes the possession and use of source material for shielding when authorized on the same license.	10,125
B.	Licenses of broad scope issued to medical institutions or two or more physicians under N.J.A.C. 7:28-51, 55, 58 and 60 authorizing research and development, including human use of byproduct material except licenses for byproduct material, source material, or special nuclear material in sealed sources contained in teletherapy devices. This category also includes the possession and use of source material for shielding when authorized on the same license. Separate fees will not be assessed for pacemaker licenses issued to medical institutions who also hold nuclear medicine licenses under Category 7.B. or 7.C.	21,615
C.	Other licenses issued under	3,600

	N.J.A.C. 7:28-51, 55, 58 and 60 for human use of byproduct material, source material, and/or special nuclear material except licenses for byproduct material, source material, or special nuclear material in sealed sources contained in teletherapy devices. This category also includes the possession and use of source material for shielding when authorized on the same license*.* Separate fees will not be assessed for pacemaker licenses issued to medical institutions who also hold nuclear medicine licenses under Category 7.B. or 7.C.	
8.-13.	(Reserved.)	
14.	Decommissioning/Reclamation	
A.	Byproduct, source, or special nuclear material licenses and other approvals authorizing decommissioning, decontamination, reclamation, or site restoration activities under N.J.A.C. 7:28-51, 58 and 60.	Full Cost
B.	Site-specific decommissioning activities associated with unlicensed sites, whether or not the sites have been previously licensed.	Full Cost
15.	(Reserved.)	
16.	Reciprocity	
	Reciprocal recognition of an out-of-state license for a period of less than 180 days.	50 percent of annual fee of applicable category
17.-18.	(Reserved.)	

Table 2

Schedule of Radioactive Materials Annual Fees

40 N.J.R. 5196(b)

FEE CATEGORY	LICENSE TYPE	ANNUAL FEE ($)
1.	Water Treatment Facilities as defined in N.J.A.C. 7:10-3.6	
A.	Very Small Community Water Systems	$ 300
B.	Small Community Water Systems	$ 875
C.	Medium Community Water Systems	$ 1,250
D.	Large Community Water Systems	$ 2,500
E.	Non-Transient Non-Community Water Systems treating equal to or less than 1,000 gallons per day	$ 200
F.	Non-Transient Non-Community Water Systems treating more than 1,000 gallons per day	$ 500
2.	Amendments	
A.	Request to amend a license requiring no license review including, but not limited to, facility name change or removal of a previously authorized user.	$ 0
B.	Request to amend a license requiring review including, but not limited to, addition of isotopes, procedure changes, new authorized users, or a new radiation safety officer.	$ 200
C.	Request to amend a license requiring review and a site visit, but not limited to, facility move or addition of a process.	$ 400
3.	Inspections	
A.	Routine	$ 0
B.	Non-routine Reinspection	Full Cost
C.	Pre-licensing	$ 400

D.	Reciprocity	$ 400
E.	Inspection as a result of an incident	Full Cost
4.	Additional Use Sites (Non-contiguous)	
A.	Non-profit educational institutions	25 percent of appropriate fee
B.	Medical Private Practices	50 percent of appropriate fee
5.	Generally Licensed Devices	$ 350
6.	Diffuse NARM License	$ 2,500

7:28-64.3 Application fee

(a) An initial application for a license shall be accompanied by payment in the full amount of the fee specified in Tables 1 and 2 at N.J.A.C. 7:28-64.2.

(b) The Department may not process the application prior to the receipt of the required fee. The application fee is not refundable except in those cases where the Department determines that a license is not required.

(c) A license covering more than one of the categories in Tables 1 and 2 at N.J.A.C. 7:28-64.2 shall be accompanied by the prescribed fee for each category applicable to the license.

(d) The application fee for a category of NRC license that is not included in Table 1 at N.J.A.C. 7:28-64.2 shall be calculated as follows: NJ Fee = 0.75 (NRC Annual fee + 0.1 NRC application fee). NRC fees are established in 10 CFR Parts 170 and 171. The Department incorporates by reference the fee provisions of 10 CFR Parts 170 and 171, for purposes of calculating fees pursuant to this subsection.

7:28-64.4 Annual fee

(a) The annual fee is not refundable except in those cases where the Department determines that the fee is not required.

(b) Fees are payable 30 days after the date of the invoice.

(c) A license covering more than one of the categories in Tables 1 and 2 at N.J.A.C. 7:28-64.2 shall be invoiced for the prescribed fee for each category applicable to the license.

(d) The annual fee for a category of NRC license that is not included in Tables 1 and 2 at N.J.A.C. 7:28-64.2 shall be calculated as follows: NJ Fee = 0.75 (NRC Annual fee + 0.1 NRC application fee). NRC fees are established in 10 CFR Part 170 and 171. The Department incorporates by reference the fee provisions of 10 CFR Parts 170 and 171, for purposes of calculating fees pursuant to this subsection.

(e) No refund of a fee will be provided if a license is terminated.

7:28-64.5 Inspections

(a) The Department shall make periodic inspections of licensees.

(b) If the Department finds a violation that could have implications regarding worker or public dose limits at N.J.A.C. 7:28-6 during an inspection, the licensee must pay all Department costs associated with subsequent reinspection of the licensee. The costs shall be the actual costs incurred by the Department and include, but not limited to, labor, transportation, per diem, materials, legal fees, and monitoring costs.

7:28-64.6 Reciprocity fees

(a) A licensee submitting an application for reciprocal recognition of a materials license issued by another Agreement State or the NRC for a period of 180 days or less during a calendar year must pay one-half of the fee specified under Tables 1 and 2 at N.J.A.C. 7:28-64.2.

(b) The Department will not process the application for reciprocity prior to the receipt of the required fee.

7:28-64.7 Fees for licensees with additional use sites

(a) The Department will consider sites that are not contiguous or adjacent as additional use sites for non-profit educational institutions provided that:

1. The sites are operated by the same person;

2. The sites are in the same license category or categories;

3. The applicant for a license provides for one radiation safety officer, and if applicable, one radiation safety committee, as responsible for all sites; and

4. The Department is reasonably satisfied from the information provided in the application that the applicant will adequately control radioactive material at all sites listed in the application.

(b) Each additional use site as defined (a) above shall be charged 25 percent of the applicable fee for each applicable category.

(c) The Department will consider sites that are not contiguous or adjacent as additional use sites for private medical practices, provided that:

1. The sites are operated by the same person;

2. The sites are in the same license category or categories;

3. The applicant for a license provides for one radiation safety officer, and if applicable, one radiation safety committee, as responsible for all sites;

4. The Department is reasonably satisfied from the information provided in the application that the applicant will adequately control radioactive material at all sites listed in the application; and

5. There shall be no more than three additional use sites per license.

(d) Each additional use site as defined (c) above shall be charged 50 percent of the applicable fee for each applicable category.

7:28-64.8 Fees for license amendments

[An application for] ***A letter requesting*** an amendment to a specific license shall be accompanied by payment in full of the fee specified in Table 2 at N.J.A.C. 7:28-64.2.

40 N.J.R. 5196(b)

7:28-64.9 Failure to pay prescribed fees

(a) The Department will not process any application unless the licensee pays, on or before the due date, the fee prescribed by this subchapter.

(b) If the Department finds that a licensee has not paid a renewal fee prescribed by this section by the due date, the Department will take the appropriate enforcement action.

7:28-64.10 Annual adjustment of fees

(a) Each year the annual fees in Tables 1 and 2 in N.J.A.C. 7:28-64.2 will be adjusted by the previous 12-month inflation factor. The inflation factor is calculated from the Consumer Price Index, all urban consumers, U.S. city average (CPI-U), published monthly by the U.S. Department of Labor, Bureau of Labor Statistics. The CPI-U for purposes of calculating the inflation factor shall be the CPI-U for the 12-month period ending May 31.

(b) The inflation factor shall be the past year percent change for the United States city average, all items, all urban consumers.

(c) If the inflation factor for a 12-month period is negative, the fees will remain unchanged from the previous year.

(d) The adjusted fees shall be reflected through a notice of administrative change, published in the New Jersey Register; however, the adjusted fees shall be effective on July 1, whether or not a notice of administrative change has been published.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

OFFICE OF THE
GENERAL COUNSEL

August 27, 2007

Marcia M. Waldron, Clerk
Office of the Clerk
United States Court of Appeals
For the Third Circuit
21400 United States Courthouse
601 Market Street
Philadelphia, Pennsylvania 19106-1790

ATTENTION: DANA M. MOORE

VIA FEDERAL EXPRESS

RE: *State of New Jersey v. U.S. Nuclear Regulatory Commission*, Nos. 06-5140, 07-1559, and 07-1756 (3d Cir.) (Consolidated).

Dear Ms. Waldron:

Enclosed please find the original and nine copies of the "Federal Respondents' Brief" for filing in the above-captioned consolidated case.

Would you please date-stamp the extra copy of this letter to indicate date of filing and kindly return it to me in the enclosed postage-pre-paid envelope at your convenience.

Thank you for your attention to this matter.

Sincerely,

Charles E. Mullins
Senior Attorney
Office of the General Counsel
U.S. Nuclear Regulatory Commission

cc: Kenneth W. Elwell, Esq.
Joseph J. McGovern, Esq.
Matias F. Travieso-Diaz, Esq.
Kathryn Kovacs, Esq., US DOJ

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

Nos. 06-540, 07-1559 and 07-1756

STATE OF NEW JERSEY,
Petitioner,

v.

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the UNITED STATES OF AMERICA,
Respondents.

On Petition For Review of Issuance of NUREG-1757 and
a Related Order by the U.S. Nuclear Regulatory Commission

BRIEF FOR THE FEDERAL RESPONDENTS

JOHN C. CRUDEN
Deputy Assistant Attorney General

KATHRYN E. KOVACS
Attorney
Appellate Section
Environment and Natural
Resources Division
U.S. Department of Justice
P.O. Box 23795
L'Enfant Plaza Station
Washington, D.C. 20026
(202) 514-4010

KAREN D. CYR
General Counsel

JOHN F. CORDES, JR.
Solicitor

E. LEO SLAGGIE
Deputy Solicitor

CHARLES E. MULLINS
Senior Attorney
Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
301-415-1618

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BRIEF FOR THE FEDERAL RESPONDENTS

JOHN C. CRUDEN
Deputy Assistant Attorney General

KATHRYN E. KOVACS
Attorney
Appellate Section
Environment and Natural
Resources Division
U.S. Department of Justice
P.O. Box 23795
L'Enfant Plaza Station
Washington, D.C. 20026
(202) 514-4010

KAREN D. CYR
General Counsel

JOHN F. CORDES, JR.
Solicitor

E. LEO SLAGGIE
Deputy Solicitor

CHARLES E. MULLINS
Senior Attorney
Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
301-415-1618

August 27, 2007

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STATEMENT OF RELATED CASES

The Federal Respondents are aware of two related cases within the meaning of Third Circuit Rule 28.1(a)(2).

First, the issues in this lawsuit have been raised in an administrative proceeding currently pending before the Nuclear Regulatory Commission. *See In re Shieldalloy Metallurgical Corporation*, (Licensing Amendment Request for Decommissioning of the Newfield, New Jersey Facility); Docket No. 40-7102-MLA (ASLBP No. 07-852-01-MLA-BD01).

Second, the issues in this lawsuit are also raised in a petition for rulemaking currently pending before the Nuclear Regulatory Commission.

GLOSSARY OF TERMS AND ACRONYMS

LTR -- License Termination Rule

POL -- Possession Only License

POL/LTC -- Possession Only License for Long Term Control

ALARA -- As Low As is Reasonably Achievable

DP -- Decommissioning Plan

EIS -- Environmental Impact Statement

GEIS -- Generic Environmental Impact Statement

JURISDICTION

This consolidated case consists of three petitions for review: Nos. 06-5140, 07-1559, and 07-1756. If this Court has jurisdiction over the petitions for review in this case, it lies under the Administrative Orders Review Act, 28 U.S.C. § 2341, *et seq.*, commonly known as the Hobbs Act. The Hobbs Act gives this Court jurisdiction over "*final orders* of the [Nuclear Regulatory] Commission" in licensing or rulemaking proceedings. 28 U.S.C. § 2342(4) (emphasis added). *See Florida Power & Light v. Lorion*, 470 U.S. 729 (1985). The Nuclear Regulatory Commission ("NRC") is an independent regulatory agency that regulates the civilian use of radioactive materials and protects the public health and safety under its authorizing statutes – the Atomic Energy Act ("AEA") of 1954, 42 U.S.C. § 2201, *et seq.*, and the Energy Reorganization Act ("ERA") of 1974, 42 U.S.C. § 5801, *et seq.*

As our already-filed Motion to Dismiss (January 30, 2007), and our Reply Memorandum (March 14, 2007) show, and as we reiterate below, *see* Argument I, *infra*, this Court lacks jurisdiction; in the alternative, this Court should withhold review under prudential considerations. Assuming *arguendo* that this Court has jurisdiction, the petitions for review were timely filed, *see* 28 U.S.C. § 2344, and venue is proper in this Court. *See* 28 U.S.C. § 2343.

ISSUES PRESENTED

1. Whether NUREG-1757, as a non-binding NRC guidance document, constitutes a "final order" within the meaning of the Hobbs Act, causes "injury-in-fact" sufficient for standing, or is ripe for judicial review, when it has not yet been applied and is still under challenge in an ongoing NRC adjudicatory process.

2. Whether this Court has jurisdiction over a decision not to hold a hearing on issuance of a non-binding guidance document; and if so, whether issuance of that document is an action that requires a hearing under the Atomic Energy Act.

3. Whether a non-binding agency guidance document that does not amend any rule or regulation of the NRC and is compatible with existing rules and regulations violates the Atomic Energy Act.

STATEMENT OF THE CASE

I. Nature of the Case.

New Jersey's petitions for review challenge NRC's revised version of "NUREG-1757: Consolidated Decommissioning Guidance." Two of the three petitions for review, Nos. 06-5140 (A1)[1] and 07-1559 (A7), directly challenge the NUREG's revisions. The third petition, No. 07-1756 (A21), challenges a Commission decision not to hold a formal hearing under Section 189a of the AEA,

[1] "A" refers to the Joint Appendix.

42 U.S.C. § 2239(a), on New Jersey's request that NRC rescind the revised NUREG.

NUREG-1757 provides guidance on how NRC licensees may satisfy certain decommissioning requirements in NRC regulations; thus, licensees may incorporate that guidance when they submit license amendments proposing plans to decommission their facilities. But before it may approve a proposed decommissioning plan ("DP"), NRC must offer a hearing opportunity to persons affected by the plan. Those persons may challenge the proposed plan – and the guidance on which it is based – before NRC's Atomic Safety and Licensing Board Panel ("Licensing Board"), the agency's administrative tribunal. They may appeal any adverse decision to the Commission itself and challenge any Commission final order in Federal Court.

The Shieldalloy Metallurgical Corporation ("Shieldalloy") operated a facility in Newfield, New Jersey, where it manufactured speciality steel and alloy products and additives using ores that contained uranium and thorium. Shieldalloy has now ceased operations and has submitted a DP that proposes actions incorporating guidance in revised NUREG-1757. NRC's Licensing Board has convened an administrative hearing on Shieldalloy's request for a license amendment to approve the DP and has admitted New Jersey as a full party to the

proceeding. In that administrative proceeding, New Jersey has challenged, *inter alia*, the validity of the NUREG guidance. The Board also invited Gloucester County to participate as an interested governmental entity. The NRC proceeding is currently ongoing.

In this lawsuit, New Jersey again challenges NUREG-1757 and its applicability to the Shieldalloy site. At the outset of the case, we sought its dismissal as premature and outside this Court's jurisdiction. A motions panel of this Court referred our motion to the merits panel. Subsequently, this Court permitted Shieldalloy and Gloucester County to intervene in this case.

II. Statutory and Regulatory Background.

Administrative hearings on NRC actions are governed by Section 189a(1)(A) of the AEA, 42 U.S.C. § 2239(a)(1)(A). Section 189a provides interested members of the public an opportunity for a hearing in licensing and rulemaking proceedings. NRC Licensing Boards preside at licensing hearings and the Commission hears appeals of Board decisions. *See generally*, 10 C.F.R. Part 2 ("Rules of Practice"). Section 189b of the AEA, 42 U.S.C. § 2239(b), provides for judicial review of "final orders" in licensing proceedings.

This case involves questions about the criteria contained in the NRC's License Termination Rule, found at 10 C.F.R. § 20.1401, *et seq*. That rule sets out

standards and procedures for decontaminating and decommissioning facilities that are no longer operating.

The Addendum to this brief reproduces pertinent statutes and regulations.

III. Factual Background.

A. License Termination Rule.

Generally, NRC issues a license for use at a specified location for a specified term of years. The licensee can seek to amend the license for additional activities or extend the life of the license. NRC generally issues materials licenses (such as Shieldalloy's license) for 5-year periods and can renew them an indefinite number of times. A license also contains terms and conditions specifying how the license is to be used and a licensee may only use the license in accordance with the terms and conditions in it. NRC may, in response to new events or the discovery of new information, impose additional "conditions" or limitations on the license. New conditions are added as "amendments" to the license and the NRC must offer the public an hearing opportunity when amending the license. *See* AEA, § 189a, 42 U.S.C. § 2239(a).

When a materials licensee (such as Shieldalloy) advises the NRC that it has ceased operations under the license, the agency generally issues a license condition limiting the license to "possession only," with the resulting amended

license generally known as a "possession only license" or "POL." *See Shieldalloy Metallurgical Corporation*, LBP-07-05, 65 NRC 341, 343-44 (2007) ("LBP-07-05"). A POL usually allows limited decommissioning activities, but only to the extent that those activities will not foreclose any future decommissioning options for the licensed facility. The licensee then submits a DP describing how it proposes to remediate the facility and comply with the applicable requirements for license termination. NRC Staff reviews the plan, giving the public a chance to comment. Because the license is being amended, NRC offers the opportunity for an administrative hearing on its adoption. If the DP is approved, the license is amended to incorporate the approved DP by reference. The licensee then implements the approved DP. *See generally* NUREG-1757, Volume 1, Rev. 2, at Chapters 4, 5 and 6.[2]

Normally, a licensee will ask the NRC to terminate the license when it has completed actions in the approved DP and satisfactorily demonstrated compliance with it. The NRC established requirements for that process in the License Termination Rule ("LTR"), found in 10 C.F.R. § 20.1401, *et seq*. *See* 62 Fed.

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[2]Petitioner filed a complete copy of NUREG-1757 with this Court. *See* Petitioner's Brief at 1, n.1. This brief will provide only Appendix cites for those portions of NUREG-1757 included in Joint Appendix and will provide full citations for portions not included.

Reg. 39,058 (July 21, 1997). Many licensees seek termination for "unrestricted use," meaning that the site can be released for general use by the public without restrictions. *See* 10 C.F.R. § 20.1402. However, the regulations also provide for "termination under restricted conditions," meaning that controls remain in place to restrict use of the site. *See* 10 C.F.R. § 20.1403. The controls vary depending on the type of materials left at the site and specific site characteristics.

When seeking license termination with restricted conditions, the licensee must, *inter alia*, (1) reduce the radiation dose of the materials left on the site to a level "as low as is reasonably achievable" ("ALARA"), 10 C.F.R. § 20.1403(a); (2) provide institutional controls that will protect the public by restricting future land use, 10 C.F.R. § 20.1403(b); (3) provide "sufficient financial assurance to enable an independent third party" to ensure that the site is maintained if the licensee ceases to exist or goes bankrupt, 10 C.F.R. § 20.1403(c); and (4) reduce the dose levels to the public at the site. 10 C.F.R. §§ 20.1403(a) and (e).

The preamble for the final LTR rule states that for sites pursuing restricted release that have long-lived nuclides posing a hazard beyond a 100-year period,

> More stringent institutional controls will be required . . . such as legally enforceable deed restrictions and/or controls backed up by State and local government control or ownership, engineered barriers, and Federal ownership, as appropriate.

62 Fed. Reg. at 39,070. This statement is not included in the regulations and thus is not a requirement. But NRC has included it in the agency's guidance for implementing the LTR to recognize that some form of government control or even ownership might be appropriate in cases of restricted release for sites with long-lived nuclides. The guidance has consistently suggested "control *or* ownership" by a government entity, not "control *and* ownership." *Compare* NUREG-1727, A357, with NUREG-1757, A282.

B. Issuance of NUREG-1757.

The LTR does not provide rigid, specific requirements for license termination; instead, it provides dose criteria and general requirements only. Agency guidance documents, such as NUREG-1757, provide more detailed information and acceptable methods for licensees to demonstrate compliance. Licensees are not required to follow the guidance to gain approval for a proposed action. Furthermore, guidance documents are not binding in the agency's administrative hearing process. They lack the force of law and specifically disclaim any binding effect. *See* A66, A73. NRC's Licensing Board is free to reject application of the guidance in a particular case and the Commission, likewise, is not bound by it when reviewing a Licensing Board decision. *See, e.g.*,

International Uranium Corp., CLI-00-1, 51 NRC 9, 19-20 (2000) (declining to follow Staff guidance document and directing Staff to revise the document).

NRC published guidance on possible methods of compliance with LTR in 2000. *See* NUREG-1727, A338. In 2001, NRC announced that it would prepare consolidated decommissioning guidance, including revised guidance on LTR compliance, *see* 66 Fed. Reg. 21,793 (May 1, 2001), and later issued draft Volume 1 of NUREG-1757 (primarily applicable to NRC materials licensees) for public comment. 67 Fed. Reg. 4,764 (Jan. 31, 2002). NRC issued Volume 1 in final form in 2002, while the drafts of Volumes 2 (generally applicable to all NRC licensees) and 3 were being prepared. *See* 67 Fed. Reg. 60,706 (Sept. 26, 2002). NRC then revised Volume 1 and issued Volumes 2 and 3 in final form, together with the revised Volume 1. *See* 68 Fed. Reg. 54,503 (Sept. 17, 2003).

C. Revision of NUREG-1757.

Initial efforts to implement the regulations and guidance for restricted release proved difficult for both NRC and licensees. States and other government entities generally have not been receptive to taking responsibility for institutional controls or undertaking independent third party responsibilities. In addition, NRC was not able to reach an agreement with the Department of Energy to provide federal ownership or control of the sites. A467-69. Thus, in June, 2002, shortly

before publication of NUREG-1757, Volume 1, the Commission directed NRC Staff to undertake a comprehensive review of the restricted release criteria and other LTR implementation issues. *See* A483. The Commission also directed the Staff to consider ways to involve the NRC as a durable entity to monitor compliance with a deed restriction or to allow a license to remain in force indefinitely. *Id.*

The Staff prepared a full analysis of restricted release and institutional control issues and other LTR implementation issues and recommended new options. A482-527. The analysis and recommendations were based on a thorough review of information about institutional controls from other Federal agencies, States, and the National Academy of Sciences. One of the recommendations was the use of a "possession-only" amendment to the existing license for "long term control" ("POL/LTC"). A514-16, 519. Under this option, NRC would view the license as an "institutional control, similar to EPA's orders or permits, that provide the necessary restrictions on access or future land use. NRC would monitor, inspect, and enforce under the license authority." A515. NRC would act as the "independent third party" to activate the trust fund if the licensee went "bankrupt or out of business." *Id.*

The Commission approved the recommendations to move forward on the LTR implementation issues, including the POL/LTC, and the use of guidance on the approved options. A907. However, the Commission also directed the Staff to seek public comment on the draft guidance for the restricted release/institutional control issue and the POL/LTC. *Id.* The Staff summarized this process in a 2004 Regulatory Issue Summary, RIS-2004-08, A810, which informed all licensees and other stakeholders of the issues, the Staff analysis, and opportunities to provide feedback. In 2005, NRC held a workshop with over 200 attendees to obtain early public input on these issues. In addition, NRC invited all states to participate in the review process. Neither New Jersey nor Gloucester County attended the workshop nor participated in the review process.

Instead of including the new guidance in the initial version of NUREG-1757 then under development (thereby delaying issuance of that document), NRC used this separate process to develop the revised version at issue in this case. In September, 2005, NRC published the results of the separate guidance development process for public comment as "Draft Supplement 1" to NUREG-1757. This draft included the concept of a POL/LTC. NRC posted the draft on its public website and announced that the draft was available for public comment. *See* 70 Fed. Reg.

56,940 (Sept. 29, 2005). New Jersey submitted comments, A432-40; Gloucester County did not.

After analyzing the comments, the Staff advised the Commission of major comments (A909-13) and the Commission approved the Staff's recommendation to issue a POL/LTC by amendment instead of terminating the operating license and issuing a new license. A914. The Staff then prepared the final revisions of Volumes 1 and 2 of NUREG-1757, *i.e.*, Volume 1, Rev. 2 and Volume 2, Rev. 1. Those volumes were published in late September/early October of 2006 and bear a publication date of "September 2006." A67. NRC posted the revised versions of the NUREG on the agency's website on or about October 27, 2006, and notified New Jersey of the availability of the NUREG. NRC formally announced the availability of the revised NUREG on December 28, 2006, *see* 71 Fed. Reg. 78,234 (Dec. 28, 2006), when it had completed responses to the public comments on the draft revisions. *See* Responses to Stakeholder Comments, A829.

D. Guidance in Revised NUREG-1757.

The revised NUREG added two NRC institutional control options for a licensee to consider for decommissioning under restricted conditions. The two options, described below, are (1) a POL/LTC, and (2) an NRC Legal Agreement and Restrictive Covenant ("LA/RC"). *See generally* A227-51. *See also* A284-92

(POL/LTC); A292-97 (LA/RC). The addition of the POL/LTC and LA/RC options as "institutional controls" and NRC's willingness to act as the "independent third party" are the major changes from previous decommissioning guidance.

These options would be available only for sites seeking decommissioning under restricted conditions, but which are unable to establish satisfactory institutional controls or unable to find an independent third party to ensure the controls and maintenance at the site. A229, A286-87. The options would provide acceptable institutional controls because the NRC, as a Federal government entity, would enforce the controls and act as the independent third party. NRC intends these options to be used as a "last resort." A227.

Under the LA/RC option, after the licensee satisfies the other LTR requirements, the licensee and NRC would enter into a legal agreement on the restrictions and controls needed for license termination under restricted conditions. The agreement would include a restrictive covenant that would contain restrictions on site use and any maintenance, monitoring, and reporting. The licensee would have to record the covenant with the appropriate legal office before the license was terminated and the site released for restricted use. Because the legality of the LA/RC would depend on the laws of the local jurisdiction, the licensee would

have to demonstrate that the LA/RC would be legally enforceable before NRC would approve it. A227. NRC would then terminate the license.

Under the POL/LTC option, the NRC would *not* terminate the license. A286. Instead, if the licensee demonstrates in the DP that it will satisfy the other LTR criteria, *e.g.*, dose criteria, advice from affected parties, and sufficient financial assurance, at the time of DP approval, the NRC would amend the existing license to "possession only" with specific conditions for decommissioning as well as restrictions for "long term control." After the licensee completes decommissioning activities and satisfies the LTR requirements, NRC would again amend the license to remove the completed decommissioning conditions but retain or update the LTC conditions for restrictions, monitoring and maintenance. A286.

The amended license would specify requirements for: restricted site access and land use; permitted site access and land use; physical controls such as fences and signs; surveillance; groundwater monitoring if needed; corrective actions; maintenance; reporting; and records retention and availability. A292. NRC would monitor, inspect, and enforce under its licensing authority. A285. The POL/LTC would act as an "institutional control" to maintain the land use restrictions on the site that are necessary to comply with the LTR dose criteria to satisfy 10 C.F.R. § 20.1403(b). A286. NRC would act as the independent third party in accordance

with 10 C.F.R. § 20.1403(c) to ensure control and maintenance of the site if the licensee becomes unavailable. A290, A300.

E. The Shieldalloy Site.

Shieldalloy has operated the Newfield facility since approximately 1951. Shieldalloy holds NRC License No. SMB-743, issued in 1963, which authorizes it to ship, receive, possess, use and store "source material" as defined by the AEA for use at the Newfield facility. During operation of the Newfield facility, Shieldalloy manufactured specialty steel and alloy products and additives, which resulted in an accumulation of radioactive slag and baghouse dust, currently stored at the Newfield site. *See* LBP-07-05, 65 NRC at 343-44.

In 2001, Shieldalloy notified NRC that it had ceased production activities and planned to decommission the facility. A458. In 2002, NRC amended the Shieldalloy license to limit authorized activities to "possession only" and to decommissioning activities previously authorized under the original license. A789-90. Shieldalloy submitted a DP, which NRC rejected. A375-83. In 2003, Shieldalloy informally proposed that NRC issue a "possession only" license for temporary storage, *i.e.*, without decommissioning the site to LTR criteria as envisioned by the POL/LTC option then under discussion by the NRC Staff. NRC Staff advised Shieldalloy that this proposal was unacceptable. A390-91.

In 2005, Shieldalloy submitted another DP proposing a POL/LTC based on the September, 2005 Draft of revised NUREG-1757. NRC rejected that plan because it lacked sufficient information. A461-65. In 2006, Shieldalloy submitted a revised DP, which responded to NRC's comments on its prior submission. A539.

After reviewing the revised plan, NRC Staff accepted the plan for docketing and issued a Notice of Opportunity for a Hearing on the requested license amendment.[3] *See* 71 Fed. Reg. 66,986 (Nov. 17, 2006). Under that notice, any person "whose interest may be affected" could request to intervene in the proceeding and to participate as a party. *Id.* NRC received seven petitions to intervene in the proceeding, including petitions from New Jersey, which filed this lawsuit, and Gloucester County, which intervened in this lawsuit.

NRC's Licensing Board reviewed those petitions and granted formal intervention to New Jersey. *See* LBP-07-05, 65 NRC at 353-59 (2007). The Board specifically admitted for an NRC hearing a contention challenging the DP's "dose modeling" assumptions and deferred ruling on New Jersey's other contentions, including its facial and as-applied challenges to NUREG-1757,

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[3]Acceptance of a proposed amendment for docketing is not approval. It simply means that the proposed amendment addresses the appropriate factors and can be evaluated in detail by NRC Staff. *See* NUREG-1757, Volume 1, at 5-9.

pending completion of NRC Staff's review of the DP and its completion of the Safety Evaluation Report and the Environmental Impact Statement. *Id.* at 359-61. The Board found that, based on prior experience, the "DP might undergo significant revision," *id.* at 360, which could require New Jersey "to withdraw, to amend, or to supplement" its contentions. *Id.* at 361.

The Board denied Gloucester County's petition to intervene as a party, finding its contentions inadmissible. *Id.* at 346-49. Specifically, the Board found the County's contention that approval of the plan would have a serious negative economic impact on the County's residents, including a loss of property values, inadmissible because it did not identify a portion of the proposed plan that was deficient. *Id.* at 346-47. Gloucester County did not appeal the Board's decision to the Commission.

However, the Board invited the County to participate in the hearing as a governmental entity under 10 C.F.R. § 2.315(c). *Id.* at 363. That provision gives governmental entities significant participation rights, including the right to introduce evidence and appeal Board decisions to the Commission, even if not admitted as a formal party. The County has not yet accepted the invitation.

F. Retraction of Portions of NUREG-1757.

While reviewing Shieldalloy's proposed DP, NRC Staff became aware that portions of the revised guidance were incorrect. The Staff has now issued public notice retracting portions of the guidance. 72 Fed. Reg. 46,102 (Aug. 16, 2007). The Staff corrected a printing error and retracted portions of guidance in NUREG-1757, Volume 2, Appendix N. *Id.* The retracted guidance deals with the discount rate, which is challenged by New Jersey in this lawsuit.

G. Commission Order of January 12, 2007.

When it filed No. 06-5140 in this Court, New Jersey also filed a Hearing Request with the Commission. The State asked NRC to hold a formal hearing to rescind portions of the revisions. New Jersey also filed a separate petition for rulemaking under 10 C.F.R. 2.802(a), asking the Commission to rescind the revised NUREG. Finally, New Jersey asked the Commission to stay the administrative hearing on Shieldalloy's proposed DP pending disposition of the petition for rulemaking. *See* 10 C.F.R. 2.802(d).

The Commission denied the request for a hearing and the request for a stay in an Order dated January 12, 2007, A327-29, and referred the Rulemaking Petition to NRC Staff for action in accordance with the NRC's normal practices. A327. NRC Staff responded to the Petition on June 22, 2007, advising New

Jersey that the petition was deficient and inviting the State to submit additional information. *See* 10 C.F.R. § 2.802(f).

With regard to the request for a hearing, the Commission first noted that NUREG-1757 was a guidance document and not binding on NRC licensees.

> NUREG-1757 does not establish "binding" agency requirements; instead, it simply provides guidance on how a licensee may comply with various provisions of the Commission's decommissioning regulations. *See* NUREG-1757, Vol. 1, Rev.2, xvii. No NRC licensee is required to comply with NUREG-1757.

A327-28. Second, the Commission pointed out that New Jersey had received notice of the revised NUREG, had submitted comments on the proposed revisions, and NRC had responded to those comments. A328.

The Commission further held that New Jersey could challenge the application of NUREG-1757 to the proposed Shieldalloy decommissioning plan in any hearing held to consider whether to grant a license amendment allowing Shieldalloy to implement the decommissioning plan.

> [I]f a person successfully petitions to intervene in the proceeding to review [Shieldalloy's] proposed decommissioning plan, that person may contest [Shieldalloy's] attempt to rely on the disputed portions of NUREG-1757 in that proceeding.

A328. Accordingly, the Commission denied the request for a hearing.

Finally, the Commission denied New Jersey's request for a stay of the administrative proceeding. The Commission noted that, under its regulations, a petitioner could only request a stay pending disposition of a rulemaking "of a proceeding to which the petitioner is a *party* . . .." A328 (emphasis in original). *See* 10 C.F.R. § 802(d). At that time, New Jersey had not been admitted as a party to the proceeding and was ineligible invoke this provision. A328-29.

SUMMARY OF ARGUMENT

A. This Court lacks jurisdiction over New Jersey's Petitions to review the revised NUREG. The Hobbs Act, 28 U.S.C. § 2341, *et seq*., gives this Court jurisdiction over "final orders" issued by the Commission in licensing or rulemaking proceedings. But revised NUREG-1757 is not "final" and is not an "order" issued in a licensing or a rulemaking proceeding.

1. To be "final," an agency action must mark the "consummation" of a decision-making process; it must not be "tentative or interlocutory." It must also determine legal "rights and obligations." NUREG-1757 does not determine any "rights and obligations," and does not consummate any process. No licensee is required to follow it, and anyone who does, must obtain a license amendment – which allows interested persons a hearing opportunity on the guidance and its application. New Jersey is in fact challenging NUREG-1757 in an ongoing NRC

hearing on the Shieldalloy decommissioning. Furthermore, NUREG-1757 is "tentative or interlocutory" because NRC Staff is free to modify it at any time and, in fact, has already retracted part of the revised guidance as incorrect. Thus, the NUREG is not a "final" agency action.

The Hobbs Act gives this Court jurisdiction over NRC orders in licensing or rulemaking proceedings. New Jersey alleges that the NUREG "has the effect of a binding rule." But New Jersey never explains what that "effect" is and even concedes that the NUREG is not a "binding norm." The NUREG does not change any NRC regulations. Under factors established by this Court, the NUREG is non-binding agency guidance, not a substantive rule, and thus outside Hobbs Act jurisdiction.

2. Moreover, the NUREG does not require New Jersey (or any other person) to do anything and does not harm New Jersey. It is simply *guidance* whose validity and proper application remain to be tested. Thus, New Jersey has suffered no "injury in fact" from the NUREG and lacks standing to challenge it.

3. New Jersey's real challenge is to Shieldalloy's request for a license amendment incorporating the revised NUREG's guidance. But that challenge is premature. Under factors established by this Court, New Jersey's claims are unripe because they are not yet "fit for review," and because postponing review

would cause no "undue burden" on New Jersey. The burden of ongoing agency litigation is not a judicially cognizable burden.

4. New Jersey has also not exhausted its administrative remedies. New Jersey has been admitted into the NRC proceeding reviewing Shieldalloy's request for a license amendment incorporating guidance in the revised NUREG. In that proceeding New Jersey has filed a claim challenging whether the revised NUREG's guidance complies with the NRC's organic statutes and formal regulations. If granted, that claim would moot this entire case; thus, this Court should require New Jersey to complete that litigation. This Court would then have a complete NRC decision to review.

B. This Court also lacks jurisdiction over the petition for review challenging the Commission's denial of New Jersey's request for a hearing on the NUREG. As noted above, this Court has jurisdiction over Commission orders in licensing or rulemaking proceedings. But the NUREG was not issued in a rulemaking proceeding and is outside the grant of jurisdiction in the Hobbs Act. Moreover, "hearings" on rulemakings are held by notice and comment. Assuming *arguendo* the NUREG is a "rule," New Jersey had the hearing to which it was entitled because it had notice of the revised guidance and filed comments on it.

C. This Court ought not reach the merits of New Jersey's NUREG challenge, but if it does, it should reject New Jersey's arguments. New Jersey has failed to demonstrate that, on the current record, the NUREG is illegal or "arbitrary or capricious."

1. Contrary to New Jersey's claims, NRC does not need to conduct a rulemaking to amend a license in accord with the NUREG's guidance. A POL/LTC is not a "new license;" instead, it is the same license with additional restrictions on its use. NRC's organic statutes allow the agency to amend a license to reflect new conditions without formal rulemaking. Furthermore, contrary to New Jersey's claim, the POL/LTC option is consistent with the LTR's criteria. NRC has never suggested that government "ownership *and* control" is necessary for an approved "institutional control" under the LTR. Instead, NRC has stated that government "control *or* ownership" is sometimes appropriate. Finally, New Jersey is wrong in claiming NRC "insulated itself" from the public when adopting the revised NUREG. NRC appropriately involved the public, including New Jersey, during the revision process.

2. The NUREG is not substantively arbitrary or capricious. First, contrary to New Jersey's claim, NRC did not have an improper relationship with Shieldalloy when issuing the document. NRC recognized that a class of licensees

was experiencing a problem implementing the LTR and took appropriate action to determine if a solution was available. Second, nothing in the LTR or its preamble supports New Jersey's claim that the 1,000-year modeling does not apply to long-lived nuclides. NRC has always used 1,000-year modeling for decommissioning. Finally, the NUREG reasonably adopted the financial assurance guidelines from NRC regulations at 10 C.F.R. Part 40, and reduced the previous guidance to ensure that any trust fund would provide adequate funds for future maintenance and control at a POL/LTC site.

3. The NUREG did not require review under the National Environmental Policy Act because it was covered by a "categorical exclusion" covering non-binding agency guidance. Moreover, contrary to New Jersey's view, there is no "program" that NRC has "segmented" or "tiered." Finally, NRC's Generic Environmental Impact Statement associated with the LTR explicitly found that it was impossible to do a generic study of environmental impacts of restricted release sites because the potential sites are so different.

4. Gloucester County's arguments are not properly before the Court and lack merit. First, the County is an intervenor and can raise only arguments raised by the main parties. The County's arguments were not raised by New Jersey. Second, contrary to the County's claim, the NUREG expects an analysis of the

economic impacts of a licensee's DP. Finally, the County's claim that NUREG-1757 violates the Resource Conservation and Recovery Act is barred because that statute explicitly does not apply to NRC-regulated materials.

STANDARD OF REVIEW

In our view, this case should be dismissed as premature and outside the Court's jurisdiction. This Court reviews jurisdictional issues *de novo*. *See*, *e.g.*, *Nugent v. Ashcroft*, 367 F.3d 162, 165 (3d Cir. 2004).

Assuming *arguendo* that NUREG-1757 is a reviewable "order," the standard of review of an NRC order "is deferential; that order may not be overturned unless it is found to be 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" *Three Mile Island Alert, Inc. v. NRC*, 771 F.2d 720, 727 (3d Cir. 1985) (citation omitted). The NRC regulatory scheme is "virtually unique in the degree to which broad responsibility is reposed in the administering agency, free of close prescription in its charter as to how it shall proceed in achieving the statutory objectives." *Westinghouse Electric Corp. v. NRC*, 598 F.2d 759, 771 (3d Cir.1979), *quoting Siegel v. AEC,* 400 F.2d 778, 783 (D.C.Cir.1968).

Insofar as this Court reviews NUREG-1757 on the merits, it owes great deference to NRC's interpretation of its own statutes and regulations. *See*

generally Chevron, U.S.A., Inc., v. NRDC, 467 U.S. 837, 843-44 (1984); *Sommer v. Vanguard Group*, 461 F.3d 397, 399 n.2 (3d Cir. 2006). Insofar as New Jersey attacks NUREG-1757 "on its face," it must demonstrate that the NUREG is invalid in all possible applications, not just at one site. *See, e.g., Reno v. Flores*, 507 U.S. 292, 301 (1993).

ARGUMENT

I. THIS COURT SHOULD DISMISS THE CHALLENGE TO NUREG-1757 FOR JURISDICTIONAL AND PRUDENTIAL REASONS.

Whether this Court analyzes this case in terms of finality, standing, ripeness, or exhaustion of administrative remedies, the result is the same: the first two petitions in this consolidated case are premature. The third petition, while not premature, challenges an Order that was not issued in a licensing or rulemaking proceeding under the Atomic Energy Act; thus, this Court lacks jurisdiction over it under the Hobbs Act.

Under the Hobbs Act, this Court has jurisdiction to review "final orders" issued by the Commission in licensing or rulemaking proceedings. 28 U.S.C. § 2342(4). The Petitions in Nos. 06-5140 and 07-1559 challenge the revised NUREG-1757. But NUREG-1757 is neither a "final" agency action nor a final "order" under the Hobbs Act. And as mere guidance it causes no "injury-in-fact"

to the State, so New Jersey lacks "standing" to challenge it. Both the final order requirement and standing are jurisdictional; thus, this Court lacks jurisdiction over Nos. 06-5140 and 07-1559. Moreover, New Jersey's claims are not "ripe" for review and it has not exhausted its administrative remedies. Thus, this Court should dismiss these two Petitions for prudential reasons as well.

The Petition in No. 07-1756 challenges an Order that was not issued in a licensing or rulemaking proceeding; thus, this Court also lacks jurisdiction over that Petition as well.

A. The Revised NUREG-1757 Is Not a "Final Order."

1. The Supreme Court has defined "final" agency action as action that completes the agency's process and has binding effects:

> As a general matter, two conditions must be satisfied for agency action to be "final": First, the action must mark the "consummation" of the agency's decisionmaking process, . . . it must not be of a merely tentative or interlocutory nature. And second, the action must be one by which "rights or obligations have been determined," or from which "legal consequences will flow."

Bennett v. Spear, 520 U.S. 154, 177-78 (1997) (citations omitted). *See Pinho v. Gonzales*, 432 F.3d 193, 200 (3d Cir. 2005). The revised NUREG does not satisfy those criteria. First, the NUREG determines no "rights or obligations;" no legal consequences flow from its issuance. NUREG-1757 states that it is a "guidance

document," not a regulation, and explicitly disclaims any legal effect. "Legally binding regulatory requirements are stated only in laws; NRC regulations; licenses[;] or orders, not in NUREG-series publications." A66. "This NUREG is not a substitute for NRC regulations, and compliance with it is not required." A73. In fact, New Jersey concedes as much when it describes the NUREG as *not* being a rule or regulation. *See* Petitioner's Brief ("Pet. Br.") at 31.

New Jersey's central challenge in this case is to Volume 1, Appendix M, which describes how, in unusual cases, NRC licensees may seek to decommission their sites and retain a possession-only license, with radioactive materials remaining onsite under specified restrictions. An NRC licensee may *choose* to follow the guidance in this document, but no licensee *must*.

Furthermore, NUREG-1757 is not self-executing, *i.e.*, compliance does not guarantee that a proposed license amendment will be granted. Instead, any interested person may argue that action in accordance with NUREG-1757 does not comply with the applicable statutory and regulatory requirements, as New Jersey itself is doing in the ongoing administrative proceeding.

Second, the revised NUREG did not consummate the NRC's decision-making process at any facility seeking to follow the guidance in the NUREG. That decision-making process is consummated only with the issuance of a license

amendment approving a DP, which may or may not adopt the guidance contained in the NUREG. Here, it is Shieldalloy's decommissioning that concerns New Jersey and it is certainly not final. In fact, the Licensing Board deferred further consideration of the proposed DP precisely because it may well be changed after NRC Staff's technical review and environmental analysis. LBP-07-05, 65 NRC at 360-61.

Moreover, guidance documents such as NUREG-1757 are not "final" because they may be modified at any time without an NRC order or notice-and-comment rulemaking. In fact, NRC Staff has already retracted part of the revised NUREG-1757 based on experience in applying it to Shieldalloy's DP. *See* 72 Fed. Reg. at 46,102.

In sum, no "rights or obligations" are conclusively determined by revised NUREG-1757 and no "legal consequences" flow from it. Moreover, it does not "consummate" an NRC decision-making process. Thus, the revised NUREG is neither "final" nor an "order." *Bennett v. Spear*, *supra*.

2. Even if the revised NUREG-1757 were a "final" order, it is not the type of "order" that is reviewable under the Hobbs Act. The Hobbs Act gives this Court jurisdiction over "all final orders of the Atomic Energy Commission [now

NRC][4] made reviewable by section 2239 of title 42." 28 U.S.C. § 2342(4). In turn, 42 U.S.C. § 2239(b), makes reviewable, as relevant here, "(1) Any final order entered in any proceeding of the kind specified in subsection (a) . . .." 42 U.S.C. § 2239(b)(1). Subsection (a) proceedings include the "granting, suspending, revoking, or amending of any license" and "the issuance or modification of rules or regulations dealing with the activities of licensees . . .." 42 U.S.C. § 2239(a)(1)(A). Thus, for Hobbs Act jurisdiction, the Commission order must be final and issued in either a licensing or rulemaking proceeding. *See generally Florida Power & Light v. Lorion*, 470 U.S. 729 (1985).

New Jersey argues that NUREG-1757 "has the effect of a substantive rule or regulation . . .." Pet. Br. at 2-3; *see also* Opposition by the State of New Jersey to Federal Respondents' Motion to Dismiss ("Opposition"), filed February 22, 2007, at 2.[5] But New Jersey never explains its argument. New Jersey's semantic struggles are necessary because NUREG-1757 is plainly not a "substantive rule." The revised NUREG does not make a single change to any rule or regulation. As

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[4]In the Energy Reorganization Act of 1974, Congress transferred the Atomic Energy Commission's power to regulate civilian uses of nuclear energy to the newly-formed NRC. *See* 42 U.S.C. § 5841.

[5]New Jersey's Opposition to our Motion to Dismiss presents its jurisdictional arguments in full; its brief is nearly silent on the point. Hence, when referring to New Jersey's position, our brief refers to its "Opposition."

explained above, no licensee is required to comply with the guidance in NUREG-1757. Indeed, NUREG-1757 explicitly says so. A66, A73. In fact, New Jersey admits that "[a] rule or regulation imposes rights and obligations. . . . In contrast, NUREG-1757 explicitly states that it is a guidance document that does not establish a binding norm." Pet. Br. at 31 (citations omitted). New Jersey contradicts its own position.

New Jersey cannot have it both ways. If NUREG-1757 is not a binding norm, as the state concedes, it is not subject to judicial review under the Hobbs Act. The document is simply a non-binding statement by the agency that has no legal impact on any party.

3. New Jersey claims (Opposition at 4, 7-8) that NUREG-1757 is reviewable as a substantive rule under the criteria used in *Limerick Ecology Action v. NRC*, 869 F.2d 719 (3d Cir. 1989), where this Court found an NRC policy statement non-binding and unreviewable. *See id.* at 735. But *Limerick* actually shows that NUREG-1757 is not a substantive rule.

First, like the policy statement considered in *Limerick*, NUREG-1757 is not "finally determinative of . . . the rights to which it is addressed." *Limerick*, 869 F.2d at 734. The NUREG does not "determine" *any* rights; it simply provides licensees with options for seeking NRC approval of DPs. Second, the NUREG is

"subject to challenge in particular cases," *id.* at 735, consistent with longstanding NRC practice. *See, e.g., International Uranium Corp.*, CLI-00-01, 51 NRC at 19-20. In fact, New Jersey has already challenged both the application of the NUREG to the proposed decommissioning of the Shieldalloy site, and NRC Staff's alleged lack of compliance with the NRC's organic statute and regulations in issuing the revised NUREG. Thus, NUREG-1757 does not meet the standards for a substantive rule set by this Court in *Limerick*.[6]

New Jersey relies on *Citizens Awareness Network v. NRC*, 59 F.3d 284 (1st Cir. 1995), and *Public Citizen v. NRC*, 845 F.2d 1105 (D.C. Cir. 1988), for the proposition that NRC "Policy Statements" are sometimes subject to challenge under the Hobbs Act. *See* Pet. Br. at 3-4; Opposition at 4. But NUREG-1757 is not a Policy Statement; even if it were, it would not be automatically reviewable. As the *Limerick* Court noted, "[g]eneral policy statements, because they are ineffective except as applied and defended in specific proceedings, are often insulated from judicial review at the time of issuance." 869 F.2d at 735-36.

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[6]This Court had jurisdiction in *Limerick* because that case involved review of a final order issuing an operating license, not review of a "Policy Statement," but a Commission Policy Statement was an issue in the case. Applying the factors cited above, this Court held the Policy Statement was not a binding substantive rule. 869 F.2d at 733-35.

Additionally, both *Citizens Awareness Network* and *Public Citizen* are inapposite here. In *Public Citizen*, the Commission (as opposed to NRC Staff) issued an across-the-board Policy Statement implementing Section 306 of the Nuclear Waste Policy Act of 1982. That Policy Statement was final and established guidelines and standards for training of nuclear plant personnel that were generally applicable to the nuclear industry. *See* 50 Fed. Reg. 11,147 (Mar. 20, 1985).

Likewise, in *Citizens Awareness Network*, the Commission (not NRC Staff) issued a binding, across-the-board policy change, re-interpreting its regulations to hold the agency was not required to grant hearings to review proposed DPs. 59 F.3d at 289. The Commission denied a hearing request by Citizens Awareness Network based on the policy change. *Id.* at 290. Thus, the agency decision under review denied a request for a hearing, based upon a *de facto* change in a regulation.

In both cases the Commission (as opposed to NRC Staff) issued a binding, across-the-board ruling that was a "final" agency action and was applied as such. Here, by contrast, the Commission has yet to apply NUREG-1757 at all – much less issue a "binding rule."

B. New Jersey Lacks Standing For A Facial Challenge To Revised NUREG-1757.

In the context of this case, the doctrines of "finality" and "standing" are inextricably intertwined. Because the revised NUREG is not a "final action" and lacks the force of law, New Jersey is not harmed by it. Thus, New Jersey lacks standing to challenge the NUREG.

To challenge NRC action in this Court, New Jersey must show that it has suffered an "injury in fact" from the action "likely" to be redressed by a favorable decision. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992); *Fair Housing Council of Suburban Philadelphia v. Montgomery Newspapers*, 141 F.3d 71, 74 (3d Cir. 1998). The Supreme Court has defined an "injury in fact" as "an invasion of a legally protected interest which is (a) concrete and particularized, . . . and (b) 'actual or imminent,' not 'conjectural' or 'hypothetical.'" *Lujan v. Defenders of Wildlife*, 504 U.S. at 560 (citations omitted, footnote omitted). *See also Township of Piscataway v. Duke Energy*, 488 F.3d 203, 208 (3d Cir. 2007).

The revised NUREG, in and of itself, does not require New Jersey to do anything or authorize any other person to do anything that will harm New Jersey. The NUREG is not binding and does not (and could not) change any NRC regulations. It thus causes New Jersey no "injury in fact."

The harm alleged by New Jersey is NRC's potential *future* approval of a DP for the Shieldalloy facility based on the revised NUREG. But that alleged harm is not "concrete," *i.e.*, "real or direct," or "imminent," because Shieldalloy cannot implement the DP, either in whole or in part, until it has been approved by NRC's administrative process – a process where the NUREG's guidance can be challenged and where New Jersey is a participant.

New Jersey will have ample opportunity to contest Shieldalloy's application for approval of its DP based on the disputed portions of the revised NUREG-1757 in NRC's administrative proceeding – including an appeal to the Commission and judicial review of any adverse decision. In the meantime, the cost or burden of participating in ongoing agency litigation is not a judicially cognizable "injury." *See, e.g.*, *In re Briscoe*, 448 F.3d 201, 214 (3d Cir. 2006). New Jersey's lack of such injury deprives it of standing to challenge the NUREG.

C. New Jersey's Claim Is Not Ripe And The State Has Not Exhausted Available Administrative Remedies.

While New Jersey claims that it has filed a "facial" challenge to the revised NUREG-1757, it is apparent that New Jersey's actual goal is to challenge applying the revised NUREG to the proposed Shieldalloy DP. Any such challenge is premature. As we have stressed, NUREG-1757 is not a "binding" agency rule or

requirement. Moreover, New Jersey has been admitted into the NRC administrative proceeding reviewing Shieldalloy's proposed DP. There, New Jersey has raised many of the same claims that it raises here – and could have raised the rest. Thus, not only is this case not ripe for judicial review, but New Jersey also has failed to exhaust its administrative remedies.

"Ripeness and exhaustion are complementary doctrines . . . designed to prevent unnecessary or untimely judicial interference in the administrative process." *John Doe, Inc., v. DEA*, 484 F.3d 561, 567 (D.C.Cir. 2007) (quotation marks omitted) (citations omitted). Although the doctrines overlap, they have distinct purposes. *Id.* "Exhaustion focuses on the process a litigant must follow; ripeness describes the fitness of the issues for review." *Id.* These pragmatic doctrines protect "the agency's interest in crystallizing its policy before that policy is subject to judicial review" and "the court's interests in avoiding unnecessary adjudication and in deciding cases in a concrete setting." *Id.* (quotation marks omitted) (citations omitted).

1. New Jersey's Claims Are Not Ripe.

The basic rationale of the ripeness doctrine

> is to prevent the courts, through avoidance of premature adjudication, from entangling themselves in abstract disagreements over administrative policies, and also to

> protect the agencies from judicial interference until an administrative decision has been formalized and its effects felt in a concrete way by the challenging parties.

Abbott Laboratories, Inc. v. Gardner, 387 U.S. 136, 148-49 (1967), *overruled on other grounds*, *Califano v. Sanders*, 430 U.S. 99 (1977). *See also Ohio Forestry Association v. Sierra Club*, 523 U.S. 726, 732-37 (1998). When assessing the ripeness of a claim, "the court should examine whether the issues are fit for judicial resolution and whether withholding judicial resolution will result in hardship to the parties." *New Hanover Township v. U.S. Army Corps of Engineers*, 992 F.2d 470, 472 (3d Cir. 1993). *See also CEC Energy Co. v. Public Service Commission of the Virgin Islands*, 891 F.2d 1107, 1109-10 (3d Cir. 1989).

Under the fitness prong, courts look to whether the dispute is purely legal and whether the agency action is final. *CEC Energy*, 891 F.2d at 1110. "Awaiting the termination of agency proceedings may obviate all need for judicial review." *Id.* at 1109 (citations omitted). This furthers "the court's interests in avoiding unnecessary adjudication and in deciding issues in a concrete setting." *Venetian Casino Resort, L.L.C. v. EEOC*, 409 F.3d 359, 364 (D.C. Cir. 2005). Under the hardship prong, the court will consider "the plaintiff's interest in prompt consideration of allegedly unlawful agency action," *id.*, and "whether *postponing* judicial review would impose an undue burden on [the plaintiff] or would benefit

the court." *Nat'l Ass'n of Home Builders v. U.S. Army Corps of Engineers*, 440 F.3d 459, 464 (D.C.Cir. 2006) (emphasis in original).

a. New Jersey's Claims are Not Fit For Review.

This Court has held that "[f]inal agency actions involving purely legal questions satisfy the fitness requirement[,]" *CEC Energy*, 891 F.2d at 1110, but "finality is to be interpreted in a pragmatic way." *Id.* (citations omitted). This Court has enumerated five factors that should be reviewed in assessing finality:

> 1) whether the decision represents the agency's definitive position on the question; 2) whether the decision has the status of law with the expectation of immediate compliance; 3) whether the decision has immediate impact on the day-to-day operations of the party seeking review; 4) whether the decision involves a pure question of law that does not require further factual development; and 5) whether immediate judicial review would speed enforcement of the relevant act.

Id.

Here, these finality factors cut strongly against finding New Jersey's challenge to NUREG-1757 "fit for review." We have already shown that NUREG-1757, as mere agency guidance, is not "definitive," lacks the "status of law," and has "no immediate impact" on New Jersey. And New Jersey's suit does not raise a "pure question of law," but rather a fact-specific Shieldalloy grievance. Finally, it is not self-evident that immediate judicial review of NUREG-1757,

which perforce would interfere in the orderly NRC licensing (and judicial review) process established by statute, would "speed enforcement" of NRC decommissioning regulations; disruption and delay are equally likely.

In similar cases, this Court has found that the agency action under review was not "final" and thus, not fit for review. For example, in *CEC Energy*, this Court declined to review an agency assertion of jurisdiction to review a proposed contract because the agency had not ordered any specific action with regard to the contract. 891 F.2d at 1110. Likewise, in *Solar Turbines, Inc. v. Seif*, 879 F.2d 1073 (3d Cir. 1989), this Court found an order by the Environmental Protection Agency directing a company to "cease and desist" a construction project not final because the order carried no adverse consequences for non-compliance. 879 F.2d at 1080. This Court held that "the determinative factor on finality in this case is that the administrative order has no operative effect on Solar Turbines." *Id.* at 1080-81.

Other courts have reached similar conclusions. For example, the D.C. Circuit dismissed as unripe a challenge to an NRC Policy Statement because NRC had not yet applied the Statement and its meaning and effect were as yet unclear. *See Public Citizen v. NRC*, 940 F.2d 679 (D.C.Cir. 1991). Likewise, the Ninth Circuit dismissed as unripe a challenge to Forrest Service regulations because the

regulations had not yet been applied. *Earth Island Institute v. Ruthenbeck*, 490 F.3d 687, 695 (9th Cir. 2007).

b. Postponing Review Would Impose No Undue Burden on New Jersey.

Postponing review leaves New Jersey to challenge the guidance in NUREG-1757 in NRC's administrative process. No other burden is apparent or even claimed. But participating in an administrative proceeding is not an "undue" burden sufficient to make this dispute "ripe" for judicial review. "[T]he burden of participating in further administrative and judicial proceedings does not constitute sufficient hardship to overcome the agency's challenge to ripeness." *AT&T Corp. v. FCC*, 349 F.3d 692, 702 (D.C. Cir. 2003) (citations omitted). *See also Ohio Forestry Association v. Sierra Club*, *supra*; *FTC v. Standard Oil*, 449 U.S. 232, 244 (1980).

New Jersey claims that radioactive materials are escaping from the Newfield facility and contaminating the surrounding community. *See* Pet. Br. at 6-7. While omitting the issue from its brief, New Jersey implied in its Opposition that if this Court vacates the NUREG, the contamination might be removed sooner than if exhaustion of the administrative proceeding is required. *See* Opposition at 16. But New Jersey did not object to deferral of the proceeding (making the proceeding

last longer); in fact, the State recently advised the Board that deferral was "appropriate."[7]

Furthermore, there is no connection between the issuance of the NUREG and any contamination allegedly leaving the Newfield facility. If New Jersey believes that the contamination leaving the facility is a threat to the public health and safety, or results from a violation of Shieldalloy's license, it should report this matter, so that NRC can take appropriate enforcement action. New Jersey can either do that with a letter or an enforcement petition under 10 C.F.R. § 2.206. But NRC has no record of any claim by New Jersey to the NRC that Shieldalloy is in violation of its license or that any contamination that presents a threat to public health and safety is escaping the Newfield site.

Moreover, New Jersey does not allege, much less show, that application of the contested guidance will not resolve any alleged contamination. In other words, assuming *arguendo* that contaminated material *is* escaping the Newfield site, New Jersey does not argue that approval of a POL/LTC would allow the contamination to continue escaping. In fact, approval of Shieldalloy's DP might well stop any additional alleged contamination from escaping the Newfield site.

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[7] *See* http://www.nrc.gov/reading-rm/adams.html, "web-based access," at ML072360192

In sum, there is no connection between the revised NUREG and the alleged contamination.

Finally, the Supreme Court has stated that "[a] claim is not ripe for adjudication if it rests upon contingent future events that may not occur as anticipated, or indeed may not occur at all." *Texas v. United States,* 523 U.S. 296, 300 (1998) (internal quotation marks omitted) (citations omitted). New Jersey's claim rests upon a 'contingent future event," *i.e.*, the possible future NRC approval of a POL/LTC for the Shieldalloy facility. But as we show in the next section, New Jersey has challenged the application of NUREG-1757 to the Shieldalloy facility. If that challenge is upheld, New Jersey's claim will be resolved.

2. New Jersey Has Not Exhausted Available Administrative Remedies.

New Jersey seeks to by-pass the ongoing NRC administrative hearing and proceed directly to this Court. But it is a well-settled principle of administrative law that

> [a] reviewing court usurps the agency's function when it sets aside the administrative determination upon a ground not theretofore presented, and deprives that Commission of an opportunity to consider the matter, make its ruling, and state the reasons for its action.

Unemployment Compensation Commission of Alaska v. Aragon, 329 U.S. 143, 155 (1946). "[T]he purposes of the exhaustion requirement are to promote

administrative efficiency, 'respect[ ] executive autonomy by allowing an agency the opportunity to correct its own errors,' provide courts with the benefit of an agency's expertise, and serve judicial economy by having the administrative agency compile the factual record." *Robinson v. Dalton*, 107 F.3d 1018, 1020 (3d Cir. 1997), quoting *Heywood v. Cruzan Motors, Inc.*, 792 F.2d 367, 370 (3d Cir.1986).

1. New Jersey challenges NUREG-1757 in this Court before completion of the NRC's administrative process. But New Jersey could have presented to the NRC's Licensing Board every argument that it makes here. In fact, it already presented many of the exact same arguments to the Board in its Petition for Hearing that it raises in this lawsuit.[8]

Specifically, New Jersey argues before this Court that the NRC will violate the AEA if it issues a POL/LTC without first promulgating formal regulations governing the "new" license. *See* Pet. Br. at 30-34; Opposition at 6. But New Jersey's Contention 17 before the Licensing Board is entitled "[t]he NRC may not issue a LTC license until it promulgates rules and regulations to establish its terms

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[8]Compare, *e.g.*, Pet. Br. at 54-57 with Contention 6, A791-95. The State's Petition for Hearing, with all 33 Contentions, is a public document and available on the NRC's website. *See* http://www.nrc.gov/reading-rm/adams.html, "web-based access," at ML070290433.

and conditions." A804. And its supporting argument before the Board is essentially the same argument it makes here. *See generally* A804-07.

This is the key issue raised by New Jersey in this case and all other claims flow from it. If the Licensing Board and the Commission accept New Jersey's arguments on this point, this case will become moot because the NRC will retract the contested guidance in NUREG-1757 and no POL/LTC could be issued. Thus, allowing the Commission to decide this issue in the first instance may moot this entire case. At the least, it would enable to Commission to respond to New Jersey's claims in the first instance, and when the time for judicial review comes, give this Court a full record and reasoned Commission decision to review.

2. New Jersey argues that exhaustion would be "futile," alleging that the agency will treat the NUREG as a rule or regulation that cannot be challenged in an administrative proceeding. As evidence, New Jersey cites to statements made in an NRC Staff filing before the Licensing Board. *See, e.g.*, Opposition at 19-20. However, those statements were made in a Staff pleading as an advocate before the Board; they should not be confused with decisions rendered by the Licensing Board or by the Commission on review of a Licensing Board decision. The Commission has repeatedly made clear that "NRC guidance documents are routine agency policy pronouncements that do not carry the binding effect of regulations."

International Uranium Corp., CLI-00-01, 51 NRC at 19. Moreover, while the Commission has approved the POL/LTC concept as a general matter, it has not issued a considered decision on the issue in the context of a contested case.

New Jersey also claims that it cannot challenge NUREG-1757 "on its face" in the administrative proceeding, but is limited to an "as applied" challenge. *E.g.*, Opposition at 20-21. But New Jersey has *already* filed a facial challenge to the NUREG before the Licensing Board. *See, e.g.*, Contention 17, A804-07. If that challenge succeeds before NRC, New Jersey will have no need for judicial relief. New Jersey should await the outcome of NRC's administrative hearing before coming to this Court.

II. THIS COURT LACKS JURISDICTION OVER NO. 07-1756 AND NEW JERSEY WAS NOT ENTITLED TO AN ADJUDICATORY HEARING ON RESCINDING REVISED NUREG-1757.

In case number 07-1756, New Jersey challenges a 2007 Commission Order (A327) denying a request for an adjudicatory hearing on NUREG-1757 seeking to rescind portions of it. This Court lacks jurisdiction over that petition; assuming this Court has jurisdiction, the Commission reasonably denied the request.

A. This Court Lacks Jurisdiction Over New Jersey's Challenge.

As demonstrated above, NUREG-1757 was not entered in a proceeding for the issuance of a license or a rule – a prerequisite to Hobbs Act jurisdiction. *See*

28 U.S.C. § 2342; 42 U.S.C. § 2239(a)(1)(A). Therefore, this Court lacks jurisdiction to review NUREG-1757's procedural lineage, just as it lacks jurisdiction to review NUREG-1757's substantive validity. *See* Argument I, *supra*. New Jersey's challenge to NUREG-1757 should follow the orderly route of NRC adjudication (already underway), followed by judicial review as prescribed in the Hobbs Act.

B. The Commission Reasonably Denied New Jersey's Hearing Request.

Assuming *arguendo* that this Court has jurisdiction over New Jersey's hearing claim, it should find that the Commission reasonably denied the request for a hearing.

1. In its Petition for Hearing to the Commission, New Jersey admitted that its interest was based on Shieldalloy's application for approval of the DP. "NJDEP has an interest in rescinding these NUREG-1757 provisions because this guidance document has been utilized by Shieldalloy in developing their [decommissioning plan] for their facility in Newfield." Petition at 2.[9] Thus, New Jersey's challenge to the NUREG was based solely on Shieldalloy's use of the NUREG's guidance in its proposed DP. The Commission pointed out that the propriety of applying NUREG-1757 to the Shieldalloy DP is a proper subject for

[9]This Record document was omitted from the Joint Appendix.

hearing before an NRC Licensing Board. A327-28. This is now being done. Thus, the Commission properly denied New Jersey's request for a *separate* hearing on the revised NUREG.

2. Furthermore, even if NUREG-1757 were considered a binding rule, New Jersey has actually had the pre-approval "hearing" to which it would be entitled. Under the NRC's Rules of Practice, "hearings" in rulemaking proceedings are conducted by notice and comment. *See* 10 C.F.R. § 2.805; *see generally* 10 C.F.R. §2.800, *et seq*. New Jersey not only had notice of the proposed revisions to NUREG-1757, but it also commented on them. *See* A432-440. Under long-established precedent, no further rulemaking "hearing" is necessary. *See, e.g.*, *Siegel v. AEC*, 400 F.2d 778, 785-86 (D.C.Cir. 1968).

III. ON THE CURRENT RECORD, REVISED NUREG-1757 IS LAWFUL AND NOT ARBITRARY OR CAPRICIOUS.[10]

Despite our strong view that jurisdictional and prudential doctrines bar New Jersey's lawsuit, we cannot leave New Jersey's challenge to NUREG-1757

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[10] New Jersey did not challenge the guidance related to the discount rate (Pet. Br. at 45), the investment rate (*id.* at 49), or the lack of an environmental review (*id.* at 50), when filing its comments on the revised NUREG in 2005. *See generally* A432-40. Thus, New Jersey has waived these arguments and this Court should not consider them. *E.g.*, *National Wildlife Federation v. EPA*, 286 F.3d 554, 562 (D.C.Cir. 2002) (collecting cases).

unanswered. But New Jersey cannot claim that by defending the NUREG, we render NRC's ongoing hearing process biased or futile. Obviously, our arguments in this Court constitute a litigating position responding to New Jersey's claims. As the D.C. Circuit noted when facing an analogous situation, agency counsel must be given latitude to present arguments supporting the agency's actions without binding the agency itself to any ultimate result on the merits.

> The Department's litigating position at this stage does not necessarily reflect a deliberative adjudication of appellant's claims. Were we to decide otherwise the Department, faced with such a complaint and not certain whether a court would "waive" the exhaustion requirements, would be in a difficult litigating position. The Department cannot be disadvantaged for contesting [the] claim that the Department's interpretation of its regulation is unreasonable.

Career Education v. Department of Education, 6 F.3d 817, 820 (D.C.Cir. 1993).

Like the Department of Education, NRC cannot be "disadvantaged for contesting the claim" that the NUREG's provisions are unlawful or "arbitrary and capricious." It is possible that after a full review, NRC's independent Licensing Board, or the Commission itself, ultimately will view NUREG-1757 differently, but as we argue below, it is far from self-evident that New Jersey's challenge to the NUREG will – or should – succeed.

A. The POL/LTC Does Not Require A Formal Rulemaking.

New Jersey argues that adopting the POL/LTC option requires NRC to conduct a formal rulemaking. Pet. Br. at 30. New Jersey characterizes the POL/LTC as a "new license" and says that NRC can adopt a "new license" only by a rulemaking establishing the "terms and conditions" of that license. *Id.* at 31.

1. But the POL/LTC is not a "new license." Instead, it is the *original* license amended to authorize "possession only" of the same radioactive materials authorized under the current license at the same site, those activities in any DP approved by the NRC administrative hearing process, and conditions to protect the public during the term of possession. In fact, one comment on the revised NUREG suggested that NRC terminate the original license and issue a POL/LTC as a "new license." A533. The Commission explicitly approved NRC Staff's recommendation to issue a POL/LTC by amendment, not by a "new license." A914.

For example, Shieldalloy currently holds NRC License SMB-743. If the NRC grants the requested POL/LTC at the end of the administrative process, Shieldalloy will still have License SMB-743, which will be the same license amended to contain greater restrictions on Shieldalloy's authority than currently provided. Neither the AEA, 42 U.S.C. § 2011, *et seq.*, nor the ERA, 42 U.S.C.

§ 5801, *et seq.*, limits the NRC's power to amend an existing NRC license's authority. Likewise, nothing in either statute limits the number of times NRC can extend the term of a materials license.

2. Next, New Jersey argues that issuing a POL/LTC without requiring government ownership is a "major policy reversal for the NRC." Pet. Br. at 31. But NRC has approved alternative approaches similar to a POL/LTC on several occasions in cases that involve government "control," but not government "ownership," of sites with long-lived nuclides. For example, NRC approved Ohio's plans to use a similar POL process at a Shieldalloy facility in Cambridge, Ohio when that facility ceases operations. A496-97; *see also* 64 Fed. Reg. 15837, 15838-39 (April 1, 1999).

In addition, the Staff has approved Wisconsin's adoption of the "possession only" license approach for restricted use termination. A496. NRC also approved a reclamation plan for a uranium mill tailings site in Wyoming that contained an easement and a restrictive covenant giving the Department of Energy access to the site and authority to enforce restrictions. A501. In sum, the POL/LTC process is not unprecedented.

3. New Jersey also argues that NRC's decision lacked "rational analysis," and that NRC changed its policy of requiring "Federal or state ownership and

control" to one of merely exercising "control" when it developed the POL/LTC. Pet. Br. at 32-33. But New Jersey misstates NRC policy as well as the guidance, and fails to demonstrate a "contradictory" analysis.

No NRC regulation or guidance document says that government "ownership *and* control" are necessary for approval of restricted release under the LTR. Instead, as we noted on page 8, *supra*, the preamble to the LTR suggested that, in some situations, government "control *or* ownership" may be appropriate. 62 Fed. Reg. at 39,070. The guidance provides flexibility in meeting the general LTR requirements for "legally enforceable institutional controls." A232-40.

In the case of a POL/LTC, NRC will exercise Federal "control" over the license by inspecting the facility, requiring formal license renewals at five-year intervals, and exercising enforcement throughout the duration of the license. A285. The licensee cannot sell or transfer the property without NRC approval. A289. If the licensee becomes bankrupt, NRC could oversee use of the trust fund, which cannot be reached in bankruptcy, to hire the necessary contractors to ensure controls and maintenance of the facility. A290. This "institutional control" is in accordance with the restricted release provisions of the LTR. A284.

Moreover, contrary to New Jersey's claim, Pet. Br. at 32-33, there is no "contradiction" between the need for a "durable institutional control" and NRC

providing that control by licensing, inspection and enforcement. NRC agrees that "a private entity cannot be expected to endure for millions . . . of years[.]" Pet. Br. at 33. It is precisely for that reason that NRC will oversee control of the site. NRC will ensure that the site is inspected and maintained and that the trust fund is adequately maintained and expended appropriately. As long as there is a Federal government, it is reasonable to expect that there will be an NRC – or a similar agency – responsible for enforcing the terms and conditions of the POL/LTC.

4. Finally, New Jersey argues that by failing to conduct a rulemaking process, "NRC insulated itself from obvious public health and safety concerns." Pet. Br. at 33. This argument approaches the frivolous. NRC's documents analyzing these issues, including SECY-03-0069 (A482-527) and the 2004 RIS (A810-28), were all publicly available. In addition, NRC noticed the 2005 draft revisions of the NUREG in the Federal Register for public comment, just as it had the drafts of the original NUREG. *See* 70 Fed. Reg. at 56,940. NRC conducted a public workshop which was announced in the Federal Register. 70 Fed. Reg. 19,109 (April 12, 2005). NRC also established a special state working group to review these issues, but New Jersey did not participate in this group and did not attend the workshop.

NRC's efforts to involve the public in issuing the revised NUREG were the functional equivalent of a full notice-and-comment rulemaking. During this process, New Jersey had both notice and a chance to comment. *See generally* 10 C.F.R. § 2.800, *et seq*. And New Jersey submitted comments, A432-40, to which the NRC responded. A829-906. NRC has not "insulated itself."

B. The NUREG's Guidance Is Not Arbitrary or Capricious.

1. Ownership and Control.

New Jersey argues that the options for POL/LTC and "legal agreement and restricted covenant" as institutional controls are arbitrary and capricious. Pet. Br. at 36-43.[11] But New Jersey simply repeats many of the questionable arguments that we addressed above.

1. New Jersey again refers to the mistaken mantra of "ownership *and* control." *E.g.*, Pet. Br. at 36, 38. But New Jersey cites no authority for requiring "both" government ownership *and* government control. As we noted above, the LTR's preamble suggests there may be either "control *or* ownership" in certain

[11]New Jersey's brief mentions but does not address the LA/RC option; we have focused our response on the POL/LTC.

situations, not necessarily both. *See, e.g.*, 62 Fed. Reg. at 39,070 (emphasis added).[12]

And contrary to New Jersey's assertion, NRC does not expect private entities to "endure . . . in perpetuity." Pet. Br. at 36. Instead, NRC must assume that the Federal government, which will exercise "control" through NRC's monitoring and oversight of the license, will endure to protect the public health and safety.

2. New Jersey implies that NRC had an improper relationship with Shieldalloy, which influenced its decision. Pet. Br. at 41-43. But NRC – like any regulatory agency – must maintain an open relationship with its licensees. If a licensee or class of licensees has a problem, a regulatory agency must review the problem and determine whether a solution is available.

Here, NRC recognized that a few licensees were encountering problems that were delaying decommissioning and undertook a very public review to address those problems – as befits any government agency. But Shieldalloy received no special treatment. In fact, in 2003 NRC denied an Shieldalloy request for a POL

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[12]New Jersey's frequent use of the misleading phrase "control *and* ownership" (Pet. Br. at 14, 15, 16, 21, 32, 36, 38, 52) appears deliberate as New Jersey occasionally uses the correct wording, "control *or* ownership," but only when forced to quote NRC documents accurately. *E.g.*, Pet. Br. at 14, 15, 18, 39.

for temporary storage precisely because Shieldalloy's proposal would not decommission the site to the limits specified in the LTR. A390-91. There was no "improper" relationship with Shieldalloy.

2. One Thousand-Year Modeling.

New Jersey argues that the guidance in NUREG-1757 is arbitrary and capricious because it requires licensees seeking any form of restricted release "to model the health and safety risks for *only* 1,000 years, regardless of whether the materials remain a radioactive hazard well after 1,000 years." Pet. Br. at 43 (emphasis added).

1. The guidance challenged by New Jersey is consistent with the LTR's requirements, which specify only that modeling be done for a 1,000-year period. *See* 10 C.F.R. § 20.1401(d). In fact, NRC regulations have *never* required modeling for more than 1,000 years in the decommissioning process. Thus, New Jersey is actually challenging NRC's LTR regulation, which is not at issue in this litigation. In fact, if the NUREG's guidance had suggested modeling for *more* than 1,000 years it would have been outside the regulation.

2. New Jersey also claims that "NRC stated . . . that [the LTR] is intended to apply only to short-lived nuclides." Pet. Br. at 43. There is no such statement in the LTR or any NRC guidance; in fact, there are several statements in the LTR

preamble that explicitly support the application of 1,000 years to long-lived nuclides. The LTR, as proposed, contained the 1,000-year modeling requirement. 59 Fed. Reg. 43,200, 43,212-13 (Aug. 22, 1994). The proposed rule noted that 1,000-year modeling was the current staff practice. 59 Fed. Reg. at 43,224. The final rule reaffirmed the agency's position. 62 Fed. Reg. at 39,083. *See also id.* at 39,070 (institutional controls should be established with the objective of lasting 1,000 years); *id.* at 39,059 (total effective dose equivalent should be calculated for 1,000 years to show compliance with standard).

Checking the citation provided by New Jersey in support of its assertion that the LTR was to be applied only to "short-lived nuclides," 62 Fed. Reg. at 39,083, Pet. Br. at 44, the closest discussion on point is:

> Unlike analyses of situations where large quantities of long-lived radioactive material may be involved (e.g., a high-level waste repository) and where distant future calculations may provide some insight into consequences, in the analysis for decommissioning, where the consequences of exposure to residual radioactivity at levels near background are small and peak doses for radionuclides of interest in decommissioning occur within 1000 years, long term modeling thousands of years into the future of doses that are near background may be virtually meaningless.

62 Fed. Reg. at 39,083. If this is the statement to which New Jersey refers, it has been misinterpreted. The statement merely says that decommissioning is different

from high-level waste disposal, and that for decommissioning (as opposed to high-level waste disposal, such as at Yucca Mountain), the dose consequences are small and peak doses generally occur within 1,000 years. That is not equivalent to "the LTR is intended to apply only to short-lived nuclides."

3. Finally, New Jersey relies on *Nuclear Energy Institute v. EPA*, 373 F.3d 1251 (D.C. Cir. 2004), for the proposition that this Court should overturn the NRC's 1,000-year modeling period as that Court overturned the EPA's 10,000-year modeling assessment. Pet. Br. at 44. But that case turned on EPA's failure to adopt modeling "consistent with" a study conducted by the National Academy of Science, as required by Section 801(a) of the Energy Policy Act of 1992. *See* 373 F.3d at 1273. Here, there is no similar statutory requirement.

3. Discount Rate.

New Jersey alleges that the revised NUREG's use of a discount rate for the monetary value of averted radiation doses in the future is "arbitrary and capricious." Pet. Br. at 45-48. This claim is moot, because NRC has recently retracted the guidance challenged by New Jersey. During the processing of the Shieldalloy DP, NRC found that the revised guidance was incorrect. Accordingly, NRC has retracted the NUREG guidance on the discount rate and will issue new guidance in the future. 72 Fed. Reg. at 46,102. This action confirms that the

revised NUREG is not a regulation but a flexible guidance document that can be adjusted promptly and informally.

4. Financial Assurance.

NUREG-1757 provides that applicants seeking the restricted release option (and, by implication, a POL/LTC) may assume a 1% rate of return to determine the amount of the trust fund to assure adequate maintenance and control of the site. A244. The licensee may reduce the amount of money it initially deposits in the trust fund by the amount of the interest calculated. New Jersey alleges that the guidance in the revised NUREG regarding financial assurance for restricted release – not just for a POL/LTC – violates 10 C.F.R. § 20.1403(c) because it does not provide "sufficient financial assurance" to allow a third party to carry out responsibility for control and maintenance of a site. Pet. Br. at 49. Specifically, New Jersey claims that NRC has not justified allowing the 1% rate. Pet. Br. at 50.

The guidance in the revised NUREG does not violate Section 1403(c) of the LTR. As New Jersey concedes, the NUREG uses the value adopted for uranium mill tailings sites in notice-and-comment rulemakings in both 1980 and 1985. *See* 10 C.F.R. Part 40, Appendix A, Criterion 10; 45 Fed. Reg. 65,521 (Oct. 3, 1980); 50 Fed. Reg. 41,862 (Oct. 16, 1985). Thus, the revised NUREG applied the investment rate for the class of sites with the longest-lived nuclides, *i.e.*, uranium

and thorium, to all restricted release sites, regardless of the nuclides involved. NRC took the "conservative" approach, *i.e.*, applying the provision for long-lived nuclides to all sites, to ensure that there will be sufficient financial assurance for future maintenance operations.

Moreover, the revised NUREG *reduced* the allowed investment rate from the previous allowance of not greater than 2%, *see* NUREG-1757, Vol. 3 at p. 4-17,[13] down to 1%. Thus, the revisions make it *more* likely that there will be sufficient funds for site maintenance because a lower assumed rate of return requires a larger initial trust fund to cover estimated future expenses. Moreover, the 1% rate is a "real" rate, meaning that it is a the rate obtained after subtracting inflation. And the 1% rate is a conservative rate in view of the research performed for the Social Security Administration that shows that the rate of return for stocks over the past 200 years has been 7%. *See Social Security Bulletin*, Vol. 63, No. 2, 38 (2000).[14] The Staff's suggested investment rate, in short, has a basis and is not unreasonable.

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[13]NRC regulations governing funding for power reactor decommissioning explicitly allow a 2% annual real rate of return on decommissioning funds set aside in external sinking funds. 10 C.F.R. § 50.75(e)(1)(ii).

[14]*See* http://www.ssa.gov/policy/docs/ssb/v63n2/v63n2p38.pdf

C. NUREG-1757 Did Not Require Review Under The National Environmental Policy Act.

New Jersey claims that the NRC violated the National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321, *et seq.*, when it failed to issue an Environmental Impact Statement ("EIS") for the revised NUREG. Pet. Br. at 50-57.

1. NRC's NEPA regulations contain a categorical exclusion from the requirements to prepare an EIS for:

> Issuance or amendment of guides for the implementation of regulations in this chapter [i.e., 10 C.F.R.], and issuance or amendment of other informational and procedural documents that do not impose any legal requirements.

10 C.F.R. § 51.22(c)(16). New Jersey concedes that the revised NUREG is a guidance document, *i.e.*, an "amendment of [a] guide[] for the implementation of regulations in this chapter," *supra*, and is not a "binding norm." Pet. Br. at 31. Thus, by New Jersey's own admission, the document is covered by a categorical exclusion under NRC's regulations, and NRC was not required to prepare an EIS for it.

2. NRC will conduct an environmental review for each application of the NUREG, which New Jersey concedes. Pet. Br. at 53. Still, New Jersey argues that only conducting environmental reviews of each application of the NUREG

amounts to a "segmentation" of the "program." *Id.*, citing *Sierra Club v. U.S. Forest Service*, 843 F.2d 1190 (9th Cir. 1988). New Jersey claims that the revised NUREG authorizes a "program" to license "facilities all over the country to store long-lived nuclides . . ." Pet. Br. at 55.

But *Sierra Club* and similar cases are inapposite here because there is no "program" that has been segmented. New Jersey's "programmatic EIS" argument presumes that there will be a flood of POL/LTCs. In fact, NUREG-1757 states that POL/LTCs are a "last resort," and few are expected. A227.

In *Sierra Club*, by contrast, the Forest Service let nine specific contracts to cut timber in a single national forest. The Court held that the nine projects were part of a consolidated "whole" which required a comprehensive environmental review. 843 F.2d at 1191-92. Here, the only licensee that is seeking a POL/LTC is Shieldalloy and NRC is not aware of any other licensee actively planning to exercise this option. If there are future applications, they would not be part of a "program," but independent actions. Even if NUREG-1757 receives broader applicability than currently anticipated, there will be time enough for NRC to act. An "agency must have considerable discretion in picking the right moment" to prepare an EIS. *Public Citizen v. NRC*, 940 F.2d at 684.

For the same reason, New Jersey's claim that NRC should provide a "tiered" NEPA analysis is misplaced. *See* Pet. Br. at 55, citing *Nevada v. DOE*, 457 F.3d 78, 91-92 (D.C. Cir. 2006). A "tiered" approach is appropriate where there is a project "with many sub-projects [that] will take many years." *Id.* at 91. Here there is no "project" with "sub-projects" to be separated.

3. In addition, conducting individual, case-by-case, environmental reviews of restricted release sites, including POL/LTC sites, is supported by the Generic Environmental Impact Statement ("GEIS") issued by NRC in conjunction with the LTR. There, NRC found it was impossible to do a generic study of the environmental impacts of sites released for "restricted" use because the institutional controls would have to be specifically targeted to the particular characteristics of each case, *i.e.*, the nature of the nuclides involved and the geology of each site. Thus, the GEIS concluded that the environmental impacts of these cases cannot be analyzed on a generic basis and an independent environmental review should be conducted for each site-specific decommissioning decision. *See* 62 Fed. Reg. at 39,086.

In sum, even if there were a "program," which there is not, the sites at which a POL/LTC would be used are so different that it would be impossible to provide a generic or "programmatic" environmental analysis of them.

D. Gloucester County's Arguments Are Impermissible and Lack Merit.

Gloucester County raises two arguments in its brief: (1) that the NUREG does not require an evaluation of the economic impact of the POL/LTC on the community, Gloucester County ("GC") Brief at 9; and (2) that the NUREG does not require compliance with guidelines in the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6901, *et seq.*, for the siting of new solid and hazardous waste landfills GC Brief at 23.

1. The County is an intervenor in this case and may only raise arguments raised by the Petitioner. *Southwestern Pennsylvania Growth Alliance v. Browner*, 121 F.3d 106, 121 (3d Cir. 1997) (citing cases). New Jersey did not raise either argument raised by the County. Thus, this Court should summarily reject the County's arguments. Moreover, the County's arguments focus exclusively on implementing the revised NUREG at the Shieldalloy facility in Newfield. Thus, they are more appropriate for the NRC's hearing process, not for the threshold review that New Jersey claims to seek here.

2. The County's arguments, in any event, are not well-taken. The County accuses Shieldalloy of creating a "waste landfill" at the Newfield facility. *E.g.*, GC Brief at 9, 18, 25, 26. But while not defined by statute or regulation, the term "waste landfill" is generally used for a facility where materials are brought into the

facility from the outside. The only materials to be present at the Newfield facility are materials that originated there.

The County complains that the NUREG does not require an analysis of the economic impacts of leaving waste in a community for a POL/LTC. GC Brief at 13-22. But that complaint is simply wrong; NUREG-1757 explicitly recommends that licensees address the consequences of changes in land values, aesthetics, and reduction in public opposition in preparing its cost-benefit analysis of each decommissioning option. A314.

Moreover, the County raised the identical claim before the Licensing Board, where it was rejected. *See* LBP-07-05, 65 NRC at 346-47. The County did not appeal that decision to the Commission; thus, it failed to exhaust its administrative remedies. It should not be heard to raise the same argument here.

3. The County argues that NUREG-1757 violates RCRA, 42 U.S.C. § 6901, *et seq*., and associated New Jersey regulations because it does not require the licensee to consider RCRA siting criteria for solid waste landfills. *See* GC Brief at 23. But the NUREG does not advise licensees on compliance with all possible requirements; instead, it provides guidance on possible methods to comply with AEA requirements. Moreover, Congress explicitly provided that RCRA does not apply to NRC-licensed activities. *See* 42 U.S.C. § 6905(a). *See generally U.S. v.*

Commonwealth of Kentucky, 252 F.3d 816, 822-25 (6th Cir.), *cert. denied*, 534 U.S. 973 (2001); *State of Missouri v. Westinghouse*, 487 F.Supp. 2d 1076, 1080 n.2 (E.D. Mo. 2007). NRC has exclusive jurisdiction over radiological materials at the Shieldalloy site and neither the State nor the County have demonstrated that New Jersey's RCRA regulations apply here.

CONCLUSION

For the foregoing reasons, this Court should dismiss the petitions for review for lack of jurisdiction or, alternatively, deny them.

Respectfully submitted,

JOHN C. CRUDEN
Deputy Assistant Attorney General

Kathryn E. Kovacs/CEM
KATHRYN E. KOVACS
Attorney
Appellate Section
Environment and Natural
Resources Division
U.S. Department of Justice
P.O. Box 23795
L'Enfant Plaza Station
Washington, D.C. 20026
(202) 514-4010

KAREN D. CYR
General Counsel

JOHN F. CORDES, JR.
Solicitor

E. LEO SLAGGIE
Deputy Solicitor

CHARLES E. MULLINS
Senior Attorney
Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
301-415-1618

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STATUTORY AND REGULATORY ADDENDUM

42 U.S.C. § 2239(a) and (b)

10 C.F.R. § 20.1401
10 C.F.R. § 20.1402
10 C.F.R. § 20.1403

SECTION 189 of the ATOMIC ENERGY ACT

42 U.S.C. § 2239. Hearings and judicial review

(a)(1)(A)In any proceeding under this chapter, for the granting, suspending, revoking, or amending of any license or construction permit, or application to transfer control, and in any proceeding for the issuance or modification of rules and regulations dealing with the activities of licensees, and in any proceeding for the payment of compensation, an award or royalties under sections 2183, 2187, 2236(c) or 2238 of this title, the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding. The Commission shall hold a hearing after thirty days' notice and publication once in the Federal Register, on each application under section 2133 or 2134(b) of this title for a construction permit for a facility, and on any application under section 2134(c) of this title for a construction permit for a testing facility. In cases where such a construction permit has been issued following the holding of such a hearing, the Commission may, in the absence of a request therefor by any person whose interest may be affected, issue an operating license or an amendment to a construction permit or an amendment to an operating license without a hearing, but upon thirty days' notice and publication once in the Federal Register of its intent to do so. The Commission may dispense with such thirty days' notice and publication with respect to any application for an amendment to a construction permit or an amendment to an operating license upon a determination by the Commission that the amendment involves no significant hazards consideration.

* * * * *

(b) The following Commission actions shall be subject to judicial review in the manner prescribed in chapter 158 of Title 28 and chapter 7 of Title 5:

(1) Any final order entered in any proceeding of the kind specified in subsection (a) of this section.

(2) Any final order allowing or prohibiting a facility to begin operating under a combined construction and operating license.

(3) Any final order establishing by regulation standards to govern the Department of Energy's gaseous diffusion uranium enrichment plants,

including any such facilities leased to a corporation established under the USEC Privatization Act.

(4) Any final determination under section 2297f(c) of this title relating to whether the gaseous diffusion plants, including any such facilities leased to a corporation established under the USEC Privatization Act, are in compliance with the Commission's standards governing the gaseous diffusion plants and all applicable laws.

The License Termination Rule

10 C.F.R. § 20.1401 General provisions and scope.

(a) The criteria in this subpart apply to the decommissioning of facilities licensed under Parts 30, 40, 50, 60, 61, 63, 70, and 72 of this chapter, and release of part of a facility or site for unrestricted use in accordance with § 50.83 of this chapter, as well as other facilities subject to the Commission's jurisdiction under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended. For high-level and low-level waste disposal facilities (10 CFR Parts 60, 61, 63), the criteria apply only to ancillary surface facilities that support radioactive waste disposal activities. The criteria do not apply to uranium and thorium recovery facilities already subject to Appendix A to 10 CFR Part 40 or to uranium solution extraction facilities.

(b) The criteria in this subpart do not apply to sites which:

(1) Have been decommissioned prior to the effective date of the rule in accordance with criteria identified in the Site Decommissioning Management Plan (SDMP) Action Plan of April 16, 1992 (57 FR 13389);

(2) Have previously submitted and received Commission approval on a license termination plan (LTP) or decommissioning plan that is compatible with the SDMP Action Plan criteria; or

(3) Submit a sufficient LTP or decommissioning plan before August 20, 1998 and such LTP or decommissioning plan is approved by the Commission before August 20, 1999 and in accordance with the criteria

identified in the SDMP Action Plan, except that if an EIS is required in the submittal, there will be a provision for day-for-day extension.

(c) After a site has been decommissioned and the license terminated in accordance with the criteria in this subpart, or after part of a facility or site has been released for unrestricted use in accordance with § 50.83 of this chapter and in accordance with the criteria in this subpart, the Commission will require additional cleanup only, if based on new information, it determines that the criteria of this subpart were not met and residual radioactivity remaining at the site could result in significant threat to public health and safety.

(d) When calculating TEDE to the average member of the critical group the licensee shall determine the peak annual TEDE dose expected within the first 1000 years after decommissioning.

10 C.F.R. § 20.1402 Radiological criteria for unrestricted use.

A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA). Determination of the levels which are ALARA must take into account consideration of any detriments, such as deaths from transportation accidents, expected to potentially result from decontamination and waste disposal.

10 C.F.R. 20.1403 Criteria for license termination under restricted conditions.

A site will be considered acceptable for license termination under restricted conditions if:

(a) The licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA. Determination of the levels which are ALARA must take into account consideration of any detriments, such as traffic accidents, expected to potentially result from decontamination and waste disposal;

(b) The licensee has made provisions for legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year;

(c) The licensee has provided sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site. Acceptable financial assurance mechanisms are–

(1) Funds placed into an account segregated from the licensee's assets and outside the licensee's administrative control as described in § 30.35(f)(1) of this chapter;

(2) Surety method, insurance, or other guarantee method as described in § 30.35(f)(2) of this chapter;

(3) A statement of intent in the case of Federal, State, or local Government licensees, as described in § 30.35(f)(4) of this chapter; or

(4) When a government [FN1] entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

(d) The licensee has submitted a decommissioning plan or License Termination Plan (LTP) to the Commission indicating the licensee's intent to decommission in accordance with §§ 30.36(d), 40.42(d), 50.82(a) and (b), 70.38(d), or 72.54 of this chapter, and specifying that the licensee intends to decommission by restricting use of the site. The licensee shall document in the LTP or decommissioning plan how the advice of individuals and institutions in the community who may be affected by the decommissioning has been sought and incorporated, as appropriate, following analysis of that advice.

(1) Licensees proposing to decommission by restricting use of the site shall seek advice from such affected parties regarding the following matters concerning the proposed decommissioning–

(i) Whether provisions for institutional controls proposed by the licensee:

(A) Will provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) TEDE per year;

(B) Will be enforceable; and

(C) Will not impose undue burdens on the local community or other affected parties.

(ii) Whether the licensee has provided sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site;

(2) In seeking advice on the issues identified in § 20.1403(d)(1), the licensee shall provide for:

(i) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning;

(ii) An opportunity for a comprehensive, collective discussion on the

issues by the participants represented; and

(iii) A publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement or disagreement among the participants on the issues; and

(e) Residual radioactivity at the site has been reduced so that if the institutional controls were no longer in effect, there is reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group is as low as reasonably achievable and would not exceed either–

(1) 100 mrem (1 mSv) per year; or

(2) 500 mrem (5 mSv) per year provided that the licensee–

(i) Demonstrates that further reductions in residual radioactivity necessary to comply with the 100 mrem/y (1 mSv/y) value of paragraph (e)(1) of this section are not technically achievable, would be prohibitively expensive, or would result in net public or environmental harm;

(ii) Makes provisions for durable institutional controls;

(iii) Provides sufficient financial assurance to enable a responsible government entity or independent third party, including a governmental custodian of a site, both to carry out periodic rechecks of the site no less frequently than every 5 years to assure that the institutional controls remain in place as necessary to meet the criteria of § 20.1403(b) and to assume and carry out responsibilities for any necessary control and maintenance of those controls. Acceptable financial assurance mechanisms are those in paragraph (c) of this section.

CERTIFICATE OF COMPLIANCE

Counsel for Respondent hereby certifies that the foregoing Brief for the Federal Respondents satisfies the requirements of Rule 32(a)(7) of the federal Rules of Appellate Procedure. The Brief was prepared in proportional Times New Roman font of 14 characters per inch, and, excluding the parts of the brief exempted by Rule 32(a)(7)(iii) of the Federal Rules of Appellate Procedure, contains 13,996 words, according to Corel Wordperfect X3.

Charles E. Mullins
Senior Attorney
U.S. Nuclear Regulatory Commission
Counsel for Federal Respondents

CERTIFICATE OF SERVICE

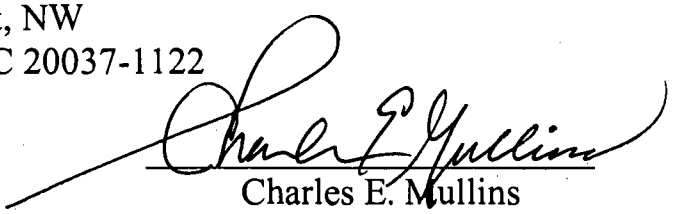
I declare under penalty of perjury that I filed the "Federal Respondents' Brief" in consolidated Case Nos. 06-5140, 07-1559, and 07-1756 by causing ten (10) paper copies to be sent to this Court by overnight delivery service, and an electronic copy in PDF format via electronic mail. I hereby certify that the electronic brief served on this Court has been scanned for viruses using Symantec AntiVirus Program 10.1.5.5010 and is virus-free, and that the text of the electronic brief and the paper briefs are identical.

I also served two paper copies of the brief on the following counsel by overnight delivery service:

Kenneth W. Elwell, Esq.
Department of Law and
Public Safety
Division of Law
25 Market Street, P.O. Box 093
Trenton, New Jersey 08625-0093
(609) 292-1401

Joseph J. McGovern, Esq.
Parker McCay, P.A.
Three Greentree Centre
7001 Lincoln Drive West,
P.O. Box 974
Marlton, New Jersey 08053-0974
(856) 596-8900

Matias F. Travieso-Diaz, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 "N" Street, NW
Washington, DC 20037-1122
(202) 663-8142



Charles E. Mullins
Senior Attorney
U.S. Nuclear Regulatory Commission

Dated: August 27, 2007.

Rec'd 1/6/09

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Department of Environmental Protection
Environmental Regulation
P.O. Box 423
Trenton, New Jersey 08625-0423
Phone (609) 292-2795
Fax (609) 777-1330

JON S. CORZINE
Governor

MARK N. MAURIELLO
Acting Commissioner

December 23, 2008

Hoy Frakes, President
Shieldalloy Metallurgical Corporation
60790 Southgate Rd.
Cambridge, OH 43725-9414

Dear Mr. Frakes:

I would like to thank you and your staff for meeting with us on December 10, 2008. We appreciate being able to have a frank discussion regarding our impending Agreement with the US Nuclear Regulatory Commission (NRC).

To reiterate, the Department is on schedule to sign an Agreement with the NRC by September 30, 2009 (possibly sooner). After the Agreement is signed, the Department will be the licensing authority for your source material license and the NRC will no longer be the responsible agency to approve or deny your proposed decommissioning plan. As such, Shieldalloy Metallurgical Corporation (SMC) will be required to comply with the New Jersey Radiation Protection Code regarding decommissioning at N.J.A.C. 7:28-12. We explained that your current approach to decommissioning will not comply with our regulations and that the slag pile, as currently characterized, would have to be removed. You reiterated that you believe that the current approach is the safest alternative. You also commented that you cannot change your course of action because of your scheduling commitments to the NRC.

We recommended that you make a request to the NRC to put any further work on the engineered barrier design on hold. As we stated at the meeting, we believe that your work on the characterization of the slag pile, characterization of the site and surrounding areas, dose modeling, and investigating alternative disposal options should continue. You stated that business planning necessitated that you continue with the current plan. Putting a hold on certain aspects of your decommissioning plan for nine months seems like a reasonable compromise to us.

While we did not come to a consensus regarding your current or future actions for decommissioning and terminating your license, we agreed that further meetings would be

beneficial as the date of the Agreement approaches. We look forward to our continued discussions.

Sincerely yours,

Nancy Wittenberg
Assistant Commissioner

c: John Hayes, Sr. Project Manager
US Nuclear Regulatory Commission
Materials Decommissioning Branch
Office of Federal and State Materials and Environmental Management Program
Washington, D.C. 20555-0001

David White, Ph.D., HSE Director
Shieldalloy Metallurgical Corporation
14 West Boulevard, PO Box 768
Newfield, NJ 08344-0768

Honorable Frank R. Lautenberg
United States Senator, New Jersey
One Port Center
2 Riverside Drive, Suite 505
Camden, NJ 08101

Honorable Robert Menendez
United States Senator, New Jersey
208 White Horse Pike, Suite 18
Barrington, NJ 08007

Honorable Frank LoBiondo
United States House of Representatives
2nd Congressional District, New Jersey
5914 Main Street
Mays Landing, NJ 08330-4450

Honorable Fred H. Madden
United States Senator, New Jersey
Holly Oak Office Park
129 Johnson Rd, Suite 1
Turnersville, NJ 08012

Honorable Joseph Curcio
Mayor, Newfield Borough
P.O. Box 856
Newfield, NJ 08344

John Hazen, NJDEP Office of Legislative Affairs

AGENDA – Talking Points

Briefing – Final Staff Recommendations
New Jersey Agreement Application
August 13, 2009 – FSME
August 17, 2009 – EDO

Purpose

Briefing – final staff recommendations to the Commission on the New Jersey Agreement Application

Background

Historical:

1. New Jersey submitted it's final application by letter dated October 16, 2008, from Governor Corzine
2. The review team consisted of representatives from FSME/DWMEP and MSSA; RI; OGC; NSIR
3. Review followed procedures in SA-700, "Processing an Agreement," and references therein, such as Management Directives and internal procedures, as well Commission policy statements on criteria -
   a. Criteria for Guidance of States And NRC in Discontinuance of NRC Regulatory Authority and Assumption Therefore by States Through Agreement
4. Based on the team review, no substantial deficiencies were identified

Current:

5. Proposed Agreement was noticed in the *Federal Register* on beginning on May 27, 2009, for four consecutive weeks, as required by the AEA.
   a. Comment period ended June 26, 2009
   b. 6 comment letters received

Discussion

1. SECY paper providing final staff recommendations to the Commission
   a. Addresses public comments, transfer of licenses, actions pending against licensees to be transferred, status of decommissioning sites

   b. **Public Comment** summary – Enclosure 2

      i. 6 public comments
         (1) Support:
            (a) OAS;
            (b) Private citizen activist working on Shieldalloy issues
         (2) No Support
            (a) Shieldalloy

(b) Anonymous citizen who believes NJ gov't is corrupt

(3) Miscellaneous
(a) James Lieberman – wants Agreement to be conditioned such that NJ cannot go back and reopen sites terminated by NRC.
(i) Focus on NRC's 25 mrem standard vs NJ's 15 mrem standard
(ii) NRC is not conditioning the Agreement
(iii) NJ does have authority to revisit sites; regulation in place
1. won't reassess unless the difference is an order of magnitude difference

(b) Merck – supports rationale but not the fee differences

ii. Shieldalloy's comments are extensive

(1) The only major substantial comment and focus of the briefing

(2) Major points - Comment analysis addresses each of the points

(a) NJ didn't follow it's APA requirements properly
(i) APA requirements addressed in NJ legal system

(b) NJ's regulations are not compatible with NRC regulations
(i) Provided many differences in the regulations such as calculation of peak dose time period; dose standard; lack of use of ALARA (saying couldn't go above 100 mrem); no provisions for exceptions/exemptions to the regulations; etc.
(ii) NJ's regulations are compatible with NRC
1. NJ is more restrictive with decommissioning regulations – Compatibility C

(c) NJ wouldn't be found satisfactory on an IMPEP review so shouldn't enter into an Agreement with NJ
(i) Regarding IMPEP review – a program is reviewed on the merits of the program at the time. We will not make a preliminary judgment ahead of time.

(d) NRC should keep the Shieldalloy site even if NJ gets Agreement
(i) NRC has no basis by which to keep the Shieldalloy license.
1. NRC does not keep an individual license within a category of material as a matter of policy
2. Presented to the Commission in policy paper for OK (4/1997 time period)
3. Section 274m. does give authority to the Commission to issue rules, regulations or orders to protect the common defense and security.

(3) Of note, NJ will not allow restricted release for Shieldalloy

(a) Shieldalloy will not be able to meet their requirements and the material will have to be removed off-site

c. SECY addresses the **NARM Waiver** and interim time period – Enclosure 5

i. Expired 8/7/09

ii. Summary of NARM waiver issues

(1) As we do for all transitions, RI will be working closely with NJ regarding licensing actions – usually hold those coming in the last 30 days

(2) RI will work with NJ on any actions that come in - if urgent action needed, RI will do to meet licensee's need

(3) Inspections

(a) RI will be accelerating inspections for those due in October – December

(b) NJ also accelerated inspections for their NARM licensees so none would be due between 8/8/09 and the effective date of the Agreement.

(c) This will maximize staff of NRC to just be addressing events that might occur during this interim time period.

(4) Upon the expiration of the waiver, licensees in NJ will be in NRC jurisdiction and have to meet our regulations and reporting requirements

(a) They will have 6 months to apply for needed amendments and 12 months to apply for a new license

(b) We have not seen a huge rush within the 1st few weeks of phase 1 and 2 waiver terminations

(c) Don't expect that to be different for phase 3 – this last phase of the NARM waiver

(5) Events/Enforcement

(a) While licensees will have to report to NRC, we're considering options to have them report to NJ as well

(b) As always, events/enforcement occurring before the effective date of Agreement stays with the regulatory agency under which the event occurred – to completion

2. Status/Schedule

a. Staff working to an effective date of no later than 9/30/09

i. Anything you can do to facilitate a timely review and SRM being issued no later than 9/16/09 will help greatly.

ii. Need to leave time to have Chairman sign and for the Governor to sign the Agreement

b. Impact if Agreement not in place

i. NARM waiver expired August 7, 2009
(1) About a 7 week period before Agreement goes into effect
(2) Any further delay affects efficiency and impact on licensees, NRC and NJ staff
(3) Trying to avoid transferring license files and then sending them back

ii. Fees
(1) If Agreement cannot go into effect by 9/30/09, NRC licensees will have to pay NRC's 6 month annual fee in addition to whatever fee is assessed by NJ based on the effective date of the Agreement

(2) NRC has a licensing fee only when one applies for new license

iii. Sheildalloy decommissioning plan
(a) If the Agreement is delayed, there is an impact on NRC resources and Shieldalloy resources

(b) DWMEP staff informed us that a revised decommissioning plan expected in August/September 2009 – will take about 6-9 months to review

(c) Shieldalloy has not requested the staff to hold work pending the upcoming Agreement and has specifically told the staff to continue work

c. NRC's FY 2010 budget does not include resources for regulating NJ licensees

d. Status of SMC decommissioning

i. Jack Hayes – the revised DP is due in August

ii. Will have to reconvene the team to start review

iii. SMC has continued to request NRC to continue work on its review

iv. A public meeting is scheduled the week of 9/21/09
(1) Provide update since last meeting 1 year ago
(2) Provide update on status of Agreement
(a) Note: we should, in theory have an SRM before the public meeting and possibly a signed Agreement

v. Note that it is common practice to handle only those licensing actions of a public health and safety nature or urgent need by the licensee – 30 days prior to effective date of Agreement
(1) So for normal byproduct material work, by the end of August, this will kick in

ENCLOSURE 2

STAFF ANALYSIS OF PUBLIC COMMENTS

STAFF ANALYSIS OF PUBLIC COMMENTS

ON THE PROPOSED NEW JERSEY AGREEMENT

Commenter	Affiliation	ADAMs Accession Number
Julia Schmitt, Chair	Organization of Agreement States	ML091680374
Anonymous	No known affiliation	ML091680375
Hoy E. Frakes, Jr	President, Shieldalloy Metallurgical Corporation	ML091700382 and ML091680491
Loretta Williams	No known affiliation	ML091680387
James Lieberman	Regulatory and Nuclear Consultant	ML091810997
Gregory R. Reinhard, MBA, DVM	Merck & Co., Inc.	ML091900370

INTRODUCTION:

U.S. Nuclear Regulatory Commission (NRC) staff received six comment letters in response to a public notice that the Governor of New Jersey has requested to enter into an Agreement with the Commission under Section 274b of the Atomic Energy Act of 1954, as amended. NRC received comments from the Organization of Agreement States (OAS), two members of the public, a regulatory and nuclear consultant, and two NRC licensees from the State of New Jersey (NJ). Two commenters supported the Agreement, two commenters opposed the Agreement and one commenter did not state an opinion. The remaining commenter supported the rationale whereby States can assume regulatory authority; however, was not supportive of the difference in fees between NJ and NRC. A summary of the comments received and NRC's response is provided below.

The agency published the notice in the *Federal Register (FR)* on May 27, 2009; June 3, 2009; June 10, 2009; and June 17, 2009. The notice contained a copy of the proposed Agreement and a summary of NRC staff's draft assessment of the proposed NJ Agreement State program. The *FR* requested comments in four categories: (1) the proposed Agreement, (2) the NRC Staff Assessment of the NJ Agreement State Program, (3) the adequacy of the NJ Agreement State Program, and (4) the adequacy of the NJ Agreement State Program staff.

SUMMARY OF COMMENTS ON THE PROPOSED AGREEMENT

Comments Supporting the Agreement

Summary of Comments

1. The OAS "strongly supports" the Agreement between NRC and the State of NJ. The OAS letter stated that "The OAS is committed to the improvement of radiation regulation nationwide, and to fostering a cooperative and productive partnership among Agreement States, with the U.S. Nuclear Regulatory Commission, and with other Federal, State and Local agencies involved in the regulation of radioactive materials."

2. A member of the public, Loretta Williams, expressed her support for the Agreement between NRC and the State of NJ. Ms. Williams indicated that she has been involved as a member of the public related to the decommissioning of an NRC-licensed facility in her community. She believes that the State's regulatory program will protect the health and welfare of the residents of the community by enforcing a complete cleanup of the radioactive waste, off-site, at a licensed waste facility.

   NRC Staff Response

   The comments support NRC staff's plan to complete the NRC Staff Assessment documenting that the Commission's criteria for entering into an Agreement are satisfied and then to request the Commission's approval of the proposed Agreement with State of NJ.

   No changes were made to the NRC Staff Assessment based on these comments.

Comments Opposing the Agreement

Summary of Comments

1. A member of the public did not approve of the Federal government giving regulatory authority of this Agency to the State of NJ for this radioactive material. This individual preferred that the Federal government keep regulatory authority, commenting that while the Federal government is corrupt, NJ government is more corrupt.

   NRC Staff Response

   This individual did not provide any specific reasons regarding his/her belief that NJ government is corrupt. The individual did not provide any information that caused the staff to reassess the original assessment that the proposed NJ Agreement State Program is adequate to protect public health and safety and compatible with NRC's regulatory program.

   No changes were made to the NRC Staff Assessment based on this comment.

2. Shieldalloy Metallurgical Corporation (SMC) submitted comments opposing the proposed Agreement with the State of NJ. SMC generally commented that NRC should deny NJ's application to become an Agreement State because NJ 's regulatory program fails to meet NRC's compatibility criteria or implementation standards in NRC's Policy Statement, *Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement,* 46 Fed. Reg. 7,540, 7,543 (1981), as amended by 46 Fed. Reg. 36,969 (1981) and 48 Fed. Reg. 33,376 (1983) [Criteria Statement of Policy]. SMC further commented that if NJ became an Agreement State, NRC should retain authority over SMC's facility in Newfield, NJ. NRC addresses SMC's specific comments below.

   A. The NJ Program Fails to Meet the NRC's Compatibility Criteria

   General Comment*:*

   SMC stated it sent NRC its public comments submitted to NJ on July 18, 2008, during the public comment period on the State's proposed regulations. SMC criticized NRC for not referencing or addressing SMC's comments. In these comments, SMC said they pointed out the inconsistency between NJ's regulatory framework and those of NRC. SMC states that the draft NRC Staff Assessment of the NJ program application is incomplete and in part erroneous and must be substantially revised to recognize the incompatibility of the NJ Program with NRC's program.

   NRC Staff Response:

   In reviewing a State's proposed regulations, NRC does not evaluate public comments that a State receives during its public comment period on its proposed regulations. NRC reviews the State's final regulations when it assesses the Agreement State application.

   During the application process, NRC reviews a State's radiological program to ensure that it is compatible with NRC's regulatory program and adequate to protect public health and safety from radiation hazards. NRC staff reviews the State's application in accordance with (1) the Office of Federal and State Materials and Environmental Management Programs

(FSME) Procedure SA-700, "Processing an Agreement," and (2) the Statement of Policy, "Criteria for Guidance of States and NRC in Discontinuance of NRC Authority and Assumption Thereof by States through Agreement," (46 FR 7540, January 21, 1981; 48 FR 33376, July 23, 1983) [Criteria Statement of Policy]. This Criteria Statement of Policy describes the criteria that a State must meet in order to enter into an Agreement with NRC. (SMC specific comments also refer to the criteria described in this document).

NRC reviewed NJ's final regulations using the above criteria and found that the State's regulatory program is adequate to protect public health and safety and compatible with NRC's regulatory program. These findings are documented in the NRC Staff Assessment. NRC disagrees with SMC's comment that "The NRC Staff Assessment is incomplete, in part erroneous, and must be substantially revised."

No changes were made to the NRC Staff Assessment based on this comment.

Specific Comments

1. The Regulations issued by NJDEP are Invalid

SMC stated that NJ regulations are invalid because they were not adopted in accordance with the procedural requirements of NJ's Administrative Procedures Act (APA). N.J.S.A. 52:14B-1 *et seq.* SMC's bases for asserting the regulations are invalid were: (1) NJ failed to conduct a proper Federal Standards Analysis as required by State law; (2) NJ failed to analyze and minimize the adverse economic impacts of its proposal to become an Agreement State as required by NJ's Regulatory Flexibility Act; and (3) NJ's modification of the final rule to apply to "all persons" was a substantial change requiring notice and comment under the State APA.

NRC Staff Response

SMC's comments express its concern that NJ failed to comply with State laws when enacting its regulations. NRC reviews the State's statutory and administrative procedures to assure the fair and impartial administration of regulatory law, which include public participation and procedures for formulation of rules of general applicability (Criterion 23 – Criteria Statement of Policy, page 7543). NRC reviewed NJ's statutory provisions and determined that the State had adequate authority to establish a regulatory program for regulating radioactive materials and enter into an Agreement. In particular, State Statute N.J.S.A. 26:2D-7 provides the New Jersey Department of Environmental Protection (NJDEP) authority for the promulgation of codes, rules or regulations, stating that "the commission shall have the power to formulate, adopt, promulgate, amend and repeal codes, rules and regulations as may be necessary to prohibit and prevent unnecessary radiation in accordance with the provisions of the 'Administrative Procedures Act.'" NRC further reviewed the State's APA and found that NJ has extensive requirements in N.J.S.A. 52:14B-2, B-3, B-4, and B-22, including a public comment process and opportunity for hearing.

NRC's review found that the State's radioactive material program and regulations adequate to protect public health and safety and compatible with NRC's regulatory program. NRC has not received any evidence, such as a State court ruling, to indicate that the proposed regulatory program cannot be implemented. Questions regarding whether a State complied

with State law when promulgating their regulations should be addressed through the State's administrative process.

No changes were made to the NRC Staff Assessment based on this comment.

2. The NJ Program Fails to Satisfy Compatibility Criterion 9 in that it sets Release Criteria that Differ from Those in 10 CFR Part 20

SMC commented that the NJ regulations differ from the radiological criteria for license termination in 10 CFR Part 20 in many significant respects, in violation of Criterion 9. SMC gave several examples where it believes that NJ regulations differ from NRC regulations, such as: (1) the maximum allowable total dose to a member of the public of 15 mrem/year versus 25 mrem/year in NRC's regulations, (2) failure to include implementation of the "as low as reasonably achievable" (ALARA) principle, (3) failure to include provisions for restricted release, (4) allowing calculation of peak dose over 1,000 years, (5) failure to allow for more than 100 mrem total effective dose equivalent under any circumstances, and (6) requiring that the radioactivity releases to ground and surface waters be limited to the levels set by the NJ Ground Water And Surface Water Standards.

NRC Staff Response

NRC reviews State regulatory requirements to ensure they are compatible with the NRC regulatory program and adequate to protect public health and safety. NRC establishes the compatibility level for each NRC regulation and program element according to FSME Procedure SA-200, "Compatibility Categories and Health and Safety Identification for NRC Regulations and Other Program Elements" and reviews Agreement State programs according to the Handbook for NRC Management Directive 5.9, *Adequacy and Compatibility of Agreement State Programs.* A regulation's compatibility designation determines how much flexibility a State has in adopting a specific regulation while maintaining compatibility with NRC's program.

"Statement of Principles and Policy for the Agreement State Program: Policy Statement on Adequacy and Compatibility of Agreement State Programs, Final Policy Statement" (62 FR 46517, 46524-46525, September 3, 1997) (Adequacy and Compatibility Policy Statement) explains that Agreement States have "flexibility in program implementation to accommodate individual State preferences, State legislative direction, and local needs and conditions. …That is, a State would have the flexibility to design its own program, including incorporating more stringent, or similar, requirements provided that the requirements for adequacy are still met and compatibility is maintained, and the more stringent requirements do not preclude or effectively preclude a practice in the national interest without an adequate public health and safety or environmental basis related to radiation protection" (Adequacy and Compatibility Policy Statement, at 46520, column 2).

An Agreement State radiation control program is compatible with the NRC's regulatory program when its "program does not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis" (Adequacy and Compatibility Policy Statement at 46524). NRC developed Compatibility Categories to designate how much flexibility a State would have when adopting a specific regulatory provision. NRC assigns a Compatibility Category to each NRC regulation. The Compatibility Categories vary from requiring the State standards to be essentially identical to NRC standards to program elements not required, or even

prohibited, for State adoption. In particular, Compatibility Category "C" regulations do not require that the State be essentially identical to NRC standards. Compatibility Category "C" regulations allow more flexibility but require the Agreement State program elements to embody the essential objectives of the corresponding NRC program elements.

SMC commented that the NJ program fails to satisfy Criterion 9. While Criterion 9 applies to disposal of low level waste, SMC examples are regulations in the "License Termination Rule (LTR)," in Subpart E of 10 CFR Part 20. The final LTR was noticed in the *FR* on July 21, 1997 (62 FR 39058). The compatibility designation of this rule is addressed in the Statements of Consideration (SOC) for the final rule, in Section F.1, "State and NRC Compatibility," in the comment resolution. NRC originally designated the LTR as a Division 2 Rule. Subsequently, NRC developed the Adequacy and Compatibility Policy Statement and reclassified the LTR as Compatibility Category "C." As previously discussed, the Adequacy and Compatibility Policy Statement explained that Compatibility Category "C" designates program elements "that are important for an Agreement State to have in order to avoid conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nation wide basis. Such Agreement State program elements should embody the essential objectives of the corresponding Commission program elements" (Adequacy and Compatibility Policy Statement at 62 FR 46524, column 3).

NRC assigned the LTR as Compatibility Category "C" because the rule addresses basic principles of radiation safety and regulatory functions that allow a State to establish regulations and dose limits for license termination and decommissioning that provide a sufficient and ample margin of safety and to ensure compliance with the public dose limits of 10 CFR Part 20. The SOC for the LTR also stated that "[T]he States would be required to adopt the regulation but would have significant flexibility in language, and would be allowed to adopt more stringent requirements" (Radiological Criteria for License Termination, Final Rule 62 FR 39058, 39080 (July 21, 1997)).

Some of NJ's license termination regulations are more stringent than NRC regulatory requirements. Using the above criteria, NRC's assessment of NJ regulations found the State's license termination and decommissioning regulations compatible since they meet the essential objectives of the NRC program elements and provide a level of protection of public health and safety that is at least equivalent to that afforded by NRC's requirements.

No changes were made to the NRC Staff Assessment based on this comment.

3. The NJ Program fails to Satisfy Compatibility Criterion 12

SMC commented that NJ regulations fail to meet Criterion 12 because the regulations do not provide the State the ability to grant necessary exceptions to the regulatory standards that do not jeopardize health and safety in individual cases. SMC provided four examples in which it states that NJ's regulations fail to allow necessary exemptions to comply with Criterion 12: (1) no consideration of alternate remediation standards that would increase the allowed incremental dose criterion of 15 mrem/yr, (2) no consideration of alternate remediation standards if they would result in doses exceeding 100 mrem/yr for an "all controls fail" scenario, (3) NJ regulations require that the calculations of doses from radiological decommissioning use only tables of parameters based on specific exposure scenarios, and (4) NJ regulations allow no credit for any engineering controls when determining if the 100 mrem annual dose is exceeded. SMC stated that NJ regulations

provide no justification for requiring stricter remediation standards than those provided by NRC, or for not allowing licensees to apply the Federal standards when appropriate. SMC also commented that NJ's regulations conflict with NRC guidance. For these reasons, SMC believes that NJ regulations are incompatible with the NRC regulatory framework.

NRC Staff Response

The State regulation, N.J.A.C. 7:28-2.8, allows the Department, upon application and a showing of hardship or compelling need, with the approval of the NJDEP Commission, to grant an exemption from any requirement of the rules should it determine that such exemption will not result in any exposure to radiation in excess of the limits permitted by N.J.A.C. 7:28-6, "Standards for protection against radiation." This regulation fulfills Criterion 12.

SMC's examples are based on the State's regulations that are compatible with NRC's LTR. As discussed in the previous response, these regulations are Compatibility Category "C," and this allows States flexibility in meeting the essential objectives of these NRC program elements. NRC's assessment of NJ regulations found the State's license termination and decommissioning regulations compatible by meeting the essential objectives of the NRC program elements. NJ regulations also provide a level of protection of public health and safety that is at least equivalent to that afforded by NRC requirements.

SMC also commented that NJ's regulations are in conflict with NRC guidance. NRC guidance is not a regulatory requirement and is not legally binding. NRC develops guidance documents to assist licensees in meeting regulatory requirements. NRC does not require State regulations to be consistent with NRC guidance documents.

No changes were made to the NRC Staff Assessment based on this comment.

4. The NJ Program Fails to Satisfy Compatibility Criterion 17

SMC commented that the NJ Radiological Program fails to meet NRC's Criterion 17 which requires licensees to provide access to inspectors. SMC states that the NJ statute, in the Radiation Protection Act, N.J.S.A. 26:2D-1 *et seq.*, does not authorize inspections without either consent of the licensee or an order and concludes that the NJ regulation purporting to authorize warrantless inspections, in 7:28-4.14, lacks an adequate legal basis in NJ law.

NRC Staff Response

Criterion 17 requires that a State have authority such that licensees shall be under obligation by law to provide access to inspectors. NRC reviewed NJ's regulations and legislative authority to ensure this authority was in place. NJDEP has general authority to "enter and inspect a building or place for the purpose of investigating an actual or suspected source of pollution of the environment and ascertaining compliance and non-compliance with any codes, rules, or regulations of the Department" (N.J.S.A. 13:1D-9(d)). In addition, the Radiation Protection Act has a similar provision to allow the NJDEP inspectors to: "Enter and inspect any building or place for the purpose of investigating an actual or suspected source of radiation and ascertaining compliance with this act or any rule, regulation or order promulgated or issued pursuant thereto and inspect radiation sources, their shielding and immediate surroundings, and records concerning their operation for the determination of any possible radiation hazard" (N.J.S.A. 26-2D-9(j)).

Based on these legislative provisions, NRC concluded that NJ has adequate legislative authority and can implement regulations to meet the essential objectives of Criterion 17 that licensees are under obligation by law to provide access to inspectors.

No changes were made to the NRC Staff Assessment based on this comment.

5. The NJ Program Fails to Satisfy Compatibility Criterion 23

SMC commented that many of NJ's regulations are aimed specifically and uniquely at SMC's Newfield site, and provided several examples to support its comment. SMC stated that NJ acknowledged in its response to SMC comments on the State's proposed regulations that the stand-alone limits on radioactive releases to the surface waters affect only one facility in the State. SMC believes that this acknowledgment, coupled with the more stringent license termination provisions, demonstrates that NJ's regulations qualify as "special legislation" because it appears to apply only to the Newfield site. SMC claims the regulations are to prevent SMC from disposing of the licensed materials on site for license termination and decommissioning. SMC comments that the State violated the NJ State Constitution, art. IV § 7, ¶ 7, which provides that "[n]o general law shall embrace any provision of a private, special or local character," See *also, Phillips v. Curiale, 128 N.J. 608, 627 (1992).* For these reasons, SMC concludes the NJ Program fails to meet Criterion 23 for fair and impartial administration of regulatory law and particularly does not formulate "rules of general applicability" but its decommissioning rules are, instead, single-purpose legislation aimed exclusively at SMC.

NRC Staff Response

Criterion 23 is related to State practices for assuring the fair and impartial administration of regulatory law, including the provision for public participation where appropriate. The specific requirements under Criterion 23 are that the State incorporates procedures for: (1) formulation of rules of general applicability; (2) approving or denying applications for licenses or authorization to possess and use radioactive materials; and (3) taking disciplinary actions against licensees.

SMC's comments express their concern that NJ fails to meet Criterion 23 by enacting single-purpose legislation aimed exclusively at SMC. Agreement States must have a regulatory program in place that will cover all types of uses of the radioactive material or activities that a State assumes regulatory authority over in their Agreement. NRC requires the States to have this regulatory program in place even if there is only one licensee in the State currently licensed for a specific radioactive material or activity. The State regulations would apply to any material licensee that submits a request for license termination and subsequently begins decommissioning of its site. NRC's review found the State's radioactive material program and regulations adequate to protect public health and safety and compatible with NRC's regulatory program. NRC has not received any evidence, such as a State court rule, to indicate that NJ's regulatory program cannot be implemented fairly and impartially. Questions regarding whether a State complied with State law when promulgating their regulations should be addressed through the State's administrative process.

Based on NRC's review of NJ legislative authority and regulation, NRC concluded that NJ has adequate legislative authority for assuring the fair and impartial application of regulatory law.

No changes were made to the NRC Staff Assessment based on this comment.

6. The NJ Program Fails to Satisfy Criterion 25

SMC commented that the NJ program fails to satisfy NRC Criterion 25 in that NJ has not sought to make "appropriate arrangements" with NRC to ensure there will be no interference with the processing of license applications by reason of the transfer. SMC stated that they filed a proposed decommissioning plan which is currently under review by NRC, and claims that instead of ensuring the smooth processing of the decommissioning plan, NJ has opposed it at every opportunity. SMC examples of NJ's interference include: (1) the State's requesting a hearing, and raising numerous contentions against approval of the SMC decommissioning plan at the Newfield site; (2) NJ's challenging in court NRC's decommissioning guidance in NUREG-1757 ("Consolidated Decommissioning Guidance"); and (3) NJ filing a petition for rulemaking with NRC to rescind the NRC guidance document.

NRC Staff Response

Criterion 25 addresses the transition between NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer. The intent of this criterion is to ensure that licensees can continue to operate without interference with or interruption of licensed activities after the effective date of the Agreement.

NRC's review confirmed that State Statute N.J.S.A. 26:2D-9(k) contains a provision that provides for recognition of existing NRC and Agreement State licenses. NJDEP BER Procedure 3.08, "License Transition from NRC to New Jersey," addresses the transfer of NRC licenses to the State. Upon completion of the Agreement, all active NRC licenses issued to facilities in NJ will be recognized as NJDEP licenses. This will ensure a smooth transition in authority from NRC to NJ so that licensees can continue to operate without interference with or interruption of licensed activities. NJ will continue any licensing actions that are in progress at the time of the Agreement and make the final decision on all pending licensing actions. Furthermore, since NRC will be relinquishing its regulatory authority over the radioactive materials covered by the NJ Agreement, NRC would not have regulatory authority to continue processing licensing actions after the Agreement goes into effect.

NRC recognizes that NJ has taken several actions to challenge SMC's proposed decommissioning plan and NRC's decommissioning guidance document. NRC regulations at 10 CFR Part 2 provide for the opportunity for hearings on licensing actions and allow petitions for rulemaking. As such, NJ is entitled to take these actions. NJ's individual actions while SMC is under NRC regulatory authority have no bearing on whether NJ satisfies Criterion 25. Based on NRC review of NJ's statutory authority, regulations, and BER Procedure 3.08, NRC concluded that NJ has adequate authority and processes to ensure that there will be no interference with, or interruption of, licensed activities or the processing of licensed applications because of the transfer of regulatory authority.

No changes were made to the NRC Staff Assessment based on this comment.

B. The New Jersey Radiation Protection Program is not Satisfactory Under the NRC Implementation Standards

SMC commented that the NJ program will not be found to be "satisfactory" in subsequent periodic reviews of the State program. SMC commented that NRC would not find the NJ program "satisfactory" under the NRC Integrated Materials Performance Evaluation Program (IMPEP) evaluation criteria because: (1) the numerous existing inconsistencies between NJ's regulations and NRC's; (2) NJ's regulations being applicable to "all persons" would create duplication with NRC regulations because it would cover persons remaining licensed by NRC; (3) NJ's regulations would supersede NRC's decommissioning dose limits for NRC reactor licensees; and (4) NJ lacks statutory authority for all elements of its source material program, giving the example of a difference between "radioactive materials," as defined in NRC's regulations, and "sources of radiation" that the NJ statute authorizes the NJDEP to regulate. SMC believes NRC's definition includes additional safety aspects related to source material that are not covered under the NJ statute.

SMC also commented that while considering a State program against the IMPEP standards prior to entering into an agreement is a discretionary adjunct to the evaluation process, there should be no obvious issues at the time the Agreement is implemented that would be found to lead to program unacceptability when NRC performs its first inspection. Such obvious issues are well in evidence in the NJ program.

NRC Staff Response

SMC refers to NRC's IMPEP evaluation criteria in Management Directive 5.6, "Integrated Materials Performance Evaluation Program." Under IMPEP, NRC verifies that Agreement State programs continue to be adequate to protect public health and safety and compatible with NRC's program. SMC's comment is that NJ's existing regulations are not compatible with the NRC regulatory framework. Compatibility of regulations and the specific compatibility of NJ's regulations were discussed in detail in the response to SMC comment A.2., under Specific Comments. Again, NRC has determined that NJ's regulations are adequate to protect public health and safety and compatible with NRC's regulatory program.

SMC also commented that the NJ regulations applying to "all persons" will be duplicative because it will include NRC licensees. Section 274 of the Atomic Energy Act of 1954, as amended, (AEA) only allows States to assume regulatory authority over radioactive materials or activities specified in their Agreement. Section 274(c)(1) of the AEA also requires NRC to retain regulatory authority over specified activities that include nuclear power reactors. The letter and final Application for Agreement submitted by the Governor of New Jersey specifically states the categories of materials and specific authorities that NJ wishes to regulate. Furthermore, N.J.S.A. 26:2D-91 provides authority for Agreements with Federal government and assumption of regulatory authority by the State, to regulate sources of radiation. NJ regulations, in N.J.A.C. 7:28-6.1(b), specifically states that "The Department does not regulate nuclear reactors…Insofar as the incorporated rules refer to those facilities and/or materials previously referenced, those references are not incorporated nor does any cross references include those facilities and/or materials." These provisions clarify that NJ's use of the phrase "all persons" is not duplicative because NJ lacks regulatory authority over NRC licensees. The State phrase "all persons" can only refer to persons under NJ regulatory authority.

As to the differences in definitions that SMC references, States can regulate non-AEA radioactive material. Examples of these radiation/radioactive materials include x-ray machines and diffuse naturally-occurring radioactive material. A State's definitions for radioactive material covered under the State program may be different than NRC regulatory definitions as a result of this broader regulatory authority.

No changes were made to the NRC Staff Assessment based on this comment.

C. Even if NJ becomes an Agreement State, the NRC Can and Should Retain Jurisdiction Over the Newfield Site and its Decommissioning

SMC commented that should NRC decide to enter into the proposed Agreement with NJ, NRC has the power to exclude the Newfield site from the transfer of authority to the State. SMC stated that "This is explicitly contemplated by the policy embodied in Criterion 25, which directs that appropriate arrangements will be made by NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer." SMC also indicated that exclusion of the Newfield site from the transfer of authority to NJ is also consistent with notions of fundamental fairness and efficiency and is consistent with an NRC Appeal Board decision regarding Kerr McGee's West Chicago site in Illinois (*Kerr-McGee Chemical Corporation* (West Chicago Rare Earths Facility), ALAB-944, 33 N.R.C. 81, 101-02 (1991), *vacated as moot,* CLI-96-2, 43 NRC 13 (1996)).

NRC Staff Response

Upon the effective date of a State Agreement authorized under Section 274 of the AEA, NRC relinquishes regulatory authority and the Agreement State assumes regulatory authority over the radioactive materials and activities specified in the Agreement. The legislative history for this Statutory provision specifically states that Congress did not intend to allow concurrent regulatory authority over licensees for public health and safety. If the NJ Agreement is approved by the Commission, upon the effective date of the Agreement, all NRC licensees within the categories of materials for which the State requested authority will transfer to the State.

Section 274m. of the AEA allows for NRC to retain authority based on common defense and security; NRC has used this authority to implement security regulatory requirements for certain categories of radioactive material licensees and retain regulatory authority over conversion facilities in Agreement States. However, the SMC site does not raise these common defense and security concerns.

The *Kerr-McGee* case SMC cited does involve a complex decommissioning site that was affected by the transition of a NRC license to a new Agreement State. However the case does not have precedence in this matter. The Commission terminated the Kerr-McGee proceeding as moot and vacated the previous Licensing and Appeals Boards' decisions after the parties reached a settlement to dispose of the mill tailings material off-site. In vacating the decisions, the Commission eliminated as precedent all three underlying decisions in the proceedings and specifically stated that:

> In these circumstances, and because these unreviewed Board decisions involve complex questions and vigorously disputed interpretations of agency provisions for disposal of byproduct material, the Commission as a policy matter chooses to

> vacate and thereby eliminate as precedent all three underlying decisions in this proceeding. This will permit any similar questions that may come up to be considered anew, without the binding influence of an apparently controversial Appeal Board decision that the Commission has not had the occasion to review.
>
> By vacating the decisions, the Commission does not intimate any opinion on their soundness. Without engaging in a full inquiry into the merits—which no party any longer requests, and the Commission sees no compelling reason to undertake on its own—the Commission cannot properly evaluate the analyses of the Licensing and Appeal Boards (*In the Matter of Kerr-McGee Chemical Corporation*, CLI-96-2, 43 NRC 13 (1996)).

Please see the response to comment A.6, above, for a discussion of Criterion 25.

No changes were made to the NRC Staff Assessment based on this comment.

Miscellaneous Comments

Summary of Comments

1. A regulatory and nuclear consultant, Jim Lieberman, submitted a comment as to whether the State of NJ, upon approval of the Agreement, will honor past NRC license terminations at the 25 mrem per year standard without requiring terminated NRC licensees to conduct further remediation to meet the lower standards under NJ regulations. Mr. Lieberman suggested that NRC condition the Agreement giving full credit to past NRC license terminations unless there was a significant threat to public health and safety.

   NRC Staff Response

   The NJ regulations, N.J.A.C. 7:28-12.4(d), do not allow the imposition of new standards on already approved decommissioning/remediation plans due to a revision to established remediation standards unless the difference between the two standards differs by an order of magnitude. Given that the remediation standard in NJ regulations (15 mrem per year) and NRC regulations (25 mrem per year) do not differ by an order of magnitude, this regulation does not appear to give NJ a basis to revisit prior NRC license terminations under this regulation. However, NJ does have the authority to take appropriate regulatory action if the State determines there is a significant threat to public health and safety at a decommissioned site.

   No changes were made to the NRC Staff Assessment or Agreement based on this comment.

2. Gregory R. Reinhard, MBA, DVM, Merck & Co., Inc. commented that the State fees that will be charged to NJ licensees are exorbitant at “additional use sites.” Merck supports the rationale whereby states can assume regulatory authority from NRC but feels that the significant increase in fees for “additional use sites” are not justified.

   NRC Staff Response

   In reviewing a State’s request to enter into an Agreement, NRC evaluates the proposed program to ensure that the State has the funding and staffing levels to manage an

Agreement State program. However, the State's radioactive material licensing fees are not a matter of adequacy and compatibility. The State establishes its own methods of funding, and decides the dollar amount of fees charged to licensees.

No changes were made to the NRC Staff Assessment based on this comment.

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[FR Doc. Z9–23375 Filed 10–7–09; 8:45 am]
BILLING CODE 1301–00–D

DEPARTMENT OF JUSTICE

Federal Bureau of Investigation Training Division

[OMB Number 1110–NEW]

FBI National Academy Level I Evaluation Proposed Collection, Comments Requested

ACTION: 60–Day Notice of Information Collection Under Review: Approval of a New Collection.

FBI National Academy Level 1 Evaluation: Student Course Questionnaire.

FBI National Academy: General Remarks Questionnaire.

The Department of Justice (DOJ), Federal Bureau of Investigation (FBI), Training Division's Office of Technology, Research, and Curriculum Development (OTRCD) will be submitting the following information collection request to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act of 1995. The proposed information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for 60 days until December 7, 2009. This process is conducted in accordance with 5 CFR 1320.10.

If you have comments (especially on the estimated public burden or associated response time), suggestions, or need a copy of the proposed information collection instrument with instructions or additional information, please contact *Candace Matthews, Evaluation Program Manager, Federal Bureau of Investigation, Training Division, Curriculum Development and Evaluation Unit, FBI Academy, Quantico, Virginia 22135 or facsimile at (703) 632–3111.*

Written comments and suggestions from the public and affected agencies concerning the proposed collection of information are encouraged. Your comments should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency/component, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agency's/component's estimate of the burden of the proposed collection of the information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.*, permitting electronic submission of responses.

Overview of this information:

1. *Type of Information Collection:* Approval of a New Collection.

2. *Title of the Forms:*

FBI National Academy Level 1 Evaluation: Student Course Questionnaire.

FBI National Academy: General Remarks Questionnaire.

3. *Agency Form Number, if any, and the applicable component of the department sponsoring the collection:*

Form Number: 1110–XXXX.

Sponsor: Training Division of the Federal Bureau of Investigation (FBI), Department of Justice (DOJ).

4. *Affected Public who will be asked or required to respond, as well as a brief abstract:*

Primary: FBI National Academy students that represent State and local police and sheriffs' departments, military police organizations, and Federal law enforcement agencies from the United States and over 150 foreign nations.

Brief Abstract: This collection is requested by FBI National Academy. These surveys have been developed to measure the effectiveness of services that the FBI National Academy provides. We will utilize the students' comments to improve upon the current curriculum.

5. *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:*

Approximately 1,020 FBI National Academy students per year will respond to two types of questionnaires. (1) FBI National Academy Level 1 Evaluation: Student Course Questionnaire and (2) FBI National Academy: General Remarks Questionnaire. It is predicted that we will receive a 75% respond rate for both surveys. Each student will respond to approximately six to seven Student Course Questionnaires—one for each class they have completed. The average time for reading the directions to each questionnaire is estimated to be 2 minutes; the time to complete each questionnaire is estimated to be approximately 20 minutes. Thus the total time to complete the Student Course Questionnaire is 22 minutes.

For the FBI National Academy: General Remarks Questionnaire, students will respond to one questionnaire. The average time for reading the directions to this questionnaire is estimated to be 2 minutes; the time to complete each questionnaire is estimated to be approximately 10 minutes. Thus the total time to complete the General Remarks Questionnaire is 12 minutes. The total hour burden for both surveys is 2,822 hours.

6. *An estimate of the total public burden (in hours) associated with the collection:*

The average hour burden for completing all the surveys combined is 2,822 hours.

If additional information is required, contact: Ms. Lynn Bryant, Department Clearance Officer, United States Department of Justice, Policy and Planning Staff, Justice Management Division, Suite 1600, Patrick Henry Building, 601 D Street, NW., Washington, DC 20530.

Dated: October 5, 2009.

Lynn Bryant,

Department Clearance Officer, PRA, United States Department of Justice.

[FR Doc. E9–24307 Filed 10–7–09; 8:45 am]
BILLING CODE 4410–02–P

NUCLEAR REGULATORY COMMISSION

[NRC–2009–0142]

State of New Jersey: Discontinuance of Certain Commission Regulatory Authority Within the State; Notice of Agreement Between the Nuclear Regulatory Commission and the State of New Jersey

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of Agreement between the U.S. Nuclear Regulatory Commission and the State of New Jersey.

SUMMARY: This notice is announcing that on September 2, 2009, Gregory B. Jaczko, Chairman of the U.S. Nuclear Regulatory Commission (NRC or Commission), and on September 23, 2009, Governor Jon S. Corzine, of the State of New Jersey, signed an Agreement as authorized by Section 274b of the Atomic Energy Act of 1954, as amended (the Act). The Agreement provides for the Commission to discontinue its regulatory authority and for New Jersey to assume regulatory authority over the possession and use of byproduct material as defined in

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Sections 11e.(1), 11e.(3), and 11e.(4) of the Act, source material, special nuclear materials (in quantities not sufficient to form a critical mass), and the regulation of land disposal of byproduct, source, or special nuclear material waste received from other persons. Under the Agreement, a person in New Jersey possessing these materials is exempt from certain Commission regulations. The exemptions have been previously published in the **Federal Register** (FR) and are codified in the Commission's regulations as 10 CFR part 150. The Agreement is published here as required by Section 274e of the Act.

DATES: The effective date of the Agreement is September 30, 2009.

ADDRESSES: You can access publicly available documents, including public comments related to this notice using the following methods:

NRC's Public Document Room (PDR): The public may examine and have copied for a fee publicly available documents at the NRC's PDR, Public File Area O1 F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland.

NRC's Agencywide Documents Access and Management System (ADAMS): Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/adams.html.* From this page, the public can gain entry into ADAMS, which provides text and image files of NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1–800–397–4209, 301–415–4737, or by e-mail to *pdr.resource@nrc.gov.* The ADAMS Accession numbers for the request for an Agreement by the Governor of New Jersey, including all information and documentation submitted in support of the request, and the NRC Draft Staff Assessment are: ML090510713, ML090510708, ML090510709, ML090510710, ML090510711, ML090510712, ML090770116, and ML091400097.

FOR FURTHER INFORMATION CONTACT: Torre Taylor, Division of Materials Safety and State Agreements, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001. Telephone (301) 415–7900; e-mail: *torre.taylor@nrc.gov.*

SUPPLEMENTARY INFORMATION: The NRC published the draft Agreement in the **Federal Register** for comment once each week for 4 consecutive weeks on May 27, 2009 (74 FR 25283), June 3, 2009 (74 FR 26739), June 10, 2009 (74 FR 27572), and June 17, 2009 (74 FR 28728), as required by the Act. The comment period ended on June 26, 2009. The Commission received six comment letters—two supporting the Agreement, two opposed, one that supported the rationale of States assuming regulatory authority but not the fee differences that will occur, and one general comment that did not express support or opposition. The comments did not affect the NRC staff's assessment, which finds that the New Jersey Agreement State program is adequate to protect public health and safety and compatible with the NRC's program. The proposed New Jersey Agreement is consistent with Commission policy and thus meets the criteria for an Agreement with the Commission.

After considering the request for an Agreement by the Governor of New Jersey, the supporting documentation submitted with the request for an Agreement, and its interactions with the staff of the New Jersey Department of Environmental Protection, the NRC staff completed an assessment of the New Jersey program. The agency made a copy of the staff assessment available in the NRC's Public Document Room (PDR) and electronically on NRC's Web site. Based on the staff's assessment, the Commission determined on September 2, 2009, that the proposed New Jersey program for control of radiation hazards is adequate to protect public health and safety, and compatible with the Commission's program.

Dated at Rockville, Maryland, this 2nd day of October 2009.

For the Nuclear Regulatory Commission.

J. Samuel Walker,

Acting Secretary of the Commission.

An Agreement Between the United States Nuclear Regulatory Commission and the State of New Jersey for the Discontinuance of Certain Commission Regulatory Authority and Responsibility Within the State Pursuant to Section 274 of the Atomic Energy Act of 1954, as Amended

Whereas, The United States Nuclear Regulatory Commission (the Commission) is authorized under Section 274 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 *et seq.* (hereinafter referred to as the Act), to enter into Agreements with the Governor of any State/Commonwealth providing for discontinuance of the regulatory authority of the Commission within the State/Commonwealth under Chapters 6, 7, and 8, and Section 161 of the Act with respect to byproduct materials as defined in Sections 11e.(1), (2), (3), and (4) of the Act, source materials, and special nuclear materials in quantities not sufficient to form a critical mass; and,

Whereas, The Governor of the State of New Jersey is authorized under The Radiation Protection Act, N.J.S.A. 26:2D–1, to enter into this Agreement with the Commission; and,

Whereas, The Governor of the State of New Jersey certified on October 16, 2008, that the State of New Jersey (the State) has a program for the control of radiation hazards adequate to protect public health and safety with respect to the materials within the State covered by this Agreement and that the State desires to assume regulatory responsibility for such materials; and,

Whereas, The Commission found on September 2, 2009, that the program of the State for the regulation of the materials covered by this Agreement is compatible with the Commission's program for the regulation of such materials and is adequate to protect public health and safety; and,

Whereas, The State and the Commission recognize the desirability and importance of cooperation between the Commission and the State in the formulation of standards for protection against hazards of radiation and in assuring that State and Commission programs for protection against hazards of radiation will be coordinated and compatible; and,

Whereas, The Commission and the State recognize the desirability of the reciprocal recognition of licenses, and of the granting of limited exemptions from licensing of those materials subject to this Agreement; and,

Whereas, This Agreement is entered into pursuant to the provisions of the Act;

Now, therefore, It is hereby agreed between the Commission and the Governor of the State acting on behalf of the State as follows:

Article I

Subject to the exceptions provided in Articles II, IV, and V, the Commission shall discontinue, as of the effective date of this Agreement, the regulatory authority of the Commission in the State under Chapters 6, 7, and 8, and Section 161 of the Act with respect to the following materials:

1. Byproduct materials as defined in Section 11e.(1) of the Act;
2. Byproduct materials as defined in Section 11e.(3) of the Act;
3. Byproduct materials as defined in Section 11e.(4) of the Act;
4. Source materials;
5. Special nuclear materials in quantities not sufficient to form a critical mass; and
6. The regulation of the land disposal of byproduct, source, or special nuclear waste materials received from other persons.

Article II

This Agreement does not provide for discontinuance of any authority and the Commission shall retain authority and responsibility with respect to:

1. The regulation of the construction and operation of any production or utilization facility or any uranium enrichment facility;
2. The regulation of the export from or import into the United States of byproduct, source, or special nuclear material, or of any production or utilization facility;
3. The regulation of the disposal into the ocean or sea of byproduct, source, or special nuclear materials waste as defined in the regulations or orders of the Commission;

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4. The regulation of the disposal of such other byproduct, source, or special nuclear materials waste as the Commission from time to time determines by regulation or order should, because of the hazards or potential hazards thereof, not be disposed without a license from the Commission;

5. The evaluation of radiation safety information on sealed sources or devices containing byproduct, source, or special nuclear materials and the registration of the sealed sources or devices for distribution, as provided for in regulations or orders of the Commission;

6. The regulation of byproduct material as defined in Section 11e.(2) of the Act.

Article III

With the exception of those activities identified in Article II.1 through 4, this Agreement may be amended, upon application by the State and approval by the Commission, to include one or more of the additional activities specified in Article II, whereby the State may then exert regulatory authority and responsibility with respect to those activities.

Article IV

Notwithstanding this Agreement, the Commission may from time to time by rule, regulation, or order, require that the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source, byproduct, or special nuclear material shall not transfer possession or control of such product except pursuant to a license or an exemption from licensing issued by the Commission.

Article V

This Agreement shall not affect the authority of the Commission under Subsection 161b or 161i of the Act to issue rules, regulations, or orders to protect the common defense and security, to protect restricted data, or to guard against the loss or diversion of special nuclear material.

Article VI

The Commission will cooperate with the State and other Agreement States in the formulation of standards and regulatory programs of the State and the Commission for protection against hazards of radiation and to assure that Commission and State programs for protection against hazards of radiation will be coordinated and compatible.

The State agrees to cooperate with the Commission and other Agreement States in the formulation of standards and regulatory programs of the State and the Commission for protection against hazards of radiation and to assure that the State's program will continue to be compatible with the program of the Commission for the regulation of materials covered by this Agreement.

The State and the Commission agree to keep each other informed of proposed changes in their respective rules and regulations, and to provide each other the opportunity for early and substantive contribution to the proposed changes.

The State and the Commission agree to keep each other informed of events, accidents, and licensee performance that may have generic implication or otherwise be of regulatory interest.

Article VII

The Commission and the State agree that it is desirable to provide reciprocal recognition of licenses for the materials listed in Article I licensed by the other party or by any other Agreement State.

Accordingly, the Commission and the State agree to develop appropriate rules, regulations, and procedures by which such reciprocity will be accorded.

Article VIII

The Commission, upon its own initiative after reasonable notice and opportunity for hearing to the State, or upon request of the Governor of the State, may terminate or suspend all or part of this Agreement and reassert the licensing and regulatory authority vested in it under the Act if the Commission finds that (1) such termination or suspension is required to protect public health and safety, or (2) the State has not complied with one or more of the requirements of Section 274 of the Act.

The Commission may also, pursuant to Section 274j of the Act, temporarily suspend all or part of this Agreement if, in the judgment of the Commission, an emergency situation exists requiring immediate action to protect public health and safety and the State has failed to take necessary steps. The Commission shall periodically review actions taken by the State under this Agreement to ensure compliance with Section 274 of the Act which requires a State program to be adequate to protect public health and safety with respect to the materials covered by this Agreement and to be compatible with the Commission's program.

Article IX

This Agreement shall become effective on September 30, 2009, and shall remain in effect unless and until such time as it is terminated pursuant to Article VIII.

Done at Rockville, Maryland, in triplicate, this 8th day of September, 2009.

FOR THE UNITED STATES NUCLEAR REGULATORY COMMISSION

/RA/

Gregory B. Jaczko, Chairman.

Done at Trenton, New Jersey, in triplicate, this 23rd day of September, 2009.

FOR THE STATE OF NEW JERSEY

/RA/

Jon S. Corzine, Governor.

[FR Doc. E9–24281 Filed 10–7–09; 8:45 am]

BILLING CODE 7590–01–P

RAILROAD RETIREMENT BOARD

Sunshine Act; Notice of Public Meeting

Notice is hereby given that the Railroad Retirement Board will hold a meeting on October 14, 2009, 10 a.m. at the Board's meeting room on the 8th floor of its headquarters building, 844 North Rush Street, Chicago, Illinois, 60611. The agenda for this meeting follows:

(1) Executive Committee Reports

The entire meeting will be open to the public. The person to contact for more information is Beatrice Ezerski, Secretary to the Board, Phone No. 312–751–4920.

Dated: October 5, 2009.

Beatrice Ezerski,

Secretary to the Board.

[FR Doc. E9–24372 Filed 10–6–09; 11:15 am]

BILLING CODE 7905–01–P

RECOVERY ACCOUNTABILITY AND TRANSPARENCY BOARD

Proposed Information Collection Activities

ACTION: Notice and request for comments.

SUMMARY: The Recovery Accountability and Transparency Board (Board) invites comments on the proposed information collection request as required by the Paperwork Reduction Act of 1995.

DATES: Interested persons are invited to submit comments on or before December 7, 2009.

ADDRESSES: Send all comments to Jennifer Dure, Office of General Counsel, Recovery Accountability and Transparency Board, 1717 Pennsylvania Avenue, NW., Suite 700, Washington, DC 20006.

SUPPLEMENTARY INFORMATION: The Paperwork Reduction Act of 1995 (PRA), Public Law 104–13, section 2, 109 Stat. 163 (1995) (codified as revised at 44 U.S.C. 3501–3520), and its implementing regulations, 5 CFR Part 1320, require Federal agencies to provide 60 days' notice to the public for comment on information collection activities. Specifically, the Board invites interested respondents to comment on the following summary of proposed information collection activities regarding (i) whether the information collection activities are necessary for the Board to properly execute its functions; (ii) the accuracy of the Board's estimates of the burden of the information collection activities; (iii) ways for the Board to enhance the quality, utility, and clarity of the information being collected; and (iv) ways for the Board to minimize the burden of information collection activities on the public. The Office of Management and Budget (OMB) has approved, on an emergency basis, this collection of information.

HeinOnline -- 74 Fed. Reg. 51884 2009

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Enviornmental Radiation
PO Box 415
Trenton, New Jersey 08625-0424
Phone (609) 984-5400
Fax (609) 984-5595

JON S. CORZINE
Governor

MARK N. MAURIELLO
Acting Commissioner

October 8, 2009

Hoy Frakes, President
Shieldalloy Metallurgical Corporation
60790 Southgate Rd.
Cambridge, OH 43725-9414

Dear Mr. Frakes:

As you know, as of September 30, 2009, the State of New Jersey assumed regulatory authority for your source material license (SMB-743) at the Newfield facility. The US Nuclear Regulatory Commission (NRC) has transferred their files to us, including Rev. 1b of your Decommissioning Plan (DP).

Upon review, we have determined that Rev. 1b does not meet the Department's regulations. Therefore, Shieldalloy Metallurgical Corporation (SMC) is required to submit a revised DP, which complies with N.J.A.C. 7:28-58.1 (10 CFR 40 incorporated by reference) and N.J.A.C. 7:28-12.1 *et seq.* which would result in license termination.

Because the NRC accepted the current DP as meeting the timeliness provisions in 10 CFR 40.42, the Department has determined that SMC will remain in compliance if a revised DP is submitted by January 31, 2010. The revised DP shall include, but not be limited to the elements listed in 10 CFR 40.42(g)(4), including a detailed cost estimate and plan for assuring the availability of adequate funds for completion of decommissioning as provided in 10 CFR 40.36.

If you have any questions, please contact Jenny Goodman at (609) 984-5498.

Sincerely,

Patricia Gardner, Manager
Bureau of Environmental Radiation

ENERGYSOLUTIONS

October 26, 2009 BD09-0016

Andrew Reese, Deputy Attorney General
New Jersey Division of Law
25 Market Street
P.O. Box 112
Trenton, NJ 08625-0112

Subject: Confirmation of Proposal for Site Cleanup and Off-Site Disposal at the Shieldalloy Metallurgical Corporation Site in Newfield, New Jersey

Dear Mr. Reese:

Pursuant to your request, attached is Energy*Solutions* previous written offer to remove the radioactive waste from the slag piles at the Shieldalloy Metallurgical Corporation (SMC) Site (Site) in Newfield, New Jersey. The offer specifically included all services to perform removal, transportation, and disposition of the waste on a turnkey basis. The waste will be directly loaded into covered railcars on the project site.

Energy*Solutions* price included a mobilization fee to cover fixed startup costs associated with refurbishing the railway and installation of required infrastructure. The price to remove, transport, and dispose of the waste was provided on per railcar basis due to the varying estimates on waste volume that result from a lower cleanup criteria. Energy*Solutions* price offered in the September 24, 2008 letter is valid with an annual escalation of five percent. For example, assuming 100,000 tons of waste are removed from the site and shipped for disposal in 2010, Energy*Solutions* price to perform the scope of work is approximately $45 million. This estimate is based on 1,000 railcar shipments plus the one time mobilization fee to cover startup costs and railway refurbishment. The estimate does not include final site decommissioning and any contingency required by regulatory agencies.

After learning more about the site, Energy*Solutions* believes in an alternative approach that assures public health and safety while significantly reducing the cleanup costs. We believe our alternative approach merits immediate consideration from New Jersey Department of Environmental Protection as our observations suggest differing viewpoints on cost, safety, and long term environmental considerations at the Site have prevented reclamation thus far.

The Shieldalloy Site slag contains over 95 percent of the radioactivity and therefore removal of the slag will result in a significant risk reduction at the Site. Other materials at the Site are much lower in concentration and do not pose health or safety concerns given the future industrial use of the Site. By removing 95 percent of the radioactivity, Energy*Solutions* estimates that the project costs could be less than $28 million. Energy*Solutions* would then release the site for future industrial use using proven regulatory and technical guidance that secures future industrial benefit at the Site. This approach would be subject to discussions and regulatory approval by the State of New Jersey.

We appreciate the opportunity to assist the State of New Jersey in the cleanup of the Shieldalloy Site. Please contact me at (303) 882-1901 if you have any questions or require further clarification.

Sincerely,

Christopher J. Massey
Sr. Vice President, Commercial BD

423 West 300 South, Suite #200 • Salt Lake City, Utah 84101
801.649.2000 • Fax 801.413.5649 • www.energysolutions.com

ATTACHMENT

September 24, 2008 Pricing Letter from EnergySolutions to Ecology and Environment, Inc./U.S. Nuclear Regulatory Commission

ENERGYSOLUTIONS

September 24, 2008

Ms. Jacquelyn C. Gillings
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086

Re: Update to Proposal for Site Cleanup and Off-Site Disposal – SMC

Ref: Proposal for Site Cleanup and Off-Site Disposal, Rafati to Smith, Oct 9, 2006

Dear Ms. Gillings,

Pursuant to Ecology and Environment Inc. (E&E) recent request on behalf of the Nuclear Regulatory Commission (NRC) for an updated and publicly available price letter for the radioactive slag, dirt, and ash (Subject Material) at the Shieldalloy Metallurgical Corporation (SMC) Site in Newfield, New Jersey, we are providing the following information for your consideration.

EnergySolutions has reviewed SMC's Decommissioning Plan (Revision 1a, dated June 30, 2006) and has determined the Subject Material is acceptable at EnergySolutions licensed low level radioactive waste disposal facility. Further, EnergySolutions possesses the infrastructure and experience necessary to complete remediation of the Subject Material in a safe, efficient, and economical manner on a turnkey basis.

EnergySolutions price and scope exhaustively includes all services necessary to perform the remediation, transportation, and disposition the Subject Material including but not limited to, establishing site security, use of EnergySolutions approved radioactive material handling procedures, NRC mobile license, any and all permits and fees including consultation with New Jersey officials and the public, all excavation, labor and health physics oversight, upgrading rail infrastructure, rail equipment, transportation, and disposal. That means the piles as they sit right now will be gone without any additional cost or third party contractor involvement.

Our safety and environmental stewardship record is second to none. EnergySolutions safely and efficiently manages over 500,000 tons of radioactive waste annually. Recently, EnergySolutions surpassed three million man hours without a lost time work incident. In order to protect the Newfield community, EnergySolutions will utilize an

EnergySolutions Inc.
423 West 300 South, Suite 200
Salt Lake City, Utah 84101
(801) 649-2000

ENERGYSOLUTIONS

environmental barrier at the site, will not crush or otherwise pulverize any of the Subject Material prior to transport, and will utilize lidded IP-1 gondola railcars for transportation purposes. A photo of the lidded railcars is attached hereto. Our environmental protection barrier will be constructed for temporary use during the project consistent with standard industrial practices in order to protect against airborne particle migration. After use, the barrier will be loaded into the railcars and shipped for disposal in the same manner as the Subject Material.

The current transportation route of choice takes the railcars from Newfield on a direct course West through Pennsylvania, to Chicago, and finally on to Clive, Utah. A map is attached for your easy reference. EnergySolutions average load out rate will be ten railcars per working day, five days per week, and ten hours per day with an average twenty-two full time employees. Railcars will depart SMC ten at a time and would likely travel all the way to Clive in the same manner. In the event the project proceeds uninterrupted with support from the various regulatory agencies our current operational plan indicates a start to finish duration of six to seven months. This plan includes installation of weigh scales, rail upgrades, mobilization, and demobilization. Unanticipated regulatory delays and/or force majeure events generally extend a project's duration by an amount of time equal to the event.

Based from information supplied to EnergySolutions by E&E, we understand two scenarios exist for calculating the total tonnage of Subject Material. Total tonnage ranges from 89,000 tons on the low end, to 130,000 tons on the high end. EnergySolutions price is offered such that once our mobilization fee is paid, the fixed costs are covered, and SMC may direct EnergySolutions to remediate any quantity of tonnage it deems appropriate.

A. One time mobilization fee $2,800,000.00

- The mobilization fee covers startup costs including refurbishing railway and installation of required infrastructure.

B. Subject Material cleanup, transportation, and disposal $39,605.00 per railcar

- Includes all aforementioned services necessary to achieve disposal

Note: Based from actual density measurements as performed by SMC at the request of EnergySolutions, the "as is" density of slag material is 110 pounds per cubic foot. The "as is" density of soil is assumed to be consistent because soil is largely commingled with slag. These considerations yield an in place mass of 79,000 tons on the low end and 99,000 tons on the high end which creates a material difference in the quantity of required railcars. The "as is" mass is the relevant measurement methodology because it

EnergySolutions Inc.
423 West 300 South, Suite 200
Salt Lake City, Utah 84101
(801) 649-2000

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ultimately determines the required quantity of railcars. In this case, railcars will be weight limited rather than volume limited at 105 tons net waste weight per railcar.

In submitting pricing EnergySolutions assumes there have been no material changes to the infrastructure at the site since our letter dated October 9, 2006. Additionally, that the project would commence within one year from the date of this letter and the price of oil does not exceed $110.00 per barrel. As you are aware, the cost of remedial activities never goes down, it only goes up, as such we are willing to update our price as needed.

As mentioned above, our proposal exhaustively includes all activities necessary to achieve the end state criteria inclusive of our rigorous safety and environmental protection programs. We employ a robust interactive open book policy when dealing with the various regulatory agencies and the public. As always, our customer, in this case SMC, is a welcome source of input and generally acts in an oversight role. Customer oversight generally consists of a single project manager whom intermittently surveys operational progress and reviews a weekly project status report.

This letter may be provided to interested parties requesting a clear understanding of the cost. We appreciate the opportunity to be of service to SMC, E&E, and the NRC. In the event you have any questions or require further clarification please don't hesitate to contact me.

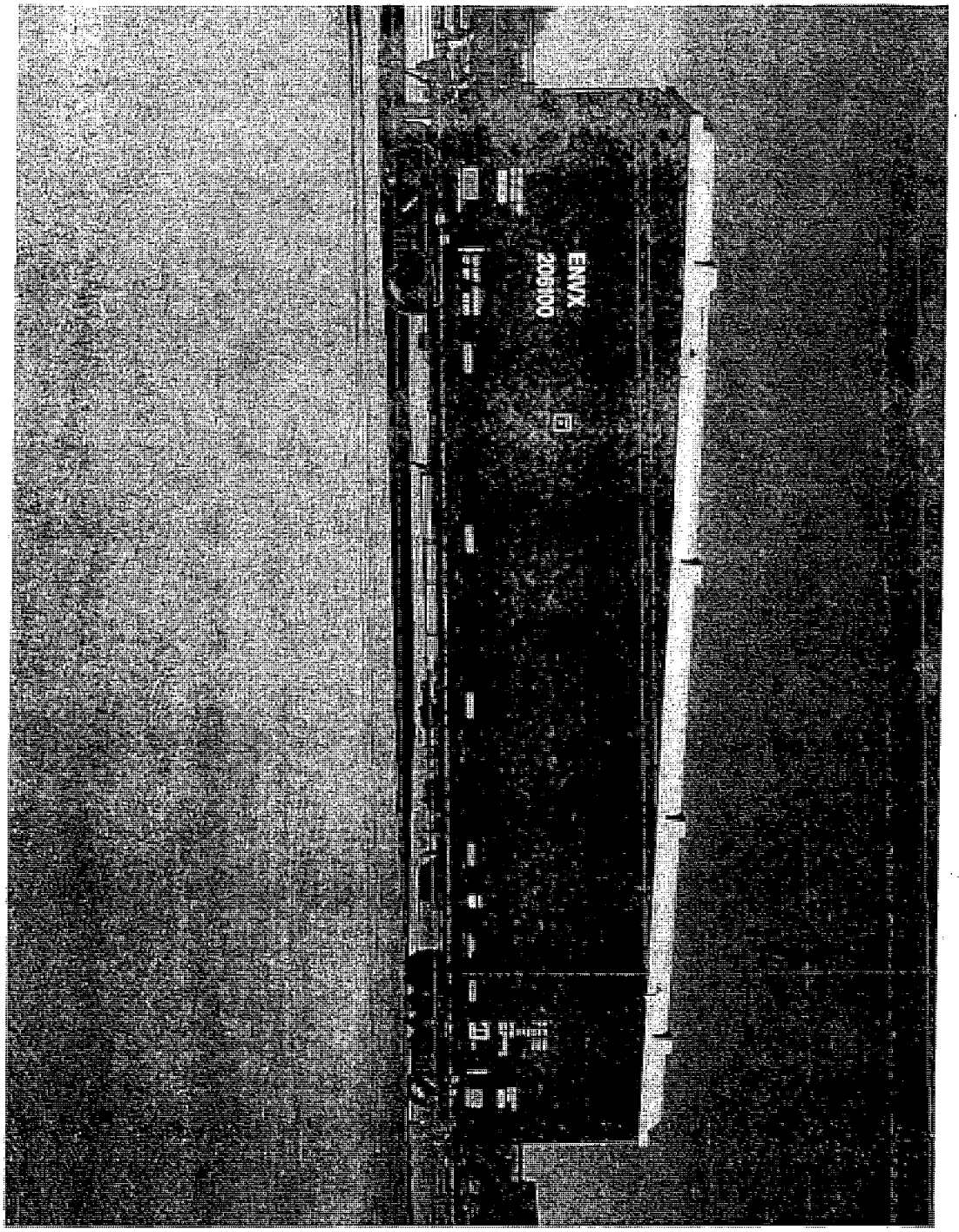
Sincerely,

Bryan Melchior
Vice President
EnergySolutions, Inc.

EnergySolutions Inc.
423 West 300 South, Suite 200
Salt Lake City, Utah 84101
(801) 649-2000

ENERGY*SOLUTIONS*

LIDDED GONDOLA RAILCAR



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423 West 300 South, Suite 200
Salt Lake City, Utah 84101
(801) 649-2000

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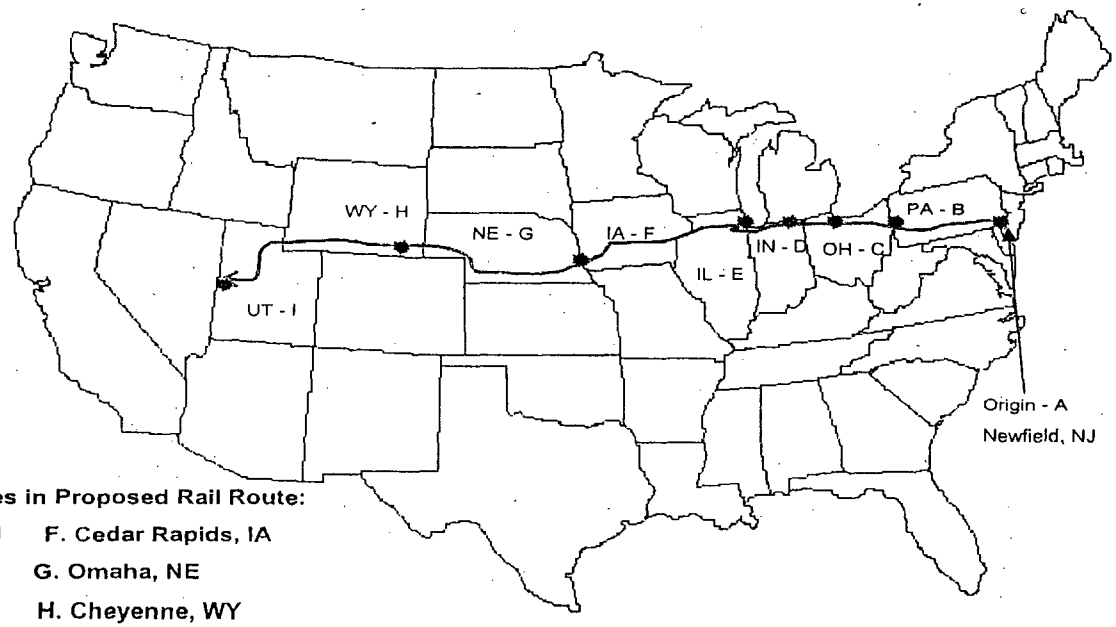
TRANSPORTATION ROUTE

SHIELD ALLOY – NEWFIELD, NJ

Gondola Railcar Shipments

Typical Rail Route



Major Communities in Proposed Rail Route:

A.	Newfield, NJ	F.	Cedar Rapids, IA
B.	Conway, PA	G.	Omaha, NE
C.	Willard, OH	H.	Cheyenne, WY
D.	Elkhart, IN	I.	Clive, UT
E.	Chicago, IL		

EnergySolutions Inc.
423 West 300 South, Suite 200
Salt Lake City, Utah 84101
(801) 649-2000

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JON S. CORZINE
Governor

Division of Environmental Safety and Health
P.O. Box 424
Trenton, New Jersey 08625-0424
Phone: (609) 633-7964
Fax: (609) 777-1330

MARK N. MAURIELLO
Acting Commissioner

December 11, 2009

Dennis J. Krumholz, Partner
Riker Danzig, Scherer, Hyland, Perretti, LLP
Headquarters Plaza
One Speedwell Avenue
Morristown, NJ 07962-1981

Dear Mr. Krumholz:

Assistant Commissioner Wittenberg has asked me to respond to your letter of November 18, 2009, in which you represent the interests of our licensee, Shieldalloy Metallurgical Corporation (SMC). In your letter, you request that the Department either grant SMC 1) an exemption from the requirements of N.J.A.C. 7:28-12 and 58, or 2) a stay of the requirement to prepare and submit a decommissioning plan (DP) compliant with Subchapters 12 and 58 until the litigation commenced by SMC with respect to this matter in the federal and state courts is completed.

We have reviewed the information provided in your letter and have determined that the Department cannot support your exemption request. N.J.A.C. 7:28-2.8 requires the applicant to demonstate hardship or compelling need and the Department to determine that the exemption will not result in any exposure to radiation in excess of the limits permitted by Subchapter 6, Standards for the Protection Against Radiation. SMC has not demonstrated hardship or a compelling need for the exemption. Because the decommissioning plan relies on engineering controls and requires a long term control license (something that our regulations do not allow), we have determined that the dose limits in Subchapter 6 would not be met if all controls failed, particularly if slag or baghouse dust were used as fill for constructing a house. Your request for an exemption pursuant to N.J.A.C. 7:28-2.8 is hereby denied.

Regarding the stay request, SMC has very recently filed suit in three separate forums concerning decommissioning of the Newfield site. That is litigation which could continue for years, particularly if SMC chooses to pursue appeals. The time of the stay would not be within the Department's control. In order to protect public health, safety and the environment, the Department cannot agree to an open ended stay and considers it advisable and necessary to advance the decommissioning process. However, we understand that the decommissioning plan will need significant revisions and as such, we

hereby offer to extend the date for submitting a DP which is compliant with N.J.A.C. 7:28-12 and 58 until July 31, 2010.

If the company considers itself to be aggrieved by the Department's denial of the exemption request, you may request a hearing before the Office of Administrative Law (OAL) by filing a hearing request with the Commissioner of the Department of Environmental Protection to contest the denial. Your hearing request will be considered by the Department. It must be received by the Department within 20 days of your receipt of this letter and sent to:

Office of Legal Affairs
ATTENTION: Adjudicatory Hearing Requests
Department of Environmental Protection
401 East State Street
PO Box 402
Trenton New Jersey 08625-0402

Your hearing request must include the following:

1. your name, address and telephone number;
2. a statement of the legal authority and jurisdiction under which the hearing request is made;
3. a brief and clear statement of the specific facts describing the Department decision being appealed;
4. a statement of all facts alleged to be at issue and their relevance to the Department's decision, as well as any legal issues associated with the alleged facts at issue.

Please contact the Department no later than December 23, 2009, if you agree to accept the offer of an extension of time for submission of a decommissioning plan compliant with New Jersey's regulations.

Sincerely yours,

Jill Lipoti

Jill Lipoti, Ph.D.
Director

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF LEGAL AFFAIRS
P.O. BOX 402
Trenton, NJ 08625-0402
TEL: # (609) 292-0716
FAX # (609) 984-3488

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Acting Commissioner

February 24, 2010

Dennis J. Krumholz, Esq.
Riker Danzig Scherer Hyland & Perretti, LLP
Headquarters Plaza
One Speedwell Avenue
Morristown, NJ 07962

Re: SHIELDALLOY METALLURGICAL CORPORATION

Dear Mr. Krumholz:

The Department of Environmental Protection has completed its review of your request, dated 12/29/2009, for an adjudicatory hearing regarding the above-captioned matter and hereby grants the request.

A Deputy Attorney General will be assigned to represent the Department and the matter will be transmitted to the Office of Administrative Law. You will receive a notice of Filing from the Office of Administrative Law informing you of the next step in the process.

The referral of this matter to the Office of Administrative Law does not constitute a waiver of the Department's right to limit the introduction or consideration in the hearing at the Office of Administrative Law of any defenses or issues which are inappropriately raised.

Sincerely,

Leslie W. Ledogar, Esq.
Legal Specialist
Office of Legal Affairs

c: Jill Lipoti

FEB 25 2010

4 of 4 DOCUMENTS

In the Matter of SHIELDALLOY METALLURGICAL CORP.

(License Amendment Request for Decommissioning of the Newfield, New Jersey Site)

Docket No. 40-7102-MLA

RELEASE-NUMBER: CLI-10-08

NUCLEAR REGULATORY COMMISSION

71 N.R.C. 142; 2010 NRC LEXIS 8

January 7, 2010

SUBSEQUENT HISTORY:
Decision reached on appeal by, Remanded by *Shieldalloy Metallurgical Corp. v. NRC, 624 F.3d 489, 393 U.S. App. D.C. 157, 2010 U.S. App. LEXIS 23361 (2010)*

PRIOR HISTORY:
In re Shieldalloy Metallurgical Corp., 67 N.R.C. 409, 2008 NRC LEXIS 109. In re Shieldalloy Metallurgical Corp., 69 N.R.C. 1, 2009 NRC LEXIS 77 (N.R.C., 2009)

JUDGES: [**1]

COMMISSIONERS: Gregory B. Jaczko, Chairman; Dale E. Klein; Kristine L. Svinicki

OPINION BY: VIETTI-COOK

OPINION:

[*143] **MEMORANDUM AND ORDER**

This memorandum and order responds to a motion by Shieldalloy Metallurgical Corp. (Shieldalloy) for a stay pending judicial review of the transfer of regulatory authority over the Newfield, New Jersey site to the State of New Jersey. n1 For the reasons set forth below, we deny Shieldalloy's motion.

n1 *Shieldalloy's Amended Motion for Stay Pending Judicial Review of Commission Action Transferring Regulatory Authority over Newfield, New Jersey Facility to the State of New Jersey* (Oct. 14, 2009)(Shieldalloy Motion for Stay). Shieldalloy filed its original motion for a stay on October 13, 2009. Changes were made on two pages to reflect the finding of the New Jersey Department of Environmental Protection (NJDEP) that Shieldalloy's decommissioning plan does not meet the NJDEP's regulations. *See id.* at 1 n.1. All citations herein

refer to Shieldalloy's amended motion.

[*144] **I. BACKGROUND**

As part of its smelting and alloy production at the Newfield site, Shieldalloy processed pyrochlore, a concentrated ore containing columbium (niobium). [**2] Because pyrochlore contains more than 0.05 percent weight uranium and thorium, it is subject to NRC regulation as a source material. n2 For this, Shieldalloy obtained a source material license under Part 40 of the Commission's regulations, which entitled it to ship, receive, possess, and store such material.

n2 *See 10 C.F.R. § 40.4*.

A. *Adjudicatory Proceeding on Proposed Decommissioning Plan*

In August 2001, Shieldalloy notified the NRC that it intended to decommission the Newfield site, and the license was amended in November 2002 to authorize only decommissioning activities. Shieldalloy then submitted a decommissioning plan requesting a long term control (LTC) license, proposing to bury the radioactive material under an engineered barrier onsite. n3 Upon the NRC Staff's determination that the decommissioning plan was acceptable for docketing and review, a notice of opportunity to request a hearing was published in the *Federal Register*, n4 and in response, seven petitioners filed petitions to intervene and requests for a hearing. The Atomic Safety and Licensing Board established to rule on the intervention petitions denied all but one - that submitted [**3] by the New Jersey Department of Environmental Protection (NJDEP). n5 The Board found that the NJDEP had demonstrated standing to intervene and had proffered at least one admissible contention, but deferred its ruling on the balance of the NJDEP's contentions pending the Staff's completion of its safety and environmental review. n6 The adjudicatory proceeding on the proposed decommissioning plan remains in a state of suspension. n7

n3 *See* Letter from David R. Smith, Radiation Safety Officer, Shieldalloy Metallurgical Corp., to Kenneth L. Kalman, U.S. NRC, at 2 (June 30, 2006)(ADAMS Accession No. ML061980092); Decommissioning Plan for the Newfield Facility, Vol. 1, Rev. 1, at xxii to xxiii (Oct. 21, 2005)(ML053190220).
n4 *See Notice of Consideration of Amendment Request for Decommissioning for Shieldalloy Metallurgical Corporation, Newfield NJ and Opportunity to Request a Hearing, 71 Fed. Reg. 66,986, 66,986 (Nov. 17, 2006)*.
n5 *LBP-07-5, 65 NRC 341 (2007)*.
n6 *Id. at 358-63*.
n7 *See* Order (Oct. 21, 2009)(unpublished)(suspending the Staff's obligation to file status reports on the progress of its review).

[**4]

[*145] **B. *Discontinuance of Commission Authority over Shieldalloy***

In a matter unrelated to the adjudicatory proceeding on Shieldalloy's proposed decommissioning plan, on October 16, 2008, the State of New Jersey (New Jersey) formally applied to become an Agreement State pursuant to *section 274* of the Atomic Energy Act of 1954, as amended (AEA). n8 In accordance with that section, Governor Jon S. Corzine certified "that the State of New Jersey wishes to assume regulatory authority and oversight responsibility for [certain materials now under NRC jurisdiction], and that the State of New Jersey has an adequate program for the control of radiation hazards covered by this proposed agreement." n9 The NRC Staff reviewed the application, and determined that the New Jersey radiation protection program is both compatible with the Commission's program for regulation with respect to the proposed materials and adequate for the protection of public health and safety. n10

n8 Letter from Jon S. Corzine, Governor, to Dale E. Klein, Chairman, U.S. NRC (Oct. 16, 2008)(ML090510713).
n9 *Id.* at 1.
n10 *State of New Jersey: Discontinuance of Certain Commission Regulatory Authority Within the State; Notice of Agreement Between the Nuclear Regulatory Commission and the State of New Jersey, 74 Fed. Reg. 51,882,*

51,883 (Oct. 8, 2009).
[**5]

In accordance with AEA *section 274e*., the NRC Staff published the proposed agreement in the *Federal Register* once a week for four consecutive weeks to provide an opportunity for public comment. n11 Shieldalloy submitted comments on the proposed agreement. n12 After reviewing and responding to the comments, the NRC Staff determined that "[t]he comments did not affect [its] assessment" of the New Jersey program. n13

n11 *State of New Jersey: NRC Staff Assessment of a Proposed Agreement Between the Nuclear Regulatory Commission and the State of New Jersey, 74 Fed. Reg. 25,283 (May 27, 2009)*; *74 Fed. Reg. 26,739 (June 3, 2009)*; *74 Fed. Reg. 27,572 (June 10, 2009)*; *74 Fed. Reg. 28,728 (June 17, 2009)*.
n12 Letter from Hoy E. Frakes, Jr., President, Shieldalloy Metallurgical Corp., to Michael T. Lesar, Chief, Rulemaking, Directives and Editing Branch, U.S. NRC (June 11, 2009)(ML091700382 and ML091680491).
n13 *74 Fed. Reg. at 51,883*. The NRC Staff's response to comments is available as an attachment to the Memorandum from R. W. Borchardt, Executive Director for Operations, to the Commissioners, SECY-09-0114 (Aug. 18, 2009)(Enclosure 2 - Staff Analysis of Public Comments)(ML091950400)(SECY-09-0114, Enclosure 2).
[**6]

Based on the Staff's assessment, we found that the New Jersey program is adequate to protect public health and safety and is compatible with the NRC's program. n14 Thereafter, Chairman Jaczko and Governor Corzine signed the agreement on behalf of the NRC and New Jersey, respectively, and the agreement became [*146] effective on September 30, 2009. n15 Thus, as of September 30, 2009, the NRC discontinued, and New Jersey assumed, regulatory authority over all categories of materials covered in the agreement - (1) byproduct materials as defined in section 11e.(1) of the AEA; (2) byproduct materials as defined in section 11e.(3) of the AEA; (3) byproduct materials as defined in section 11e.(4) of the AEA; (4) source materials; (5) special nuclear materials in quantities not sufficient to form a critical mass; and (6) the regulation of the land disposal of byproduct, source, or special nuclear waste materials received from other persons. n16 Because the transfer included authority over source material, New Jersey assumed regulatory authority over Shieldalloy's Newfield site. With the discontinuance of NRC authority, the NRC Staff terminated its review of Shieldalloy's proposed decommissioning [**7] plan, and forwarded the files associated with its environmental and safety review of Shieldalloy's proposed decommissioning plan to New Jersey. n17

n14 *74 Fed. Reg. at 51,883*.
n15 *Id. at 51,884 (Article IX)*.
n16 *Id. at 51,883 (Article I)*.
n17 *See NRC Staff's Fifteenth Status Report* (Oct. 1, 2009) at 2.

On October 8, 2009, the NJDEP, which implements the New Jersey program, informed Shieldalloy that it had rejected Shieldalloy's proposal for an LTC license. n18 The NJDEP directed Shieldalloy to submit a decommissioning plan proposing offsite disposal - specifically, removal of the material and disposal in a licensed facility out of state. n19 The NJDEP determined that Shieldalloy "will remain in compliance if a revised [plan] is submitted by January 31, 2010." n20

n18 Letter from Patricia Gardner, Manager, Bureau of Environmental Radiation, NJDEP, to Hoy Frakes, President, Shieldalloy Metallurgical Corporation (Oct. 8, 2009)(attached as Exhibit B to Shieldalloy Motion for Stay)(October 8 NJDEP Letter).
n19 *See id.* (citing *N.J. Admin. Code §§ 7:28-12.1 et seq., 7:28-58.1*).
[**8]

n20 *Id.* By letter dated December 11, 2009, the NJDEP extended the deadline for submitting a revised

decommissioning plan to July 31, 2010. Letter from Jill Lipoti, Director, NJDEP, Division of Environmental Safety and Health, to Dennis J. Krumholz, counsel for Shieldalloy (Dec. 11, 2009) at 2 (ML093490230)(December 11 NJDEP Letter).

After the agreement between New Jersey and the NRC became effective, Shieldalloy filed, pursuant to *10 C.F.R. § 2.323(a)*, the motion at issue here. In its motion, Shieldalloy states that it intends to seek judicial review of the NRC's decision to enter into the agreement with New Jersey. n21 Shieldalloy therefore requests that we issue a stay of the effectiveness of the transfer of regulatory authority over the Newfield site pending judicial review. n22 Citing *10 C.F.R. § 2.342(e)* [*147] and NRC case law, Shieldalloy asserts that it has satisfied all of the relevant criteria for issuance of a stay. n23

n21 Shieldalloy Motion for Stay at 2. Shieldalloy has since filed a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit, requesting that the court overturn the agreement and direct the NRC to revoke its transfer of regulatory authority over the Newfield site to New Jersey, and resume its regulatory authority over the site. Shieldalloy Metallurgical Corp. v. NRC, No. 09-1268 (D.C. Cir. filed Nov. 2, 2009).

[**9]

n22 Shieldalloy Motion for Stay at 1-2.
n23 *Id.* at 2, 5.

II. DISCUSSION

A. *Shieldalloy's Motion*

Given that Shieldalloy's filing is associated with a challenge to the New Jersey Agreement, and not with the adjudicatory proceeding on Shieldalloy's proposed decommissioning plan, it does not fit cleanly into our procedural rules. Shieldalloy has filed its stay application pursuant to *10 C.F.R. § 2.342*. That section, by its terms, applies to a stay *of a decision or action of a presiding officer or licensing board.* n24 The movant must be a "party to the proceeding," which, in the context of *section 2.342*, refers to an adjudicatory proceeding presided over by a presiding officer or board. Here, Shieldalloy challenges our approval of New Jersey's application to become an Agreement State. As stated above, our approval of the New Jersey Agreement is a matter separate from, and unrelated to, the pending adjudicatory proceeding before the Board on Shieldalloy's proposed decommissioning plan. Because Shieldalloy's motion involves a challenge to Commission action outside of the adjudicatory proceeding to which Shieldalloy is a party, *section 2.342* does [**10] not apply. However, we have entertained requests for stays of final agency action in anticipation of judicial review in other proceedings. n25 Here, we will exercise discretion and consider Shieldalloy's request as a stay application.

n24 *10 C.F.R. § 2.342(a).*
n25 *See Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-92-4, 35 NRC 69, 80-82 (1992)*(analyzing whether movant had met showing of stay factors in request for administrative stay of a license transfer pending anticipated challenge in state court); *Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-85-14, 22 NRC 177, 178-80 (1985)*(declining to issue stay of issuance of full-power authorization because stay factors had not been met); *cf. Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), CLI-06-8, 63 NRC 235, 237 n.4 (2006)*("[w]hile technically not applicable to a request for a stay of NRC Staff action, the *section 2.342(e)* standards simply restate commonplace principles of equity universally followed when judicial (or quasi-judicial) bodies consider stays or other forms of temporary injunctive relief").

[**11]

A question has been raised regarding our authority to grant the stay requested by Shieldalloy. n26 We need not reach this question, however, because, as discussed [*148] below, Shieldalloy has not made the requisite showing to warrant issuance of a stay in any event.

n26 In particular, the Staff argues that we lack authority to provide the relief that Shieldalloy requests. *See NRC Staff's Response to Shieldalloy's Motion for a Stay* (Oct. 23, 2009)(NRC Staff Response). In the Staff's view, our authority ended with the discontinuance of NRC authority over the Newfield site. Based on the Staff's interpretation of *section 274*, the only means to suspend or terminate an agreement is through an action triggered under the circumstances, and taken in accordance with the procedures, enumerated in AEA *section 274j*. *Id.* at 1. According to the Staff, Shieldalloy has not shown that any of the circumstances necessary for triggering action under that section are present here and therefore we cannot grant the stay application. *Id.* at 7-8.

B. *Analysis*

By way of background, we begin with a brief summary of the review and approval process for a Section 274 Agreement.

Section [**12] *274* of the AEA governs cooperation between the Commission and a state. That section authorizes the Commission, if certain conditions are met, to discontinue its regulatory authority over certain categories of material, which authority then is assumed by the state. First, the Governor must "certif[y] that the State has a program for the control of radiation hazards adequate to protect the public health and safety with respect to the materials within the State covered by the proposed agreement, and that the State desires to assume regulatory responsibility for such materials." n27 Second, the Commission must "find[] that the State program is in accordance with the requirements of subsection o. and in all other respects *compatible* with the Commission's program for regulation of such materials, and that the State program is *adequate* to protect the public health and safety with respect to the materials covered by the proposed agreement." n28 If the Commission determines that the state's regulatory program is compatible with the Commission's corresponding program and adequate to protect the public health and safety, then "[t]he Commission shall enter into [the] agreement. [**13] " n29

n27 AEA § 274d(1), *42 U.S.C. § 2021(d)(1)*.
n28 *Id. § 2021(d)(2)* (emphasis added).
n29 *Id. § 2021(d)*.

Section 274 is implemented via policy statements and agency guidance documents. Two policy statements provide guidance on the NRC Staff's review of a proposed or amended agreement. n30 The first policy statement, implemented in 1981, outlines thirty-six criteria that "are intended to indicate factors which the Commission intends to consider in approving new or amended agreements." n31 [*149] However, as stated in the policy statement, these criteria are not intended to limit Commission discretion in reviewing individual agreements, or amendments thereto. n32

n30 As a general matter, a policy statement announces what the Commission seeks to establish as policy, and does not bind either the agency or the public. *See Pac. Gas & Elec. Co. v. FPC, 506 F.2d 33, 38, 164 U.S. App. D.C. 371 (D.C. Cir. 1974)*.
n31 Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption thereof by States through *Agreement, 46 Fed. Reg. 7540, 7540 (Jan. 23, 1981)*(as amended by policy statements published at *46 Fed. Reg. 36,969 (July 16, 1981)*(revising Criterion 29f.) and *48 Fed. Reg. 33,376 (July 21, 1983)*(revising Criterion 9))(collectively, 1981 Policy Statement).
[**14]

n32 *Id.*

A second policy statement was implemented in 1997 to describe the respective roles and responsibilities of the

NRC and the states in the administration of Section 274 agreements. In particular, the policy statement establishes "principles, objectives, and goals" that the Commission expects to be reflected in the implementing guidance and programs of the NRC and Agreement States, in order for each to meet their respective responsibilities. Further, the Commission explained:

> In order to relinquish its authority to a particular State, the Commission must find that the program is compatible with the Commission's program for the regulation of radioactive materials and that the State program is adequate to protect public health and safety. n33

> n33 *Statement of Principles and Policy for the Agreement State Program; Policy Statement on Adequacy and Compatibility of Agreement State Programs, 62 Fed. Reg. 46,517, 46,519 (Sept. 3, 1997)*(1997 Policy Statement).

To that end, the policy statement provides guidance on what it means for an Agreement State program to be "compatible" with that of the NRC and "adequate" to protect public health [**15] and safety. n34 Among other things, the 1997 Policy Statement creates a scheme of five "compatibility categories" that are assigned to all NRC regulations. Each compatibility category requires a different degree of compatibility for the corresponding state standard or program element under review. For example, for NRC regulations that are designated as compatibility category "A," the corresponding state standard should be "essentially identical to those of the Commission, unless Federal statutes provide the State authority to adopt different standards." n35 Likewise, for NRC regulations that are designated as compatibility category "B," the "State program elements should be essentially identical to those of the Commission." n36 However, for NRC regulations that are designated as compatibility category "C," the state has greater flexibility in the standards it sets. Compatibility category "C" regulations are "other Commission program elements" considered to be "important for an Agreement State to have in order to avoid conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on [*150] a nationwide basis." n37 The Agreement [**16] State program elements for compatibility category C "should embody the essential objective of the corresponding Commission program elements." n38 Unlike NRC regulations that are designated as compatibility category "A" or "B," an Agreement State program element need not be "essentially identical" to an NRC category "C" regulation.

> n34 *Id. at 46,517-25*.
> n35 *Id. at 46,524*.
> n36 *Id.*
> n37 *Id.*
> n38 *Id.* The two remaining categories are "NRC," which represents program elements that cannot be relinquished to Agreement States, and "H&S," which represents program elements that are not required for the purposes of compatibility. However, states should adopt program elements in the H&S category that embody the essential objectives of the NRC program elements in order to maintain an adequate program for the protection of public health and safety. *Id. at 46,524-25*; *see also* Office of Federal and State Materials and Environmental Management Programs Internal Procedure SA-200, "Compatibility Categories and Health and Safety Identification for NRC Regulations and Other Program Elements" (June 5, 2009) at 6-7 (replacing the designations for categories "D" and "E" as "H&S" and "NRC," respectively)(ML091190055)(SA-200).

[**17]

The NRC's Office of Federal and State Materials and Environmental Management Programs (FSME) administers the Agreement State program. It follows detailed standardized procedures for reviewing Agreement State applications. n39 For example, NRC Management Directive 5.9 provides guidance on the assignment of compatibility categories to NRC regulations. n40 FSME also has implemented guidance for use by NRC and Agreement State staff on the compatibility category scheme. n41 In addition, the FSME website offers a "section-by-section summary" of the compatibility categories assigned to certain Parts of Title 10 of the Code of Federal Regulations. n42 These summaries are provided in chart form, and provide a standardized template for use by NRC Staff reviewers when evaluating

Agreement State regulations or program elements. n43

n39 *See generally* Office of Federal and State Materials and Environmental Management Programs, http://www.nrc.gov/about-nrc/organization/fsmefuncdesc.html (last visited Nov. 25, 2009).
n40 Adequacy and Compatibility of Agreement State Programs, Directive 5.9 (Feb. 27, 1998)(ML041770094)(MD 5.9).
n41 *See generally* SA-200.
n42 *Id.* at 3 (citing Regulation Toolbox: Review Summary Sheets for Regulation Adoption for New Agreement States/Programs (10 CFR_), http://nrc-stp.ornl.gov/regsumsheets_newregs.html (last visited Nov. 25, 2009)).
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n43 *See id.* at 3-5.

We consider the Shieldalloy stay application with this background in mind. In our review of a stay application, we consider four factors:

(1) [w]hether the moving party has made a strong showing that it is likely to prevail on the merits;

(2) [w]hether the party will be irreparably injured unless a stay is granted;

[*151] (3) [w]hether the granting of a stay would harm other parties; and

(4) [w]here the public interest lies. n44

n44 *10 C.F.R. § 2.342(e).*

1. Irreparable Injury Unless a Stay is Granted

As Shieldalloy notes, n45 when evaluating a motion for a stay we place the greatest weight on the second factor - irreparable injury to the moving party unless a stay is granted. n46 We require a showing of a "threat of immediate and irreparable harm" that will result absent a stay. n47

n45 Shieldalloy Motion for Stay at 5.
n46 *David Geisen*, CLI-09-23, 70 NRC ___ (Nov. 17, 2009)(slip op. at 2)(citing *Entergy Nuclear Vermont Yankee, LLC (Vermont Yankee Nuclear Power Station), CLI-06-8, 63 NRC 235, 237 (2006)*); *Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), CLI-81-27, 14 NRC 795, 797 (1981).*
[**19]

n47 *AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-08-13, 67 NRC 396, 400 (2008).*

With respect to irreparable injury, Shieldalloy states that under New Jersey's regulatory oversight it will be required to ship offsite the contaminated materials present at the Newfield site in lieu of Shieldalloy's desired method of consolidating them in a restricted-access area under an engineered barrier onsite (i.e., the LTC approach). Implementation of New Jersey's approach of shipping and disposing of the material offsite, Shieldalloy claims, will force Shieldalloy "to seek protection under the bankruptcy laws, as it had done before, and potentially liquidate." n48 According to Shieldalloy, it "cannot defray" what it estimates to be "a $ 70 million cost of removal of the materials from the site," as compared "to the less than $ 15 million cost to implement the LTC [approach]." n49

n48 Shieldalloy Motion for Stay at 7.
n49 *Id.* at 7 (citing Affidavit of Hoy E. Frakes, Jr. P 10 (Oct. 9, 2009)(attached as Exhibit A to Shieldalloy Motion for Stay)(Frakes Affidavit)).

In addition, Shieldalloy asserts other harms that will result [**20] from offsite disposal of the materials. Noting that exposures under either approach "would be expected to be within NRC regulatory limits," Shieldalloy maintains that removal and transportation of the material will result in a larger dose to workers at the Newfield site and members of the public than what would result from burial onsite. n50 Therefore, Shieldalloy argues, even though radiation doses would not exceed NRC limits, removal offsite "contravenes the principle of keeping radiation doses to the public resulting from the decommissioning process as low as is reasonably achievable [(ALARA)]." n51

n50 *Id.* at 7-8 (citing Frakes Affidavit P 11).
n51 *Id.* at 7.

Shieldalloy fails to show that it will suffer the requisite injury without a stay [*152] of the effectiveness of the transfer of authority over the Newfield site to New Jersey. Shieldalloy's claimed harm is neither imminent nor irreparable. As New Jersey explains in its response to Shieldalloy's motion, Shieldalloy's liability for any amount paid to remove and dispose of the materials is "contingent upon the [NJDEP's] final decision on a decommissioning plan. . . . Shieldalloy will not be required to [**21] conduct any decommissioning activities until the [NJDEP] approves a plan." n52 Shieldalloy has until July 31, 2010 to submit a revised plan to remain in compliance with NJDEP regulations. n53 Thus, Shieldalloy has not submitted, nor has NJDEP reviewed (let alone approved), a decommissioning plan for the Newfield site. Even assuming that Shieldalloy were correct that it will cost $ 70 million to remove and transport the waste, Shieldalloy's claim of irreparable injury is speculative because it is contingent upon future NJDEP action after review of a not-yet-submitted revised decommissioning plan. n54 Likewise, as New Jersey points out, "it is premature to argue that additional exposures will be caused by offsite disposal before Shieldalloy proposes offsite disposal in a decommissioning plan. . . . New Jersey would review the plan to ensure that it meets all regulatory standards [for protection of workers and the environment against radiation hazards]." n55

n52 New Jersey Response at 3.
n53 *See* December 11 NJDEP Letter at 2.
n54 This case can be distinguished from *Washington Metro. Area Transit Comm'n v. Holiday Tours, Inc., 559 F.2d 841, 182 U.S. App. D.C. 220 (D.C. Cir. 1977)*, one of the cases on which Shieldalloy relies to support its assertion that it will suffer irreparable injury. In *Holiday Tours*, the action that had been stayed pending appeal was a permanent injunction prohibiting a then-recently-transformed bus tour company from operating bus tours. There, the D.C. Circuit found that "the absence of a stay would [mean the] destruction [of the business] in its current form as a provider of bus tours." *Id. at 843*. Accordingly, in conjunction with the application of the other stay factors, the D.C. Circuit found that the district court did not abuse its discretion in staying its permanent injunction pending appeal. *Id. at 845*. Here, the action to be stayed does not have the immediacy of that in *Holiday Tours*. Any claimed financial harm to Shieldalloy's business from offsite disposal would not occur until the NJDEP approves offsite disposal after review of a revised decommissioning plan. The second case that Shieldalloy cites, *Goldstein v. Miller, 488 F. Supp. 156 (D. Md. 1980)* also is distinguishable for this reason. In that case, plaintiffs sought a permanent injunction against the implementation of a federal regulation establishing limits on liquor bottle sizes. After the court entered judgment for the defendants, plaintiffs sought a stay pending appeal. The district court found that at least one of the plaintiffs had shown "serious and seemingly irreparable" injury because it would have been forced out of business if a stay were not granted. Unlike here, the absence of a stay in that case likely would have resulted in immediate harm because the plaintiff would have been required to change its liquor bottling operations without delay in order to comply with the federal regulation.
[**22]

n55 New Jersey Response at 4.

Moreover, Shieldalloy is not without remedy if it wishes to challenge the compatibility of New Jersey's radiation protection program during the NJDEP's [*153] review of its revised decommissioning plan. n56 For example, Shieldalloy may request that the NRC take action under AEA *section 274j*. n57 Alternatively, if it wishes to challenge the compatibility category that is assigned to a particular regulation (including the license termination rule), it may do so at any time through submission of a petition for rulemaking under *10 C.F.R. § 2.802*. n58 In the absence of either immediate or irreparable harm, Shieldalloy fails to make the requisite showing with respect to this factor. n59

n56 *See Virginia Petroleum Jobbers Ass'n v. FPC, 259 F.2d 921, 925, 104 U.S. App. D.C. 106 (D.C. Cir. 1958)*("Mere injuries, however substantial, in terms of money, time and energy necessarily expended in the absence of a stay, are not enough. The possibility that adequate compensatory or other corrective relief will be available at a later date, in the ordinary course of litigation, weighs heavily against a claim of irreparable harm."). *Cf. Oyster Creek, CLI-08-13, 67 NRC at 400* (noting that "[i]n any case, [movant] would not be irreparably harmed even if the license were at the point of issuance" because "[a] license renewal may be set aside (or appropriately conditioned) even after it has been issued, upon subsequent administrative or judicial review"). In essence, the immediate "injury" that would result in the absence of a stay is the submission of a revised decommissioning plan. This does not amount to irreparable harm. *See Virginia Petroleum Jobbers Ass'n, 259 F.2d at 925*. If Shieldalloy were to perceive difficulty in meeting the July 31, 2010 deadline for submission of a revised decommissioning plan, it appears that Shieldalloy could request an extension of time from the NJDEP. *See N.J.A.C. § 7:28-58.1* (incorporating by reference *10 C.F.R. § 40.42(g)(2)*); December 11 NJDEP Letter at 2 (extending deadline for submitting a revised decommissioning plan by six months).
[**23]

n57 We have, in the past, responded to challenges to an Agreement State's program raised in a section 2.206 petition. *See Envirocare of Utah, Inc. (Salt Lake City, Utah), DD-98-9, 48 NRC 173, 176 (1998)*(explaining that the Director responded to Agreement State program-related claims raised in 2.206 petition by letter); *Utah (Agreement Pursuant to Section 274 of the Atomic Energy Act of 1954, as Amended), DD-95-1, 41 NRC 43, 43-44 (1995)*(analyzing 2.206 petition challenging Agreement State program).
n58 *See infra* note 67 and accompanying text. In addition, the NRC Staff is required by law to conduct periodic reviews of the adequacy and compatibility of an Agreement State's regulatory program. *See* AEA § 274j., *42 U.S.C. § 2021(j)*("The Commission shall periodically review such agreements and actions taken by the States under the agreements to ensure compliance with the provisions of this section."). Implemented through FSME guidance documents, this periodic review is called the Integrated Materials Performance Evaluation Program (IMPEP). The first IMPEP review generally takes place approximately 18 months after an agreement is signed, and thereafter, every four or five years. IMPEP reviews are conducted onsite at the Agreement State program's offices by a team of NRC Staff, as well as a representative from another Agreement State. Depending on the findings made during that review, the NRC Staff might recommend action to be taken, which is then referred to a Management Review Board for further review. *See generally* SA-100, "Implementation of the Integrated Materials Performance Evaluation Program (IMPEP)" (Feb. 1, 2007)(ML070360578). Of note, a "special review" might be scheduled "if NRC staff learns of special problems with a licensee or group of licensees or of an event requiring special attention" rather than waiting until the next scheduled periodic review. *Id.* at 4.
[**24]

n59 We also note that Shieldalloy has initiated an action in the U.S. District Court for the District of New Jersey seeking declaratory and injunctive relief to preclude the application of the NJDEP regulations to the Newfield site. See Letter from Matias F. Travieso-Diaz, Counsel for Shieldalloy, to Licensing Board, (Oct. 5, 2009) at 1-2 (Shieldalloy October 5 Letter); Shieldalloy Metallurgical Corp. v. New Jersey, Civil Action No. 09-04375 (D.N.J. filed Aug. 25, 2009). In addition, Shieldalloy has "filed suit against the State of New Jersey in the Appellate Division of the New Jersey Superior Court, challenging the validity of the [NJDEP regulations]."

Shieldalloy October 5 Letter at 2; In re *N.J.A.C. 7:28*, Dkt. No. A-278-09 (N.J. Sup. Ct., App. Div. filed Sept. 14, 2009).

[*154] *2. Strong Showing of Likelihood of Success on the Merits*

Without a showing of irreparable harm, Shieldalloy must show that success on the merits is a "virtual certainty" to warrant issuance of a stay. n60

n60 *Geisen*, CLI-09-23, 70 NRC ___ (slip op. at 3); *Oyster Creek, CLI-08-13, 67 NRC at 400*; *Sequoyah Fuels Corp. and General Atomics (Gore, Oklahoma Site), CLI-94-9, 40 NRC 1, 7 (1994)*(citing *Kerr-McGee Chemical Corp. (West Chicago Rare Earths Facility), ALAB-928, 31 NRC 263, 269 (1990))*.

[**25]

With respect to its likelihood of success, Shieldalloy argues that there is a strong likelihood that it will prevail in the court of appeals on the merits of its challenge to our approval of the New Jersey Agreement. According to Shieldalloy, various aspects of New Jersey's regulatory program are incompatible with the NRC's program, in contravention of one of the conditions precedent to approval of a state agreement. n61 In support of this argument, Shieldalloy repeats a selection of the claims it made in comments on the proposed agreement when it was published in the *Federal Register*. It takes issue with the Staff's resolution n62 of its comments, and summarizes "some of the errors in the Staff's [assessment] that will warrant overturning by a reviewing court." n63 Shieldalloy's arguments are diffuse and difficult to follow. In its motion, Shieldalloy alternates, sometimes within the same paragraph, between challenging the compatibility category assigned to the license termination rule - compatibility category "C" - and challenging the compatibility of the New Jersey program itself. We discuss each challenge separately.

n61 Shieldalloy Motion for Stay at 9-10.
n62 *See generally* SECY-09-0114, Enclosure 2.

[**26]

n63 Shieldalloy Motion for Stay at 10.

a. "The New Jersey Program fails to implement the ALARA principle, as required by NRC regulations"

First, Shieldalloy argues that New Jersey "violated" Criterion 9 of the 1981 Policy Statement because the New Jersey program failed to "include adherence to ALARA as one of the radiological criteria for license termination." n64 Criterion 9 states that an Agreement State's standards for disposal of radioactive materials "shall be in accordance with [10 C.F.R.] Part 20." n65 ALARA is one of the principles incorporated in Part 20.

n64 *Id.* at 11.
n65 *48 Fed. Reg. at 33,377*.

[*155] As an initial matter, Shieldalloy misunderstands the nature of the numbered criteria in our 1981 Policy Statement. As discussed above, they serve as guidelines for matters to be considered when reviewing an agreement, and they do not limit the agency's discretion. Thus, a state cannot "violate" any of the criteria. Moreover, Criterion 9 concerns the disposal of low-level waste, not license termination, and is inapplicable here. n66 Nonetheless, as discussed below, the NJDEP's license termination regulations are "in accordance with" [**27] Part 20 because, as evaluated against the compatibility category "C" license termination rule, they embody the essential objective of the rule.

n66 SECY-09-0114, Enclosure 2, at 5.

Again, each NRC regulation is assigned a particular compatibility category. The compatibility category is

determined as part of the rulemaking process, and is set forth in the statements of consideration for the proposed and final rules, and as such, may be commented on in the rulemaking proceeding. n67 Relevant here, when we issued the proposed license termination rule, we solicited public comment on the designation of the compatibility category. We received divided responses: some commenters stated that states should have the authority to implement stricter radiation protection standards; others stated that a state should be required to adopt the NRC's standards without revision. n68 When the final rule was promulgated, we assigned to it what is now the equivalent of compatibility category "C" after consideration of the comments that were submitted. In doing so, we explained:

> Because the dose criterion in the rule is not a "standard" in the sense of the public dose limits of 10 CFR part [**28] 20 but is a constraint within the public dose limit that provides a sufficient and ample margin of safety below the limit, it is reasonable that the rule would be a [C] level of compatibility under the current policy. This means that the Agreement States would be required to adopt the regulation but would have *significant flexibility in language, and would be allowed to adopt more stringent requirements.* n69

Therefore, a state's license termination regulations may be more stringent than the NRC license termination rule, with "significant flexibility in language," provided they embody the "essential objective" of the NRC's license termination rule.

> n67 *See, e.g., Radiological Criteria for License Termination, 62 Fed. Reg. 39,058, 39,079-80, 39,086 (July 21, 1997).*
> n68 *Id. at 39,079.*
> n69 *Id. at 39,080* (emphasis added).

The essential objective of the license termination rule is set forth in the statements of consideration to the final rule. It is "to provide specific radiological criteria for the decommissioning of lands and structures. . . . to ensure that decommissioning will be carried out [**29] without undue impact on public health and [*156] safety and the environment." n70 The NJDEP's license termination regulations are permissibly more restrictive than the NRC's. They require a licensee to show that members of the public will not be exposed to a total effective dose equivalent of more than 15 mrem per year as compared to the 25 mrem limit established in Part 20. n71 Because New Jersey's program lowers the maximum permissible radiation exposure to members of the public, this aspect of New Jersey's program embodies the license termination rule's essential objective of ensuring that decommissioning will be carried out without undue impact on public health and safety and the environment.

> n70 *Id. at 39,058.*
> n71 *Compare N.J. Admin. Code § 7:28-12.8(a)(1)* ("Sites shall be remediated so that the incremental radiation dose to any person from any residual radioactive contamination at the site above that due to natural background radionuclide concentration, under either an unrestricted use remedial action, limited restricted use remedial action, or a restricted use remedial action, shall be as specified below: 1. For the sum of annual external gamma radiation dose (in effective dose equivalent) and intake dose (in committed effective dose equivalent), including the groundwater pathway: 15 millirem (0.15 milliSievert) total annual effective dose equivalent (15 mrem/yr TEDE)."), *with 10 C.F.R. § 20.1402* ("A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and . . . the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA).").

[**30]

Shieldalloy argues that "if the NJDEP Regulations are applied to the Newfield Facility," it will result in "higher doses to workers and the public and a lower level of protection of public health and safety than that provided by the NRC regulations." n72 This, Shieldalloy asserts, is caused by the "[f]ailure [of the regulations] to observe the ALARA

principle." n73

n72 Shieldalloy Motion for Stay at 12 (citing Frakes Affidavit P 11).
n73 *Id.* at 11-12.

ALARA is defined as "every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical consistent with the purpose for which the licensed activity is undertaken." n74 A cost benefit analysis is employed to determine a practicable dose limit. n75 The ALARA principle, as applied in the license termination rule, defines the maximum permissible annual dose as 25 mrem TEDE, but directs further that exposures should be minimized, such that they will be "as low as is reasonably achievable" below the [*157] 25 mrem limit. n76 As we understand Shieldalloy's argument, Shieldalloy would have it that "as low as is reasonably achievable" in the context of the NJDEP's decommissioning [**31] regulations means that a permissible dose would be above 15 mrem, but below 25 mrem. This is a misunderstanding of the ALARA principle. ALARA is defined by the dose limit delineated in the regulations. The NJDEP's dose limit is 15 mrem. Consequently, if the NJDEP expressly had incorporated the ALARA principle into its license termination regulations, Shieldalloy's decommissioning plan would then have to show that the maximum annual dose to any person is "as low as is reasonably achievable" below 15 mrem. n77

n74 *10 C.F.R. § 20.1003.*
n75 *Id.* ("taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest").
n76 *See, e.g., 62 Fed. Reg. at 39,065* (listing various reports that "all suggest that, in addition to setting a constraint value for an individual source, achievement of exposures that are ALARA should continue to be considered as a means of optimization. For this reason and because the generic analysis . . . tends to indicate that achieving doses below 0.25 mSv/y (25 mrem/y) may be ALARA for some cases, the rule continues to require an ALARA evaluation below the unrestricted dose criterion").
[**32]

n77 *See N.J.A.C. § 7:28-6.1(d)(2).*

The gravamen of Shieldalloy's complaint, as we understand it, is that it would prefer the dose limit in the NJDEP's decommissioning regulations to be 25 mrem rather than 15 mrem. This argument fails because New Jersey is permitted to establish more stringent decommissioning standards than the NRC's. This is consistent with the NRC Staff's response to Shieldalloy's comment concerning this issue - an assessment with which we agreed in our approval of the New Jersey Agreement. n78 Viewed another way, Shieldalloy appears to challenge the license termination rule's compatibility category designation. n79 As discussed above, the compatibility designation is made as part of the rulemaking process. Submission of a petition for rulemaking under *10 C.F.R. § 2.802* is the appropriate mechanism for challenging the compatibility category of the license termination rule. For all of these reasons, it is unlikely that Shieldalloy will succeed on the merits of this challenge to the New Jersey program.

n78 *See* SECY-09-0114, Enclosure 2, at 5 ("A state is permitted to establish more stringent dose limits as long as those limits "*provide a sufficient and ample margin of safety to ensure compliance with the public dose limits of 10 CFR Part 20.*" (emphasis added)).
[**33]

n79 *See* Shieldalloy Motion for Stay at 11 (referencing guideline that NRC uses when designating a particular regulation as compatibility category "A," Shieldalloy asserts that "NRC radiation protection regulations are 'basic radiation protection standards'"). *See also id.* at 11-12 n.9 (referencing category "B" program elements).

b. "The New Jersey Program is also incompatible with other aspects of the 10 C.F.R. Part 20 regulations"

Aside from its complaint concerning the 15 mrem dose limit in the NJDEP regulations, in its motion Shieldalloy cites two examples of the "[n]umerous" [*158] "other departures from the Part 20 regulatory requirements." n80 Shieldalloy asserts that New Jersey's program is incompatible because: (1) NJDEP regulations do not permit license termination under restricted release criteria, while restricted release is permitted under NRC regulations; and (2) NJDEP regulations require decommissioning-related dose calculations up to the point of peak dose or 1000 years, whichever is longer, while NRC regulations only require calculation up to 1000 years after decommissioning. n81

n80 Shieldalloy Motion for Stay at 12.
n81 *Id.*

The [**34] NRC's restricted release criteria are provided in *10 C.F.R. § 20.1403*. The NRC dose calculation period is provided in *10 C.F.R. § 20.1401(d)*. Both regulations are part of the license termination rule, and, as such, have been designated as compatibility category "C." As discussed above, a state is permitted to establish standards that are more stringent than the NRC's for category "C" regulations, as long as they embody the essential objective of the NRC's program elements. Neither New Jersey's restricted release criteria n82 nor its requirement of a calculation of up to peak dose n83 is inconsistent with the essential objective of the rule, and the Staff appropriately found them to be compatible. In both of Shieldalloy's examples, the NJDEP's regulations embody the essential objective of the rule because they are aimed at limiting the dose during and after decommissioning activities to members of the public, n84 thus ensuring that decommissioning will be carried out without undue impact on public health and safety and the environment.

n82 *See N.J. Admin. Code §§ 7:28-12.8(a)* (including "limited restricted use" and "restricted use" as decommissioning options), 7:28-12.12 (delineating requirements pertaining to engineering or institutional controls). The NJDEP regulations appear to permit "limited restricted use" and "restricted use" decommissioning options. We construe Shieldalloy's assertion to the contrary as a preference for the NJDEP restricted release criteria to be identical to *10 C.F.R. § 20.1403*.

[**35]

n83 *See N.J. Admin. Code §§ 7:28-12.10(d), 7:28-12.11(f)(2)(iii)*.
n84 *See, e.g.*, 40 N.J. Reg. 5196(b), at 7 (Sept. 15, 2008)(reasoning, in rejecting Shieldalloy's suggestion that 1,000 years should be the limit, that "long-lived radionuclides, such as uranium and thorium, have half-lives in the millions and billions of years and peak doses may well occur after 1,000 years. The [NJDEP] and Commission [on Radiation Protection] believe it is vital to consider the peak dose, whenever it occurs, *to ensure that adequate measures are taken to protect public health and safety*" (emphasis added)).

In addition to explaining that the NJDEP regulations embody the essential objective of the NRC's program, the NRC Staff, in responding to Shieldalloy's comments on the proposed agreement, explained that they also "provide a level of protection of public health and safety that is at least equivalent to that afforded by NRC's requirements." n85 We continue to concur with the NRC Staff's assessment in this regard. Shieldalloy takes issue with the Staff's response, insisting that this [*159] "'equivalency' does not in fact exist." n86 In support of this proposition, Shieldalloy [**36] asserts that without the option of restricted release, it will be required to remove the radioactive materials from the Newfield site, which will "result[] in higher doses to workers and the public and a lower level of protection of public health and safety than that provided by the NRC regulations." n87 Shieldalloy does not offer any support for its assertion that there is no "equivalency" in the NJDEP's peak dose calculation requirement.

n85 SECY-09-0114, Enclosure 2, at 5.
n86 Shieldalloy Motion for Stay at 12.
n87 *Id.* at 13.

Shieldalloy's restricted release argument fails for reasons similar to those addressed above. The NJDEP will review Shieldalloy's decommissioning plan when it is submitted to ensure the protection of workers and the public. n88 At this point in time, "it is premature to argue that additional exposures will be caused by offsite disposal before Shieldalloy proposes offsite disposal in a decommissioning plan." n89 Shieldalloy otherwise fails to offer support for the proposition that New Jersey's program results in a lower level of protection of public health and safety than that provided by the NRC regulatory scheme. n90 In our [**37] view, Shieldalloy is not likely to succeed on the merits of this challenge to the New Jersey program.

n88 New Jersey Response at 4 ("Shieldalloy would be required to propose measures to ensure protection of workers and the environment against radiation hazards during decommissioning. . . . New Jersey would review the plan to ensure that it meets all regulatory standards.").
n89 *Id.*
n90 Indeed, Shieldalloy essentially concedes that New Jersey's program is at least equivalent to the NRC's in observing that additional exposures to workers and the public resulting from removal of the material would be expected to remain within NRC regulatory limits. Shieldalloy Motion for Stay at 7.

c. "The NJDEP Regulations do not allow appropriate exemptions to their provisions"

With respect to this challenge, Shieldalloy argues that certain NJDEP regulations are inconsistent with 1981 Policy Statement Criterion 12. n91 Criterion 12 states that "[c]onsistent with the overall criteria here enumerated and to accommodate special cases or circumstances, the State regulatory authority shall be authorized in individual cases to impose additional requirements to protect health [**38] and safety, or to grant necessary exemptions which will not jeopardize health and safety." n92 Here, Shieldalloy questions the NJDEP's ability to grant exemptions, not its ability to impose additional requirements. Specifically, Shieldalloy states that the NJDEP's decommissioning regulations, unlike NRC regulations: (1) do not permit alternative remediation standards that would exceed the dose criterion [*160] of 15 mrem per year, "even if justified through an ALARA analysis"; (2) do not permit alternative remediation standards if they would result in doses exceeding 100 mrem per year for an "all controls fail" scenario; (3) require the use of tables of parameters based on specific exposure scenarios for dose calculation; and (4) do not allow licensees to take credit for engineering controls such as a fence or cover when modeling the "all controls fail" scenario to determine if the 100 mrem per year limit is exceeded. n93

n91 *Id.* at 13.
n92 *46 Fed. Reg. at 7541*.
n93 Shieldalloy Motion for Stay at 13.

When we approved the New Jersey Agreement, as now, we agreed with the Staff's assessment that NJDEP regulation *N.J.A.C. § 7:28-2.8* fulfills Criterion [**39] 12. This regulation expressly allows the NJDEP to provide exemptions to its rules:

> [The NJDEP may,] upon application and a showing of hardship or compelling need, with the approval of the Commission [on Radiation Protection], . . . grant an exemption from *any requirement of the rules* should it determine that such exemption will not result in any exposure to radiation in excess of the limits permitted by N.J.A.C. 7:28-6, "Standards for protection against radiation." n94

Section 7:28-2.8 thus provides a mechanism for seeking an appropriate exemption, and reflects the NJDEP's determination that an exemption will not jeopardize health and safety if it will not result in exposure to radiation in excess of NJDEP's dose limits.

n94 SECY-09-0114, Enclosure 2, at 6 (emphasis added). *See also N.J. Admin. Code § 7:28-12.11(a)* (permitting the filing of a petition for alternative soil remediation standards as long as the resulting dose would not exceed 15 mrem per year).

Unsatisfied with this response, Shieldalloy asserts that it "ignore[s] New Jersey's position that it is precluded by statute from providing . . . exceptions" that would allow consideration [**40] of the ALARA principle in meeting the decommissioning dose criteria. n95 Shieldalloy's grievance, then, is not that the NJDEP [*161] cannot provide exemptions as a general matter, but rather that it cannot or will not provide the specific exemptions that Shieldalloy would request with respect to the license termination regulations. At bottom, Shieldalloy rehashes its complaint that the NJDEP regulations do not incorporate its - incorrect - interpretation of ALARA. Shieldalloy appears to assume that incorporation of the ALARA principle would permit it to exceed the 15 mrem per year dose limit, but remain under 25 mrem. As discussed above, the ALARA principle, if it were incorporated expressly in the NJDEP's regulations, would require an annual dose limit "as low as is reasonably achievable" under 15 mrem, not 25 mrem.

n95 Shieldalloy Motion for Stay at 14. In its response to Shieldalloy's comments in this regard on the proposed NJDEP rules, the NJDEP stated that "[t]he fact that these dose criteria do not have an explicit associated ALARA requirement is . . . not new. ALARA determinations allow the use of cost as a factor for determining what level of remediation is cost effective below the standards. The [NJDEP] and the Commission [on Radiation Protection] did not include a provision for ALARA in meeting these dose criteria because the Brownfield and Contaminated Site Remediation Act [(BCSRA)], *N.J.S.A. 58:10B-1 et seq.*, does not allow such a provision." 40 N.J. Reg. 5196(b), at 9. In its response, the NJDEP did not explain further what specifically in the BCSRA does not permit the use of ALARA.

Section 58:10B-1.2 articulates the New Jersey Legislature's findings in enacting the BCSRA. The legislature recognized that "often there are legal, financial, technical, and institutional impediments to the efficient and cost-effective cleanup of brownfield sites as well as all other contaminated sites wherever they may be." It determined that "strict standards coupled with a risk based and flexible regulatory system will result in more cleanups and thus the elimination of the public's exposure to these hazardous substances and the environmental degradation that contamination causes." *N.J. Stat. Ann. § 58:10B-1.2*. The NJDEP regulations accordingly provide strict standards - the maximum permissible annual dose cannot exceed 15 mrem; however, "there is flexibility in complying with the remediation standards, including the availability of a petition for alternative remediation standards, *N.J.A.C. 7:28-12.11*." 40 N.J. Reg. 5196(b), at 9.
[**41]

Moreover, Shieldalloy's ALARA reference and the four examples that it provides are based on NJDEP regulations that correspond with the NRC's license termination rule. As such, they are compatibility category "C" regulations, and are therefore permissibly more stringent than the NRC's corresponding regulations. As stated above, by lowering the annual dose limit and requiring the use of conservative dose calculation methodologies, the NJDEP's decommissioning regulations embody the essential objective of the license termination rule. n96 With nothing offered to controvert the finding that the NJDEP's regulations are at least equivalent to the level of protection of public health and safety afforded by NRC requirements, Shieldalloy's argument fails. Accordingly, Shieldalloy is not likely to succeed on the merits with respect to this challenge to the New Jersey program. n97

n96 *See, e.g.*, 40 N.J. Reg. 5196(b), at 8-9 (responding to Shieldalloy's comment regarding the NRC's allowing credit for certain engineering controls when modeling the all controls fail scenario, NJDEP states that "the rules require the [NJDEP] to consider the public health consequences in the event that the engineered barriers completely fail at some point in the future. This is a reasonable approach to ensure an adequate degree of protection to the public health and safety. The NRC approach of assuming that engineered structures degrade over time does not take into account intentional human intervention. In the [NJDEP's] experience, human intervention greatly increases radiation exposure at radiologically contaminated sites").
[**42]

n97 Shieldalloy requested an exemption from the requirements of N.J. Admin. Code §§ 7:28-12 and 7:28-58, which the NJDEP denied on December 11, 2009. *See* December 11 NJDEP Letter at 1. The NJDEP reasoned

that Shieldalloy "ha[d] not demonstrated hardship or a compelling need for the exemption," as required under *N.J. Admin. Code § 7:28-2.8*. *Id.* According to the NJDEP, "if [Shieldalloy] considers itself to be aggrieved by the [NJDEP's] denial of the exemption request," it may request a hearing before the New Jersey Office of Administrative Law within twenty days of receipt of the denial letter. *Id.* at 2.

[*162] d. "The New Jersey Program disrupts ongoing licensed activities"

Finally, in its motion Shieldalloy asserts that the New Jersey program, "as applied to Newfield," fails to satisfy 1981 Policy Statement Criterion 25, n98 which concerns the "arrangements [that] will be made by NRC and the State to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer" of NRC authority. n99 Shieldalloy cites the NJDEP's rejection of its decommissioning plan with the proposed [**43] LTC approach as "disrupting" its licensed activities. This argument is without merit. New Jersey law provides for recognition of NRC licenses, and NJDEP procedures provide that upon the effective date of the agreement, all active NRC licenses issued to facilities in New Jersey will be recognized as NJDEP licenses. n100 Consistent with Criterion 25, the NJDEP recognized Shieldalloy's source material license at the Newfield site. n101 Furthermore, in rejecting its proposed decommissioning plan, the NJDEP acknowledged that Shieldalloy met the timeliness requirements of *10 C.F.R. § 40.42* when it submitted the plan to the NRC. It used this as a basis for granting Shieldalloy an extension of time to file a revised decommissioning plan. n102 These actions appear to be consistent with an orderly transfer of authority between the NRC and New Jersey.

n98 Shieldalloy Motion for Stay at 15.
n99 *46 Fed. Reg. at 7543*.
n100 *See* SECY-09-0114, Enclosure 2, at 8 (citing *N.J. Stat. Ann. § 26:2D-9(k)*; NJDEP BER Procedure 3.08, "License Transition from NRC to New Jersey").
n101 *See* October 8 NJDEP Letter at 1.
n102 *Id.*

Shieldalloy's [**44] arguments to the contrary are, in essence, yet another challenge to the NRC's designation of the license termination rule as compatibility category "C." n103 The NJDEP's rejection of Shieldalloy's proposed decommissioning plan was taken pursuant to the regulatory scheme that we found to be adequate and compatible in accordance with AEA *section 274*. Taking Shieldalloy's argument to its logical conclusion, the NJDEP would have had to apply NRC regulations rather than its own in order to meet Criterion 25 to Shieldalloy's satisfaction. This would be characteristic of compatibility category "A" or "B" regulations, not, as here, compatibility category "C" regulations. For these reasons, Shieldalloy is not likely to succeed on the merits of this challenge to the New Jersey program. n104

n103 *See supra* notes 58 and 67 and accompanying text.
n104 The Frakes Affidavit attached to Shieldalloy's motion contains an additional challenge to the New Jersey program that is not addressed in the body of the motion. In Paragraph 9 of the affidavit, Mr. Frakes asserts that the New Jersey program is incompatible with the NRC's program because it "is aimed specifically and uniquely at the [Shieldalloy] Newfield Facility." Frakes Affidavit P 9. According to Mr. Frakes, this "runs directly contrary to NRC [1981 Policy Statement] Criterion 23, which requires that the State implement 'practices for assuring the fair and impartial administration of regulatory law.'" *Id.* This argument is without merit. The NRC requires states to have a regulatory program in place that will cover all types of uses of the radioactive material or activities over which a state assumes regulatory authority, even if there is only one licensee in the state currently licensed for a specific radioactive material or activity. The NJDEP's license termination regulations would apply to any licensee that submits a request for license termination. *See, e.g.*, 40 N.J. Reg. 5196(b), at 8 ("The fact that there may be only one facility in the State now affected by the rule does not mean that other facilities will not be affected in the future. . . . Creating an open class is not the equivalent of special legislation, which is prohibited, nor is it arbitrary or discriminatory."). We have received no evidence that would indicate that New Jersey's program cannot be implemented fairly and impartially. *See* SECY-09-0114, Enclosure 2, at 7. [**45]

[*163] *3. Balancing of the Stay Factors*

Shieldalloy's failure to satisfy the first two stay factors renders it unnecessary to make determinations on the two remaining factors: harm to other parties and where the public interest lies. n105 Absent a demonstration of irreparable harm or likelihood of success on the merits - the two factors that are given the most weight - we find no basis upon which to grant a stay.

n105 *See Oyster Creek, CLI-08-13, 67 NRC at 400. See also Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-794, 20 NRC 1630, 1635 (1984).*

III. CONCLUSION

For the reasons set forth above, we *deny* Shieldalloy's stay request.

IT IS SO ORDERED.

For the Commission

/RA/

Annette L. Vietti-Cook

Secretary of the Commission

Legal Topics:

For related research and practice materials, see the following legal topics:
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OFFICE OF SECRETARY
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ADJUDICATIONS STAFF

February 4, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Commission

In the Matter of	)	
	)	
SHIELDALLOY METALLURGICAL CORPORATION	)	Docket No. 40–7102–MLA
(License Amendment Request for Decommissioning the Newfield Facility)	)	
	)	

SHIELDALLOY'S RESPONSE TO THE COMMISSION'S JANUARY 3, 2011 ORDER

Shieldalloy Metallurgical Corporation ("Shieldalloy" or "SMC"), holder of Source Materials License No. SMB-743 for its facility in Newfield, New Jersey ("Newfield Facility" or "Facility"), hereby responds to the Commission's request that Shieldalloy and the State of New Jersey ("State" or "New Jersey") "submit views … on whether NRC should reinstate the transfer of regulatory authority [over the Newfield Facility] to New Jersey or retain regulatory authority over the Shieldalloy site." Order (January 3, 2011) at 1. The Commission issued its order in the wake of the decision by the U.S. Court of Appeals for the District of Columbia Circuit that vacated the Commission's transfer of its regulatory authority over the Newfield Facility to the State. The Court remanded the matter to the Commission "for proceedings consistent with this opinion." *Shieldalloy Metallurgical Corp. v. NRC*, 624 F.3d 489, 497 (D.C. Cir. 2010) ("*Shieldalloy*"). The Commission sought neither rehearing nor certiorari to the U.S. Supreme Court and the Court's mandate issued on January 6, 2011.

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As discussed below, the NRC needs to retain regulatory authority over the Newfield Facility if it is to act in accordance with the Court's decision. Further, considerations of public health and safety, fairness and efficiency also dictate that the NRC complete its review of Shieldalloy's decommissioning plan ("DP") for the Facility. Finally, there are significant deficiencies in New Jersey's program for the control of radiation hazards ("the New Jersey Program" or "the Program") in the area of facility decommissioning which render that aspect of the Program incompatible with the NRC's program for the regulation of radioactive materials. For these reasons, Shieldalloy submits that it would be contrary to law and against public policy for the NRC to attempt to retransfer its regulatory authority over the Newfield Facility to New Jersey.

A. SUMMARY OF THE FACTS

The essential facts of this case are not in dispute; many of these facts are set forth in the Court's decision in *Shieldalloy*. Between 1955 and 1998, Shieldalloy manufactured metal alloys at its Newfield Facility. Shieldalloy's manufacturing process generated slightly radioactive byproducts in the form of slag and baghouse dust. The Company held these materials onsite under a Materials License from the NRC. *Shieldalloy*, 624 F.3d at 491.

In the early 1990s, Shieldalloy took the first steps toward decommissioning the Newfield Facility. Based on discussions with the NRC staff ("Staff"), it developed a conceptual plan for onsite disposal of the materials under conditions restricting the site's use. At about the same time, the NRC developed, and in 1997 published, a final rule on the decommissioning of licensed facilities. 10 C.F.R. §§ 20.1401-06, 62 Fed. Reg. 39,058 (July 21, 1997). Although this license termination rule ("LTR") expressed a preference for remediating a site in a way that allowed

unrestricted use, it allowed firms the option to dispose of radioactive materials onsite under restrictions designed to guarantee public health and safety. *Shieldalloy*, 624 F.3d at 491.

Over the next decade, the Staff and Shieldalloy engaged in extensive discussions regarding the onsite disposal of the radioactive materials at the Newfield site. Between 2002 and 2009, Shieldalloy submitted four iterations of its decommissioning plan, two of which the Staff rejected and one of which the Staff accepted for technical review. Shieldalloy prepared or revised each proposed plan based on the Staff's comments on the previous version, an extensive site-specific "Interim Guidance" document provided by the Staff to Shieldalloy on April 15, 2004, and a generic three-volume regulatory guidance document issue by the NRC in 2006.[1] The Staff declined to review the fourth (most recent) version of the DP; instead, in light of the NRC's roughly simultaneous transfer of regulatory authority, the Staff forwarded the plan to New Jersey along with its previously accumulated files. *Shieldalloy*, 624 F.3d at 491.

In October 2008, New Jersey applied for a transfer of regulatory authority over certain in-state nuclear materials from the NRC, pursuant to the "Agreement State" provision in 42 U.S.C. § 2021. Under that provision, Congress has authorized the NRC to "enter into agreements with the Governor of any State providing for discontinuance of the regulatory authority of the [NRC]" and the assumption of authority by the state. 42 U.S.C. § 2021(b). Before making such an agreement, however, the NRC must find that the state's regulatory regime is "compatible with the [NRC's] program" and that the state's regime is "adequate to protect the public health and safety." *Id.* § 2021(d)(2). *Shieldalloy*, 624 F.3d at 491.

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[1] NUREG-1757, Consolidated Decommissioning Guidance (Sept. 2006).

To evaluate the compatibility of the state and federal regulatory programs, the NRC considers thirty-six criteria that it has enumerated in a policy statement.[2] The agency clarified its evaluation process in a later policy statement, in which it interpreted the compatibility requirement as mandating that the state program must "not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis."[3] Pursuant to this policy, each element of the NRC's program is assigned to one of five categories, A through E. For NRC program elements classified as "Category C," each element of the state program must "embody the essential objective" of its federal counterpart. In a later document, the NRC deemed the license termination rule to be a Category C element of its program. *Shieldalloy,* 624 F.3d at 491-92.

After finding New Jersey's program adequate and compatible with the federal program, the NRC published a notice of the proposed agreement in the Federal Register and sought comments from the public, pursuant to its statutory obligation under 42 U.S.C. § 2021(e). In a letter to the NRC responding to the call for comments, Shieldalloy described a number of reasons why the New Jersey and federal programs are incompatible.[4] One of these reasons is that the New Jersey Program fails to satisfy Compatibility Criterion 25,[5] which requires that appropriate arrangements be made by the NRC and the applying State to "ensure that there will be no interference with or interruption of … the processing of license applications, by reason of the

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[2] Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States through Agreement, 46 Fed. Reg. 7540 (Jan. 23, 1981), as amended by 46 Fed. Reg. 36,969 (July 16, 1981) and 48 Fed. Reg. 33,376 (July 21, 1983).

[3] Statement of Principles and Policy for the Agreement State Program; Policy Statement on Adequacy and Compatibility of Agreement State Programs, 62 Fed. Reg. 46,517, 46,524 (Sept. 3, 1997).

[4] Letter from Hoy E. Frakes, Jr., President, Shieldalloy, to Michael T. Lesar, NRC (June 11, 2009) ("Shieldalloy Comments"), Joint Appendix in D.C. Circuit case ("JA") at 259-448.

[5] *Id.* at 267-68.

transfer."[6] Shieldalloy's comments pointed out that non-compliance with Criterion 25 is evident because "instead of ensuring that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer, New Jersey has done everything possible to interfere with the processing of SMC's DP application, an interference that continues to this day."[7] Shieldalloy also argued that the NRC had the authority to retain jurisdiction over the Newfield Facility even if it decided to transfer jurisdiction over other facilities in New Jersey to the State, and requested that the agency exercise this authority given that a transfer of authority to New Jersey would be inconsistent with Criterion 25.[8]

The Staff failed to address some of Shieldalloy's comments and rejected the rest, including the request that the agency retain jurisdiction over the Newfield Facility even if it decided to allow New Jersey to become an Agreement State.[9] Based on the Staff's recommendations, the Commission approved the transfer of authority to New Jersey. The transfer took effect on September 30, 2009.[10]

Only a few days after the transfer of authority, New Jersey notified Shieldalloy that it had determined that the most recent revision of the DP, hitherto pending before the NRC, did not meet New Jersey's remediation requirements and directed Shieldalloy to submit a new plan that satisfied those requirements.[11] New Jersey thus summarily terminated processing of

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6 46 Fed. Reg. at 7,543.

7 Shieldalloy Comments, JA at 268.

8 *Id.* at 269-71.

9 Memorandum from R.W. Borchardt to NRC Commissioners, Section 274b Agreement with the State of New Jersey, SECY-09-0114, Encl. 2 (Aug. 18, 2009) ("Staff Response to Shieldalloy Comments").

10 State of New Jersey: Discontinuance of Certain Commission Regulatory Authority Within the State; Notice of Agreement Between the Nuclear Regulatory Commission and the State of New Jersey, 74 Fed. Reg. 51,882 (Oct. 8, 2009).

11 *See* New Jersey Department of Environmental Protection ("NJDEP") letter to Shieldalloy dated October 8, 2009, Exhibit B to Shieldalloy's October 14, 2009 Amended Motion for Stay Pending Judicial Review of Commission

(Footnote continued on next page)

Shieldalloy's license application and did not even address the previously ongoing Staff review of the DP or the pending proceeding on the DP before an NRC Atomic Safety and Licensing Board.[12]

The D.C. Circuit's opinion describes what happened next: "Worried that it would now be forced to jettison its plans for on-site remediation and instead transfer the radioactive materials to a facility in Clive, Utah, Shieldalloy sought relief along multiple avenues. It requested an exemption from the relevant New Jersey regulatory provisions (and was denied). It filed a motion with the NRC to stay the transfer for regulatory authority (and was denied). And it filed the instant petition [in the D.C. Circuit] seeking judicial review of the NRC's transfer." *Shieldalloy,* 624 F.3d at 492. Less than a month after oral argument, the Court issued a unanimous opinion in which it found the NRC decision to transfer jurisdiction over the Newfield Facility to New Jersey to be arbitrary and capricious, vacated the transfer, and remanded the matter to the NRC for further proceedings in accordance with the Court's decision. *Id.* at 497.

Action Transferring Regulatory Authority Over Newfield, New Jersey Facility to the State of New Jersey, Supplemental Appendix filed with the DC Circuit ("SA") at 300.

[12] New Jersey had announced at least as early as December 2008 that, once it assumed jurisdiction over the Newfield Facility, it would reject the decommissioning approach proposed by Shieldalloy. December 23, 2008 letter from NJDEP to Shieldalloy. JA at 446-47. It therefore came as no surprise that, immediately upon assuming regulatory authority over the Facility, it proceeded to do so.

B. DISCUSSION

1. The NRC will need to Retain Jurisdiction over the Newfield Facility in Order to Comply with the Court's Decision and its Mandate

a. The Court's Mandate is Legally Binding on the NRC and Must be Observed

A federal agency is bound to comply with the terms of a mandate issued by a reviewing U.S. Court of Appeals when it conducts further administrative proceedings. It is a well-settled principle of appellate law that, under the so-called mandate rule, "an inferior court has no power or authority to deviate from the mandate issued by an appellate court." *Briggs v. Pa. R.R. Co.*, 334 U.S. 304, 306 (1948) (citations omitted). The mandate rule applies to administrative agencies as well as to lower courts. *City of Cleveland v. FPC*, 561 F.2d 344, 346 (D.C. Cir. 1977). The mandate rule is a "more powerful version of the law-of-the-case doctrine, which prevents courts from reconsidering issues that have already been decided in the same case." *Role Models Am., Inc. v. Geren*, 514 F.3d 1308, 1311 (D.C. Cir.), *cert denied*, 129 S.Ct. 489 (2008) (citation omitted). Thus, it is "indisputable" that "a lower court is bound to respect the mandate of an appellate tribunal and cannot reconsider questions which the mandate has laid at rest." *FCC v. Pottsville Broad. Co.*, 309 U.S. 134, 140 (1940). Under the same doctrine, an agency is bound to act in accordance with a reviewing court's mandate. *See id.* at 140, 145; *City of Cleveland*, 561 F.2d at 346.

As the District of Columbia Circuit has explained, an administrative agency must adhere to a reviewing court's mandate, deviations from which may be remedied by *mandamus* procedures:

> The decision of a federal appellate court establishes the law binding further action in the litigation by another body subject to its authority. The latter "is without power to do anything which is contrary to either the letter or spirit of the mandate construed in the light of the opinion of (the) court deciding the case," and the higher tribunal is amply armed to rectify any deviation through the process of mandamus. "That approach," we have said, "may appropriately be utilized to correct a misconception of the scope and effect of the appellate decision." These principles, so familiar in operation within the hierarchy of judicial benches, indulge no exception for reviews of administrative agencies.

City of Cleveland, 561 F.2d at 346 (footnotes omitted) (granting a prevailing petitioner's motion for direction to comply with the court's mandate); *see also Reich v. Contractors Welding*, 996 F.2d 1409, 1410, 1414 (2d Cir. 1993).[13]

In the present case, the D.C. Circuit held that the Commission's transfer of regulatory authority over the Newfield Facility to New Jersey was arbitrary and capricious, vacated the Commission's transfer of authority, and remanded the case for "proceedings consistent with this opinion." *Shieldalloy*, 624 F.3d at 497. The Court's decision and mandate signify that the Commission is to retain jurisdiction over the Newfield Facility. Nothing has changed since the Court's decision was issued, and there is no possibility that the New Jersey Program could be brought into compliance with the NRC compatibility criteria.

b. Non-Compliance with Criterion 25 Makes the New Jersey Program Incompatible with the NRC's Regulatory Scheme and Precludes the Transfer of Authority over the Newfield Facility to New Jersey

As a basis for dismissing the portion of Shieldalloy's comments to the NRC that asserted the non-compliance with Criterion 25, the Staff predicted that there would be a "smooth

[13] In the event of further administrative proceedings following an appellate court's ruling, the reviewing court maintains enforcement authority to ensure that its mandate is carried out by the agency. *Int'l Union v. OSHA*, 976 F.2d 749, 750 (D.C. Cir. 1992). The reviewing court also has the power "to direct future compliance with [its mandate] by mandamus." *Am. Trucking Ass'ns v. ICC*, 669 F.2d 957, 961 (5th Cir. 1982), *cert. denied*, 460 U.S. 1022 (1983); *see also United States v. U.S. Dist. Court*, 334 U.S. 258, 264 (1948).

transition" of regulatory authority and New Jersey would make decisions on pending licensing actions.[14] The D.C. Circuit rejected the Staff's asserted rationale as inadequate:

> This hardly answered Shieldalloy's contention that its license termination process would be disrupted and that no appropriate arrangements had been made. Although the fact of New Jersey's participation in prior or concurrent NRC regulatory proceedings does not necessarily prejudice a transfer agreement, the formal existence of New Jersey provision for transfer seems in no way an assurance that the transfer would satisfy criterion 25's intended preclusion of "interference with or interruption of licensed activities or the processing of license applications." 46 Fed. Reg. at 7543. Obviously the NRC need not automatically consider every single pending licensing action individually when it considers transfer to a state. But in this case the NRC had a long history of dialogue and cooperation regarding the termination of a license, the state has been consistently hostile to those termination proceedings, and the regulated entity alerted the NRC not only to the likely interference with decommissioning but also to partial transfer as a possible solution. *At the very least, the NRC should have explained how Shieldalloy's decommissioning process could proceed under the New Jersey regime free of the interference and interruption sought to be avoided by criterion 25* and why the partial transfer was not an appropriate alternative arrangement.

Shieldalloy, 624 F.3d at 494-95 (emphasis added). Given that New Jersey was, and remains, opposed to the processing of the DP application,[15] there is no way that Shieldalloy's decommissioning process "could proceed under the New Jersey regime free of the interference and interruption sought to be avoided by Criterion 25." Thus, nothing has happened since last November that would warrant a change in the Court's analysis and conclusion. The New Jersey Program violates Criterion 25 and the NRC cannot lawfully transfer regulatory authority over the Newfield Facility to the State.[16]

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[14] Staff Response to Shieldalloy Comments at 8.

[15] Only a few weeks ago, a spokesman for New Jersey again indicated: "'Our position has not changed,' said Larry Hajna, DEP spokesman. 'We want the material removed from Newfield and taken to an appropriate disposal facility.'" Carly Romalino, *Nuclear Regulatory Commission issues order for Shieldalloy, New Jersey to offer cases for clean-up control of Newfield slag pile,* GLOUCESTER COUNTY TIMES, Jan. 5, 2011, at 1, Exhibit 1 hereto.

[16] In finding that the New Jersey Program complied with Criterion 25, the Commission pointed out that New Jersey had recognized the NRC license for the Newfield Facility and that, in rejecting the Shieldalloy DP, New Jersey had acknowledged that Shieldalloy met the timeliness requirements of 10 C.F.R. § 40.42 when it submitted the

(Footnote continued on next page)

c. The NRC can Retain Jurisdiction over the Newfield Facility even if it Transfers other Facilities to New Jersey

As noted above, Shieldalloy's comments on New Jersey's Agreement State application urged that, even if the NRC transferred jurisdiction over other facilities to the State, it should exercise its authority to retain jurisdiction over the Newfield Facility.[17] In its response, the Staff stated that the "legislative history for [Section 274 of the Atomic Energy Act, 42 U.S.C. § 2021] specifically states that Congress did not intend to allow concurrent regulatory authority over licensees for public health and safety," and that as a result, "all NRC licensees within the categories of materials for which the State requested authority will transfer to the State."[18]

The D.C. Circuit, however, determined that the NRC had developed criteria for determining whether particular facilities would be excluded from the transfer of authority to a state, and that the criteria applied to the Newfield Facility situation and would have allowed the NRC to retain jurisdiction over the Facility. The Court found:

> NRC practice leaves it far more leeway than its dismissive answer to Shieldalloy suggests. It is quite true that NRC policy, developed in connection with a jurisdictional transfer to Oklahoma, rejects an exclusion of "single licensees absent an identified subcategory of material." Memorandum from L. Joseph Callan, Exec. Dir. of Operations, to NRC Commissioners, 1, 3, Oklahoma Agreement State Negotiations, SECY-97-087 (Apr. 22, 1997). But just after articulating that view, the NRC approved an exclusion of Oklahoma from

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plan to the NRC, and had granted Shieldalloy an extension of time to file a revised decommissioning plan. *Shieldalloy Metallurgical Corp.* (License Amendment Request for Decommissioning of the Newfield, New Jersey Site), CLI-10-08, 71 NRC __, slip op. at 28 (Jan. 7, 2010). However, this explanation of why Criterion 25 was satisfied elevated form over substance and, as the Court ruled, "hardly answered Shieldalloy's contention that its license termination process would be disrupted and that no appropriate arrangements had been made." *Shieldalloy*, 624 F.3d at 494. There can be no question that New Jersey did not intend to continue processing the DP application, and in fact wasted no time in rejecting the application outright. By contrast, other States, such as Ohio, have honored and continued the ongoing NRC licensing process and have brought it to completion after due consideration, thus complying with both the letter and the intent of Criterion 25. *See, e.g.*, http://www.nrc.gov/info-finder/decommissioning/complex/metallurg-vanadium-corporation.html, SA at 638.

[17] Shieldalloy Comments, JA at 269-70.

[18] Staff Response to Shieldalloy Comments at 10.

> jurisdiction over certain subcategories of materials that in fact covered a very limited set of sites. The history of the Oklahoma transfer is telling.
>
> In the late 1990s, Oklahoma submitted a draft transfer application that excluded five specific sites undergoing decommissioning. *Id.* at 1-2. Though the NRC staff recognized that the NRC had entered into limited agreements in the past, it rejected Oklahoma's request as inconsistent with the statutory provisions, because the exclusion of single licensees, "absent an identified subcategory of material," might create "an unwieldy and confusing pattern of regulation." *Id.* at 3. The NRC staff recommended rejecting Oklahoma's proposal. At the same time, however, it offered guidelines for considering future proposals for limited agreements:
>
> > [R]equests for limited Agreements would have to identify discrete categories of material or classes of licensed activity that (1) can be reserved to NRC authority without undue confusion to the regulated community or burden to NRC resources, and (2) can be applied logically, and consistently to existing and future licensees over time. Under this approach, NRC would not reserve authority over a single license unless that licensee clearly constituted a single class of activity or category of material meeting the two criteria described above. *Id.* at 5-6.
>
> The NRC approved both of the staff recommendations. Two years later, in 1999, Oklahoma proposed a limited agreement that excluded a subcategory of materials - a category that aligned closely with the sites Oklahoma had desired to exclude in its site-specific proposal two years earlier. Applying the previously developed factors for limited agreements, the NRC staff this time recommended approval of the limited transfer. *The Oklahoma case is strikingly relevant to Shieldalloy's situation because Shieldalloy argues, and the NRC does not dispute, that its radioactive wastes constitute the sole New Jersey example of a discrete subcategory of materials.*

Shieldalloy, 624 F.3d at 493-94 (emphasis added) (footnotes omitted).

At oral argument before the D.C. Circuit, NRC counsel, in direct contradiction to the position taken in the Staff Response to Shieldalloy Comments, for the first time argued that the Atomic Energy Act does authorize partial transfer of authority, but only if sought by the applying State, and not if requested by the affected licensee. NRC counsel could not provide support for such a reading of the statute, which was rejected by the Court:

> But the statute also provides that "the Commission is *authorized* to enter into agreements" with a state "with respect to *any one or more* of" a variety of classes

> of nuclear materials. 42 U.S.C. § 2021(b) (emphasis added). As the opening phrase suggests that the NRC is not *required* to enter into agreements, it suggests that it has discretion to negotiate the terms of the agreement with the state requesting authority.

Shieldalloy, 624 F.3d at 495 (emphasis in original). In short, the Court ruled that the NRC has no obligation to accept "as is" an Agreement State application tendered by the applying State, but can modify it, on its own accord or as requested by regulated entities, to exclude certain facilities from the transfer of authority, as long as the criteria developed by the Staff in 1997 in SECY-97-087 are satisfied.

There is no doubt that the Newfield Facility meets both criteria. *First*, as the Court concluded, *see id.*, authority over the materials at Newfield can be reserved to the NRC without undue confusion to the regulated community or burden to NRC resources because those materials are undisputedly the only ones of their type in New Jersey. *Second*, the NRC can narrowly define a category that includes the materials and which could be applied to future licensees over time in the very unlikely event that other similar sites were to be developed in New Jersey. Thus, there are no impediments to the NRC retaining jurisdiction over the Facility and, under the circumstances, it has the obligation to do so.

2. Public Health and Safety and Considerations of Fairness and Efficiency Dictate that the NRC Retain Jurisdiction over the Newfield Facility

Even if the D.C. Circuit's decision were not a compelling reason for the NRC to retain authority over the Newfield Facility, considerations of public health and safety, fairness and efficiency would warrant the same result.

The New Jersey Program affords less protection of public health and safety than the NRC regime with respect to the Newfield Facility. For that reason, transfer of authority over the

Facility to the State would decrease such protection and be inimical to the NRC's fundamental mission, a prospect that the D.C. Circuit found "troubling." *Shieldalloy,* 624 F.3d at 496.[19]

Moreover, in light of the twenty-year history of Shieldalloy's efforts to develop a decommissioning plan for the Newfield Facility that would meet NRC's approval, transfer of authority over the Facility to New Jersey would be unfair and inefficient. The NRC should accordingly retain jurisdiction and bring to an end the protracted process of decommissioning the Facility.

a. Protection of Public Health and Safety Requires that the NRC Retain Jurisdiction

Shieldalloy has repeatedly maintained, and its analyses have shown, that terminating the license under restricted conditions by the method described in the DP (i.e., isolating the materials onsite under an appropriate cover) would result in doses to the decommissioning workers and the general public that are lower than those that would result from digging up the materials, loading them onto trucks or train cars, shipping them cross-country, and disposing of them in a similar fashion in another state.[20] Shieldalloy's position has not been controverted at any time by the Staff or by New Jersey. Thus, if the NRC retains authority over the Newfield Facility, it will be in a position to approve (assuming its regulatory requirements are satisfied) a decommissioning method that optimizes protection of public health and safety. This is in itself sufficient reason for the NRC to retain jurisdiction.

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[19] The Court noted that "the NRC's commitment to protecting public health and safety from nuclear materials throughout the nation, see, e.g., Compatibility Guidance Document, 62 Fed. Reg. at 46,520 (stating that the NRC's mission is to enable civilian nuclear use 'with adequate protection of public health and safety' and that the NRC must ensure a 'coherent nationwide effort' for the control of nuclear materials)." *Id.*

[20] The DP revision that was pending review by the NRC at the time authority was transferred contains a detailed analysis demonstrating that terminating the Facility license under restricted conditions minimizes radiation doses to the public. DP Rev. 1b (Aug. 2009) at xxiv – xxv, Chapter 7, and Appendix 19.12. The same conclusion was stated in earlier revisions of the DP, dating back to at least 2005, which the NRC had reviewed. *See*, DP Rev. 1 (Oct. 2005), at xxv, Section 7.5. DP Rev. 1a (June 2006) is identical to Rev. 1 in this area.

b. NRC's Retention of Jurisdiction is the Fair and Efficient Approach to the Decommissioning of the Newfield Facility

In its comments to the NRC on the New Jersey Program and in submittals to the NRC and the D.C. Circuit thereafter, Shieldalloy has described the long history of its efforts to gain NRC approval of its plan for onsite disposal of the radioactive materials at the Newfield Facility.[21] Shieldalloy has argued that fairness and efficiency warrant that the NRC retain authority over the Facility, lest the significant time, effort and money expended by Shieldalloy be negated.[22]

It is beyond dispute that Shieldalloy has sought for many years to develop a decommissioning plan that meets the NRC license termination requirements and guidance. Shieldalloy and the NRC Staff have had countless interactions over those years and Shieldalloy has spent millions of dollars trying to satisfy the agency's evolving requirements. The NRC has unique expertise in decommissioning matters, has great familiarity -- developed over the course of half a century -- with the Newfield Facility and the materials it contains, and has developed detailed site-specific and generic guidance on how to implement the decommissioning of a complex site such as Newfield to ensure compliance with the license termination rule. Under these unique circumstances, both fairness and efficiency require that the NRC complete its

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[21] Shieldalloy Comments, JA at 269-70; Shieldalloy's Amended Motion for Stay Pending Judicial Review of Commission Action Transferring Regulatory Authority over Newfield, New Jersey Facility to the State of New Jersey (Oct. 14, 2009) at 6-8; Shieldalloy's Brief to D.C. Circuit (Apr. 22, 2010) at 13-24 and 66-69.

[22] The D.C. Circuit noted sympathetically that Shieldalloy had "pointed to the time and expense that Shieldalloy devoted to working with the NRC staff to develop a plan for safely decommissioning the site (over $2 million in 2007-2009 alone), which it implied would be largely wasted under New Jersey's different approach." *Shieldalloy*, 624 F.3d at 493 (citation omitted). The Court also cited the fact that "in this case the NRC had a long history of dialogue and cooperation regarding the termination of a license, the state has been consistently hostile to those termination proceedings, and the regulated entity alerted the NRC not only to the likely interference with decommissioning but also to partial transfer as a possible solution." *Id.* at 494-95.

review of Shieldalloy's DP and approve a suitable plan for the decommissioning of the Newfield Facility.

3. **The New Jersey Program is Incompatible in Many Respects with the NRC's Regulatory Framework**

The D.C. Circuit noted, but determined it did not need to address "given [its] findings on criterion 25 and the retention of jurisdiction," the other areas of incompatibility between the New Jersey Program and the NRC's regulatory scheme asserted by Shieldalloy. *Shieldalloy*, 624 F.3d at 496. These other areas of incompatibility also require that the NRC refrain from another attempt to transfer jurisdiction over the Newfield Facility to New Jersey. While the NRC has previously failed to find that such areas of incompatibility exist, it is appropriate to recount them briefly here.

a. Failure to Implement the ALARA Principle

In its comments to the NRC regarding New Jersey's Agreement State application, Shieldalloy pointed out that the New Jersey Program fails to incorporate the "as low as is reasonably achievable" ("ALARA") principle set forth, *inter alia*, in 10 C.F.R. § 20.1003 (2010).[23] New Jersey has acknowledged that this is the case.[24]

Failure to implement the ALARA standard would allow New Jersey to reject the decommissioning option for the Newfield Facility that would result in the lowest doses to the

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[23] Shieldalloy Comments, JA at 261.

[24] In response to a Shieldalloy comment on the proposed Program that New Jersey "should allow use of NRC remediation dose criteria when appropriate and when justified based on the As Low As Reasonably Achievable (ALARA) principle," New Jersey stated: "The [NJDEP] and the Commission did not include a provision for ALARA in meeting these dose criteria because the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq., does not allow such a provision." Shieldalloy Comments, 40 N.J. Reg. 5196(b), at 8, JA at 290.

public and the environment, that is, stabilization of the radioactive materials and capping in place, as described in the DP. Instead, the State would be able to order Shieldalloy to remove the materials from the site and ship them cross-country for similar disposal in place – a decommissioning choice that would result in higher radiation doses to workers, the public and the environment, and would not be ALARA.[25]

b. Failure to Allow the Termination of Materials Licenses under Restrictive Release Criteria

New Jersey's Program does not permit properly isolated radioactive material to remain at a site even if the remediation method is subject to NRC approval and long-term control of the site is maintained by the federal government. None of the New Jersey regulations establish license termination subject to restricted conditions as a permissible decommissioning option. At most, licensees are allowed (subject to various limitations established in the regulations) to petition to use "alternative remediation standards," without specification of the criteria for the granting of such petitions. This makes illusory the availability of license termination subject to restricted conditions, since authorization to use such a termination method is left to the State's discretion. In Shieldalloy's case, license termination under restricted conditions is impossible because, as discussed above, the State has summarily stated that it will not allow this option for the Newfield Facility.[26]

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[25] Consolidating the radioactive materials at the Newfield Facility site under an appropriately robust shielding cover (engineered barrier) results in very low levels of radioactivity being released to the environment. Such releases are lower than those that would result from the multi-step process of dismantling the piles of material, processing them for transportation, and shipping them offsite. *See* DP Rev. 1b, Executive Summary at xxv.

[26] New Jersey has unambiguously declared that its regulations do not allow license termination based on onsite remediation. December 11, 2009 NJDEP letter to Shieldalloy's counsel. In addition, in December 2008, New Jersey flatly told Shieldalloy that it will not allow onsite disposal of the materials at the Site. New Jersey's contemporaneous interpretation of what its own regulations permit is controlling. *See, e.g., Dillmon v. NTSB*, 588 F.3d 1085, 1092 (D.C. Cir. 2009); *In re Stream Encroachment Permit*, 955 A.2d 964, 970 (N.J. Super. Ct. App. Div. 2008).

c. Substantial Departures of the New Jersey Program from the LTR

It is undisputed (indeed, New Jersey admits) that the New Jersey Program significantly departs from the LTR in a number of important respects.[27] These differences are such that the Program fails to give effect to the essential objective of those NRC regulations. As acknowledged by the Staff, those deviations include: (1) the maximum allowable total dose to a member of the public of 15 mrem/year versus 25 mrem/year in NRC's regulations; (2) failure to include implementation of the ALARA principle; (3) failure to include provisions for restricted release; (4) requiring calculation of peak dose whenever it occurs rather than calculating it over 1,000 years for demonstration of compliance; (5) failure to allow for dose potentials of more than 100 mrem/year total effective dose equivalent under any circumstances; and (6) requiring that radioactivity releases to ground and surface water be limited to the levels set by the New Jersey Ground Water and Surface Water Standards.[28] Shieldalloy had pointed out these differences to the NRC in its comments on the New Jersey Program.[29]

The license termination rule addressed and rejected each aspect of the New Jersey Program that is at odds with the LTR. The Program's inclusion of standards explicitly rejected in the LTR renders the license termination elements of the New Jersey Program totally unlike those in the NRC regulations. Thus, the Program cannot meet the compatibility requirement for Agreement State eligibility.[30]

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[27] In its *amicus* brief before the D.C. Circuit, New Jersey acknowledges that the New Jersey Program departs from the LTR in a number of respects. Brief for the Amicus Curiae State of New Jersey in Support of Affirming the Order of Federal Respondents (July 13, 2010) at 22-25.

[28] Staff Response to Shieldalloy Comments at 4.

[29] *See, e.g.*, Shieldalloy Comments, JA at 261-62.

[30] The D.C. Circuit noted as an apparent deficiency in the NRC's evaluation scheme the failure to address the LTR directly in the compatibility criteria. *Shieldalloy*, 624 F.3d at 496-97. Shieldalloy had classified the discrepancies between the New Jersey Program and the LTR as a non-compliance with Compatibility Criterion

(Footnote continued on next page)

d. Failure to Provide for the Fair and Impartial Administration of Regulatory Law

Compatibility Criterion 23 requires that a state program incorporate practices for assuring the fair and impartial administration of regulatory law in the formulation of rules of general applicability. Shieldalloy pointed out in its comments how the regulations issued by New Jersey are aimed at, and adverse to, the Newfield Facility.[31]

While an Agreement State must have a regulatory program in place for all of the materials over which it seeks regulatory jurisdiction even if there is only one licensee currently licensed for a specific radioactive material or activity, the State must deal with that single licensee fairly. New Jersey did not do so. In developing the license termination elements of its Program, New Jersey knew that these would affect only the Newfield Facility. There are no other existing "legacy sites" in New Jersey containing source material to which these regulations could apply at some future time. It is also extremely improbable, if not impossible, for a new facility where source materials are used to be licensed under New Jersey's radiation control rules. Indeed, New Jersey expects there will be no other such licensees in the future.[32] Therefore, because the New Jersey Program includes a host of onerous provisions that are and will remain applicable to only one facility, there can be no question that the Program in this area is neither fair nor impartial – it is aimed solely at the Newfield Facility and intended to force the removal of the materials stored at the Newfield site.

9, since the LTR was not cited in the compatibility criteria and the materials at the Newfield Facility can be viewed as radioactive waste, the disposal of which is the subject of Criterion 9. Whether Criterion 9 applies is immaterial to the fact that the New Jersey Program fails to give effect to the essential objective of the LTR.

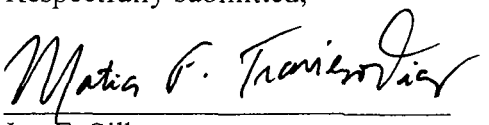
[31] Shieldalloy Comments, JA at 266-67.

[32] New Jersey Agreement State Application, Vol. 2 (Sections 4.3 & 4.4) Section 4.3.1 at 5, JA at 224.

CONCLUSION

The reasons stated above warrant that the NRC retain jurisdiction over the Newfield Facility and complete its review of Shieldalloy's decommissioning plan.

Respectfully submitted,



Jay E. Silberg
Matias F. Travieso-Diaz
Robert B. Haemer
PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N Street, N.W.
Washington, DC 20037-1128
Tel. (202) 663-8142
Counsel for Shieldalloy Metallurgical Corporation

Dated: February 4, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Commission

In the Matter of	)	
	)	
SHIELDALLOY METALLURGICAL CORPORATION	)	Docket No. 40–7102–MLA
(License Amendment Request for Decommissioning the Newfield Facility)	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of Shieldalloy's Response to the Commission's January 3, 2011 Order, dated February 4, 2011, were served on the persons listed below by deposit in the U.S. Mail, first class, postage prepaid, and where indicated by an asterisk also by electronic mail, this 4th day of February, 2011.

Hon. Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, D.C. 20555-0001
chairman@nrc.gov

Hon. Kristine L. Svinicki
Commissioner
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, D.C. 20555-0001
CMRSVINICKI@nrc.gov

Hon. George Apostolakis
Commissioner
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, D.C. 20555-0001
CMRAPOSTOLAKIS@nrc.gov

Hon. William D. Magwood, IV
Commissioner
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, D.C. 20555-0001
CMRMAGWOOD@nrc.gov

Hon. William C. Ostendorff
Commissioner
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, D.C. 20555-0001
CMROSTENDORFF@nrc.gov

*Administrative Judge
Alan S. Rosenthal, Chair
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Mail Stop – T-3 F23
Washington, D.C. 20555-0001
alan.rosenthal@nrc.gov

*Administrative Judge
William Reed
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Mail Stop – T-3 F23
Washington, D.C. 20555-0001
whrcville@embarqmail.com

*Administrative Judge
Dr. Richard E. Wardwell
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Mail Stop – T-3 F23
Washington, D.C. 20555-0001
richard.wardwell@nrc.gov

*Office of the Secretary
Att'n: Rulemakings and Adjudications Staff
U.S. Nuclear Regulatory Commission
Mail Stop O-16 G4
Washington, D.C. 20555-0001
secy@nrc.gov; hearingdocket@nrc.gov

Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Mail Stop O-16 G4
Washington, D.C. 20555-0001
OCAAmail@nrc.gov

Adjudicatory File
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Mail Stop T-3 F23
Washington, D.C. 20555-0001

*Michael J. Clark, Esq.
*Catherine Scott, Esq.
U.S. Nuclear Regulatory Commission
Office of the General Counsel
Mail Stop O-15 D21
Washington, DC 20555-0001
Michael.Clark@nrc.gov;
catherine.marco@nrc.gov

Paula T. Dow, Esq.
Attorney General of New Jersey
*Andrew W. Reese, Esq.
*Kenneth Elwell, Esq.
Deputy Attorneys General
New Jersey Office of the Attorney General
Department of Law and Public Safety
25 Market Street
P.O. Box 093
Trenton, NJ 08625-0093
reeseand@dol.lps.state.nj.us
kenneth.elwell@dol.lps.state.nj.us

* Joshua A. Kirstein, Law Clerk
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C.
20555-0001
E-mail: Josh.Kirstein@nrc.gov

*SherVerne R. Cloyd
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Mail Stop – T-3 F23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
sherverne.cloyd@nrc.gov

*OGC Mail Center
E-mail: OGCMailCenter@nrc.gov

Matias F. Travieso-Diaz

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Nuclear Regulatory Commission issues order for Shieldalloy, New Jersey to offer cases for clean-up control of Newfield slag pile

Wednesday, January 05, 2011
By Carly Q. Romalino
cromalino@sjnewsco.com

NEWFIELD Residents and legislators feared that a November court ruling would keep the state from obtaining clean-up control over the Shieldalloy Metallurgical Corporation site here.

But an order issued by the federal Nuclear Regulatory Commission will reopen debate over whether New Jersey or the NRC will regulate how the contaminated West Boulevard site is decommissioned.

The NRC issued an order Monday that requests the Shieldalloy company and the state submit views on a topic that has been argued in court for a half-decade: Should the NRC retain regulatory authority over the site's decommissioning, or should the responsibility be handed back to the state for a second time?

"Both parties have made it pretty clear in the past what their preferences are, but in light of the latest court decision by the (District of Columbia) Court of Appeals, this is an opportunity for them to weigh in once more," said Neil Sheehan, spokesman for the NRC, a federal agency that regulates sites like Shieldalloy, nation-wide.

In 2009, the NRC granted New Jersey regulatory authority over the site and it's eight-acre pile of low-level radioactive material that contains traces of uranium and thorium. The November court ruling overturned the NRC decision, and stripped the state of its control, marking the power shift as "arbitrary and capricious."

"We determined at the time that it made sense for New Jersey to take on the responsibility," Sheehan said. "But the court had some concerns about that ... one of the concerns was that the court did not believe there was sufficient explanation."

Shieldalloy, which petitioned for the NRC to regain control, argued that the federal agency's guidelines allowed for the materials on the Newfield site to be capped. Shieldalloy's proposed plan to cap the material with a barrier and monitor it for 1,000 years would cost the company a now-estimated $14.7 million.

But New Jersey Department of Environmental Protection officials had made it clear it wanted the materials shipped by train out of the Gloucester County borough and to a Utah toxic waste disposal site. This plan would cost the company what's now estimated at $70 million.

"Our position has not changed," said Larry Hajna, DEP spokesman. "We want the material removed from Newfield and taken to an appropriate disposal facility."

Hajna said the DEP is working with the state's Attorney General's office to prepare a response that will be submitted by the NRC's Feb. 4 deadline. Both parties will have the opportunity to respond to the submissions by Feb. 11.

CONTINUED 1 | 2 Next

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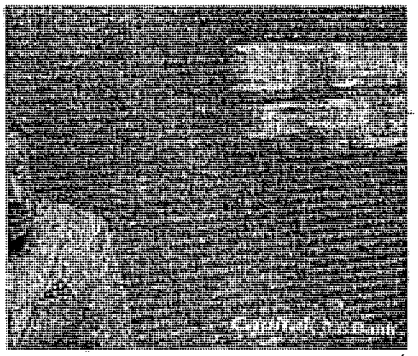

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NEW! HS SPORTS

Nuclear Regulatory Commission issues order for Shieldalloy, New Jersey to offer cases for clean-up control of Newfield slag pile - Page 2

There is no deadline for the NRC to respond to the court if the agency wants to challenge the November ruling.

"NRC is trying to handle it in an expedited manner," Sheehan said.

While the process unfolds, the NRC will temporarily take on the responsibility for the site, it's inspections and regulatory oversight, the NRC spokesman said.

"The lawsuits themselves spoke to a very large degree about where the parties think (responsibility) should fall," Sheehan said.

The NRC order could be the wedge that keeps the door from closing on the state, offering a sliver of hope to residents and legislators who have been fighting the capping plan since it was first-proposed by the corporation.

"Obviously we will be working hard to make sure New Jersey makes a good case on having the final say on this," said Assemblyman Paul Moriarty (D-4), of Washington Township. "I think you have to keep fighting until there is not fight left, and I am hopeful the state of New Jersey will be able to prevail and that common sense will prevail and not financial factors."

Shieldalloy is expected to uphold the position it has argued in court that moving the material by train is not a financially viable option, and could send the company into bankruptcy.

According to the company's spokesman Noah Lichtman, Shieldalloy's first priority has been to work with appropriate regulators to implement the safest plan for the site.

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"Shieldalloy remains committed to the site's safety, the safety of our employees, and the safety of the residents of Newfield," Lichtman said.

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RAS L-25

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

OFFICE OF THE ATTORNEY GENERAL
DEPARTMENT OF LAW AND PUBLIC SAFETY
DIVISION OF LAW
25 MARKET STREET
PO BOX 093
TRENTON, NJ 08625-0093

PAULA T. DOW
Attorney General

ROBERT M. HANNA
Director

February 4, 2011

U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, DC 20555-0001

Re: In re Shieldalloy Metallurgical Corp. (License Amendment Request for Decommissioning of the Newfield, NJ Site)
Docket No. 40-7102-MLA

Dear Commission:

This office represents the State of New Jersey. Please accept this letter and the enclosed appendix in response to the NRC's January 3, 2011 Order in the above referenced matter.

The State of New Jersey recommends that the NRC return jurisdiction over the Shieldalloy facility. Returning jurisdiction to New Jersey is permissible as a matter of law and New Jersey intends to require Shieldalloy to decommission its facility in a manner that is protective of the public health and in compliance with New Jersey laws and regulations. New Jersey should have the opportunity to implement a consistent and comprehensive licensing

TEMPLATE= SECY 035

DS 0325

and decommissioning program.

Point I

THE D.C. CIRCUIT COURT OF APPEALS DECISION PERMITS THE NRC TO TRANSFER AUTHORITY OVER SHIELDALLOY BACK TO NEW JERSEY.

1. Transferring Authority to New Jersey Does Not Interrupt an Ongoing Licensing Proceeding.

On November 9, 2010, the U.S. Court of Appeals for the D.C. Circuit reversed the NRC's decision to grant New Jersey authority over Shieldalloy. Shieldalloy Metallurgical Corp. v. NRC, 624 F.3d 489, 497 (D.C. Cir. 2010). The Court held that the NRC failed to adequately explain how the transfer of authority would not interfere with the processing of licensed activities or the processing of license applications. Id. at 495. The Court decision allows the NRC the opportunity to provide such an explanation if it seeks to grant New Jersey authority over Shieldalloy.

Transferring authority to New Jersey over the Shieldalloy decommissioning does not disrupt any ongoing licensing proceedings because Shieldalloy has had more than adequate opportunity to pursue decommissioning with the NRC. It was Shieldalloy's choice to delay the submission of its first decommissioning plan for four years, in violation of the Timeliness Rule, and then to pursue for eight years its onsite disposal plan despite its repeated failures to adequately address various legal and technical issues. If

Shieldalloy had taken its decommissioning responsibilities seriously, the NRC would have approved Shieldalloy's decommissioning plan years ago for this non-complex decommissioning. See (A369,[1] Memorandum at 13) (describing the Shieldalloy decommissioning as "relatively low in comparative complexity" to other decommissioning sites).

The NRC has been stating for many years that onsite disposal may not be an option for Shieldalloy's facility, either because State or Federal custody of the site would be required or because the NRC would need to promulgate additional regulations. Shieldalloy simply ignored these obstacles and continued to submit one failed decommissioning plan after another as if these obstacles did not exist.

In 1993, the NRC reviewed Shieldalloy's conceptual onsite disposal plan and stated that it may eventually reject the plan because "it is inconsistent with NRC's requirements for decommissioning, which require that residual radioactivity be reduced to a level that permits release of the property for unrestricted use." 58 Fed. Reg. 62387, 62388 (Nov. 26, 1993).

In 1994, the NRC stated that for sites "containing large quantities of materials contaminated with low level radioactivity,"

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[1] "A" refers to the appendix submitted by the State of New Jersey.

onsite disposal may require the site to be placed "under the custody of a State or Federal agency." 59 Fed. Reg. 43200, 43217 (August 22, 1994).

In 1997, as part of its amended License Termination Rule, the NRC reiterated that "State and local government control or ownership, engineered barriers, and Federal ownership" would be required for sites containing large quantities of longer-lived nuclides. 62 Fed. Reg. 39058, 39070 (July 21, 1997).

Because neither New Jersey nor the Federal government had ever expressed a willingness to take custody of the Shieldalloy facility, it was unreasonable for Shieldalloy to expect that the NRC would approve the decommissioning. Shieldalloy disregarded this institutional control requirement in its first decommissioning plan and simply asserted that a governmental entity would take custody of the decommissioned site without actually obtaining any government's consent. (A459, Rev. 0 page 96). The plan was rejected, in part, for this reason. (A18).

In 1998, Shieldalloy ceased licensed operations. In re Shieldalloy, ASLBP No. 07-852-01-MLA-BD01 at 3. Although the NRC's Timeliness Rule requires licensees to inform the NRC that it has ceased licensed operations within 26 months of ceasing operations or within 2 months of deciding to cease principal activities, 10 C.F.R. §40.42(d), Shieldalloy waited until August 2001 to notify

the NRC, (A9-A11). Shieldalloy did not submit its first decommissioning plan until August 2002, four years after it ceased operations. (A12). As just mentioned, the NRC rejected the first decommissioning plan without even conducting a technical review. (A12).

On May 2, 2003, the NRC Staff issued SECY 03-0069, which again placed Shieldalloy on notice that its onsite disposal plan was not viable because additional regulations were required. The document recommended creating a new general license for long-term care for decommissioned sites containing a "higher hazard (above 100 mrem/yr dose cap)" or for "long-lived radionuclides such as uranium or thorium sites." (A58). However, SECY 03-0069 made very clear that this option would require rulemaking "to establish a new general license program and fee category." Id. Although the Commission approved this portion of SECY 03-0069 for purposes of issuing final guidance, the NRC has not initiated a rulemaking process to provide the new general license program. (A62). Because Shieldalloy's facility presents a higher hazard containing large quantities of both uranium-238 and thorium-232, both considered to be long-lived nuclides, (A460-A461), Shieldalloy was placed on notice that its onsite disposal plan would not be approved unless the NRC decided to promulgate new rules.

Because Shieldalloy's previous decommissioning plan was

completely deficient, on April 15, 2004, the NRC Staff issued the NRC Staff Interim Guidance for a Long-Term Control Possession Only License at the Shieldalloy Newfield Site, New Jersey. (A64).

In October 2005, Shieldalloy submitted its second decommissioning plan. (A88). The NRC found this plan to be deficient. (A91-A93). The NRC rejected the second plan, in part, because Shieldalloy failed to provide sufficient information regarding its site-specific dose modeling and its proposed institutional and engineered controls. (A91-A92). The NRC notified Shieldalloy of these same deficiencies in its first decommissioning plan. (A12).

On December 28, 2006, the NRC Staff issued its final guidance on the LTC license via an amendment to the guidance document titled NUREG-1757. 71 Fed. Reg. 78234 (December 28, 2006); (A498, NUREG-1757 vol. I page xiii). But NUREG-1757 provides that the LTC license "should not be considered a guaranteed option, but would be a last resort under the criteria in 10 CFR 20.1403(b)." (A501, NUREG-1757 vol. I page M-9).

In June 2006, Shieldalloy submitted its third decommissioning plan. This plan was so deficient that it required the NRC to issue a 73-part Request for Additional Information ("RAI"). (A305-A351). The RAI was required, in part, because Shieldalloy again failed to provide sufficient information regarding its site-specific dose

modeling, (A309-A322, RAIs # 3-18), its ALARA analysis, (A326-A344, RAIs # 27-42), and its proposed institutional and engineered controls, (A322-A326, A330, A342, A343, A345-A347, RAIs # 19-26 34, 60, 61, 66-68). The NRC noted these same deficiencies in Shieldalloy's first and second decommissioning plans. (A12; A91-A93).

On August 28, 2009, just days before the NRC signed the agreement transferring authority to New Jersey, (A388-A390); 74 Fed. Reg. 51882 (October 8, 2009), Shieldalloy submitted its fourth decommissioning plan to the NRC.

It was Shieldalloy's choice to continue to pursue one failed on-site disposal plan after another for a non-complex decommissioning. See (A369, Memorandum at 13). It was Shieldalloy's choice to continually fail to provide sufficient information in its decommissioning plans even though the NRC continually noted these deficiencies. Shieldalloy ignored the various legal impediments to approving the decommissioning plan. Shieldalloy is solely to blame for its failure to obtain an approved decommissioning plan over the last twelve years. As such, Shieldalloy has had more than adequate opportunity to pursue decommissioning with the NRC, and transferring authority to NJ will not unreasonably interfere with any ongoing licensing proceedings.

2. The NRC's History Regarding the Shieldalloy Decommissioning.

The D.C. Circuit Court stated that "the NRC had a long history of dialogue and cooperation regarding the" Shieldalloy decommissioning, a factor that might weigh against transferring authority to New Jersey. Shieldalloy, supra, 624 F.3d at 494-95. However, the NRC never promised that the onsite disposal would be approved. In fact, the NRC stated early and frequently during the decommissioning process that various obstacles exist to approving the onsite disposal.

As discussed above, in 1993, the NRC stated that Shieldalloy's conceptual onsite disposal plan may be unacceptable because "it is inconsistent with NRC's requirements for decommissioning, which require that residual radioactivity be reduced to a level that permits release of the property for unrestricted use." 58 Fed. Reg. at 62388.

In 1994, the NRC stated that onsite disposal of large quantities of long-lived nuclides may require the decommissioned site to be under the custody of a State or Federal agency. 59 Fed. Reg. at 43217. Because no governmental entity has ever expressed a desire to become a custodian of Shieldalloy's decommissioned site, Shieldalloy should not have expected its plan to be approved.

In 1997, the NRC amended the License Termination Rule to provide a restricted release option for decommissioning sites,

which might be used for facilities seeking to conduct onsite disposal of its radioactive waste. 62 Fed. Reg. at 39059. However, the NRC reiterated its position that onsite disposal of large quantities of long-lived nuclides would require the decommissioned site to be under the custody of a State or Federal agency. 62 Fed. Reg. at 39070. The NRC also stated that the unrestricted release option would be the preferred option. 62 Fed. Reg. at 39059. Because no State or Federal agency have ever agreed to take custody of the decommissioned site and Shieldalloy's onsite disposal plans have utilized the less preferred restricted release option, Shieldalloy should not have expected its onsite disposal plan to be approved.

In 2003, the NRC discussed creating a new license for the purpose of creating another option for the onsite disposal of higher hazard, long-lived radionuclides. (A58). However, SECY 03-0069 made very clear that this option would require rulemaking "to establish a new general license program and fee category." Id. Although the Commission approved this portion of SECY 03-0069 for purposes of issuing final guidance, the NRC has not initiated a rulemaking process to provide the new general license program. (A62).

On April 15, 2004, the NRC Staff issued the NRC Staff Interim Guidance for a Long-Term Control Possession Only License at the

Shieldalloy Newfield Site, New Jersey. (A64). The guidance was issued because Shieldalloy's previous decommissioning plan was completely deficient. The interim guidance was part of the NRC Staff's efforts to "continue to work with licensees who expressed an interest in the LTC license," to provide a discussion of key concepts related to the LTC license option and provide guidance in preparing sections of the decommissioning plan. (A64). However, the interim guidance never mentions that the NRC intended to promulgate rules that would provide the LTC license. Furthermore, this was only an interim guidance document, which meant that the guidance could have changed when the NRC issued final guidance to implement SECY 03-0069.

On December 28, 2006, the NRC Staff issued its final guidance on the LTC license via an amendment to the guidance document titled NUREG-1757. 71 Fed. Reg. at 78234; (A498, NUREG-1757 vol. I pages xiii). This amendment was based on the recommendations from SECY 03-0069. Id. While NUREG-1757 purported to provide a new license called a LTC license, (A500-A501, NUREG-1757 vol. 1 pages 17-65, M-9), it also states that the LTC license "should not be considered a guaranteed option, but would be a last resort under the criteria in 10 CFR 20.1403(b)." (A501, NUREG-1757 vol. I page M-9). NUREG-1757 also states: "Legally binding regulatory requirements are stated only in laws; NRC regulations; licenses, including technical

specifications; or orders, not in NUREG-series publications." (A497). NUREG-1757 also provides: "This NUREG is not a substitute for NRC regulations, and compliance with it is not required." (A499, NUREG-1757 vol. I page xvii). The U.S. Court of Appeals for the Third Circuit held that "a licensee is under no obligation to follow the guidance, and the NRC is also not required to grant a proposed license merely because a decommissioning plan follows the guidance in NUREG-1757." New Jersey v. United States NRC, 526 F.3d 98, 102 (3d Cir. 2008). It "has long been recognized in NRC practice and jurisprudence" that compliance with guidance documents is not required. In re Private Fuel Storage, LLC (Independent Spent Fuel Storage Installation), 57 N.R.C. 69, *34 (ASLB 2003).

Furthermore, the Supreme Court has held that "it is well settled that the Government may not be estopped on the same terms as any other litigant." Heckler v. Community Health Servs., 467 U.S. 51, 60, 104 S. Ct. 2218, 81 L. Ed. 2d 42 (1984). The Court has "reversed every finding of estoppel that [it has] reviewed" where the government is a defendant. Office of Personnel Management v. Richmond, 496 U.S. 414, 422, 110 S. Ct. 2465, 110 L. Ed. 2d 387 (1990). The Supreme Court has repeatedly held that the party must begin by satisfying the traditional estoppel criteria but then proceed one step farther by also demonstrating "affirmative misconduct" on the part of the government. Id. at 421. Government

carelessness is not tantamount to affirmative misbehavior. United States v. Ven-Fuel, Inc., 758 F.2d 741, 761 (1st Cir. 1985). Estoppel against the government arises in only "the most extreme circumstances." Dantran, Inc. v. United States DOL, 171 F.3d 58, 66 (1st Cir. Me. 1999).

The NRC cannot be estopped by any guidance or assistance provided by the NRC Staff to licensees. The Atomic Safety and Licensing Board Held:

> In the course of applying and enforcing agency regulations, the NRC Staff may provide guidance to the regulated community. Boards -- being entirely independent of the Staff -- are not bound, however, to follow such guidance; they are bound only by the Commission's regulations and its adjudicatory precedents (which it issues in the course of conducting judicial-style review of our decisions, much as a higher court reviews a lower court's decisions).

In re Private Fuel Storage, LLC, supra, 57 N.R.C. at *35.

The First Circuit held that the NRC may not approve only a portion of a decommissioning plan-any approval must cover the entire plan. Citizens Awareness Network, Inc. v. NRC, 59 F.3d 284, 291-92 (1st Cir. 1995).

Thus, any representations made by the NRC Staff or its guidance documents during the course of the decommissioning cannot be viewed as an approval to any portion of Shieldalloy's decommissioning plan.

In any event, there can be no reasonable claim that the NRC

represented that it would approve Shieldalloy's onsite disposal plan. In fact, the NRC repeatedly rejected Shieldalloy's decommissioning plans as inadequate and stated that new regulations were required and/or that Federal or State custody of the decommissioned site was required before Shieldalloy's onsite disposal plan would be approved. 58 Fed. Reg. at 62388; 59 Fed. Reg. at 43217; 62 Fed. Reg. at 39070; A58, SECY 03-0069 at 28. Such regulations would have included providing the terms and conditions of a LTC license in a regulation, as required by 42 U.S.C. §§ 2232(a), 2333, and altering the License Termination Rule to allow decommissioning without terminating the license. Shieldalloy cannot claim detrimental reliance. Shieldalloy decided to pursue onsite disposal regardless of the factual or legal obstacles to approval of such a plan at Newfield.

3. Concurrent Jurisdiction.

The D.C. Circuit Court asserted that the NRC's past practice allows concurrent jurisdiction. Shieldalloy, supra, 624 F.3d at 493-94. The Court cited the Oklahoma agreement that exempted a subclass of material. Id. But Oklahoma requested the exemption to its authority, not a licensee. Id. In this matter, New Jersey is not requesting an exemption to its authority. Since the D.C. Circuit issued its decision, a number of licensees in New Jersey

have been confused regarding whether New Jersey still has jurisdiction over them. To avoid any further confusion, the NRC should restore New Jersey's authority over Shieldalloy so it includes all licensees. A rational regulatory scheme would provide New Jersey with authority over each and every decommissioning facility so that New Jersey may implement a consistent and comprehensive decommissioning program.

4. New Jersey is Not Biased.

The D.C. Circuit Court cited New Jersey's participation in prior or concurrent regulatory proceedings as a factor that fails to give assurance that the licensing activities would be free from interference or interruption under New Jersey's authority. Shieldalloy, supra, 624 F.3d at 493-94. The Court stated that New Jersey "has been consistently hostile" to the Shieldalloy decommissioning proceedings. Id. at 495. However, New Jersey was neither biased nor hostile. Rather, New Jersey's participation in prior and concurrent regulatory proceedings were limited to raising legitimate factual, technical, and legal problems with Shieldalloy's proposed decommissioning plan. As discussed below, the Atomic Safety and Licensing Board, the NRC Staff, various NRC Commissioners and the U.S Environmental Protection Agency ("EPA") raised most of the same problems with Shieldalloy's decommissioning

plan as New Jersey.

It is important to note that Shieldalloy did not raise this bias argument to the Court, so the NRC and New Jersey did not address this issue in their briefs. The Court's own discussion of New Jersey's alleged bias is contradictory. The Court cited Shieldalloy's public comment that "New Jersey had challenged Shieldalloy's decommissioning process at every stage. This resistance, Shieldalloy contended, was incompatible with criterion 25's commitment to the uninterrupted 'processing of license applications.'" Id. at 493. However, the Court also stated that in the NRC's response: "the NRC staff aptly noted that New Jersey is entitled to take part in hearings on licensing actions and to petition for rulemaking, and that the state's exercises of those rights did not in themselves indicate the New Jersey plan's incompatibility with the federal regime under criterion 25." Id.

Prior to January 2007, New Jersey's involvement with the Shieldalloy decommissioning process was limited. On October 20, 1986, New Jersey sent the NRC a letter expressing concerns about offsite contamination from the licensed operations. (A1-A2). The letter simply sought "a thorough environmental survey" of the site to provide "adequate information on the environmental impact of the site." Id. The letter also warned of potential problems upon decommissioning if the NRC allows the waste to accumulate onsite.

Id.

Early in the Shieldalloy decommissioning process, the New Jersey Department of Environmental Protection ("NJDEP") offerred to participate in meetings and conference calls regarding the decommissioning process for the limited purpose of providing technical information. In addition to providing information to the NRC and Shieldalloy during regular phone conferences, the NJDEP also participated in Shieldalloy's Site Specific Advisory Board ("SSAB") to provide public input on the decommissioning plan. An example of the information provided by the NJDEP included the proper methods for site specific leach testing--using collected rain water for leach testing, monitoring the pH, and oxidation reduction potential of leach testing water, and sampling under the slag pile. The NJDEP also arranged for the United States Geological Survey to provide a technical presentation to the NRC and Shieldalloy on the aquifer below the Shieldalloy facility. See (A420-A458). During its participation in this process, the NJDEP voiced technical concerns, but it never acquiesced to Shieldalloy's decommissioning plan.

In 2004, the NJDEP sent two letters expressing concern regarding Shieldalloy's proposed decommissioning plan and the NRC's application of the License Termination Rule. The first of these letters complained that the NRC was not adequately considering

public opposition to the onsite disposal and a public hearing to be held in Maryland would not allow local residents to express their concerns. (A78-A79). The letter also stated that onsite disposal under the License Termination Rule would not adequately protect the public health and safety. Id. The NRC should compare this proposed onsite disposal to the low level radioactive waste facility regulations at 10 C.F.R. Part 61 rather than the License Termination Rule. Id. The letter finally points out that the LTC license should not be used for the disposal of long-lived radioactive waste because the licensee may go into bankruptcy or other unforseen business changes. Id.

The NJDEP's second letter, dated December 6, 2004, raised the concern that Shieldalloy's SSAB was not adequate to elicit public input as part of its decommissioning plan. (A80). The letter stated that Shieldalloy's SSAB did not comply with 10 C.F.R. §20.1403 because no chairperson was selected, there was no opportunity for discussion during the meetings, and Shieldalloy failed to provide sufficient information regarding its decommissioning plan to allow the public to provide adequate input. (A80). The letter also stated that Shieldalloy was considering dose modeling scenarios that were not conservative and the proposed institutional and engineering controls were not durable enough. (A81).

The NRC subsequently remedied the NJDEP's dose modeling

concerns by approving the NJDEP's regulations as part of its Agreement State application. The NJDEP's concerns regarding the proposed institutional and engineering controls were subsequently raised by NRC Commissioner Gregory B. Jaczko, (A384-A385), the NRC Staff, (A322-A326, A330, A342, A343, A345-A347), and the EPA, (A353, A355).

On November 17, 2006, the NRC Staff published a notice that it would initiate its technical review of Shieldalloy's third decommissioning plan. 71 Fed. Reg. 66986 (Nov. 17, 2006). The notice invited interested parties to request a hearing on the plan by January 16, 2007. Id. at 66986-87. New Jersey submitted a hearing request with 17 separate contentions, which asserted that the plan contained significant factual, technical, and legal flaws. (A130). In order to preserve its rights, New Jersey also filed a Petition for Rulemaking with the NRC (A94) and an appeal in the U.S. Court of Appeals for the Third Circuit (A462).

The Atomic Safety and Licensing Board reviewed the hearing requests submitted by New Jersey and other individuals and entities. The Board held that New Jersey was the only entity entitled to a hearing on the plan. (A259-A260, A263, Order at 17-18, 21). The Board held that New Jersey's contention #5, that Shieldalloy's decommissioning plan failed to conduct adequate dose modeling, had sufficient merit to warrant a hearing. (A263, Order

at 21). The Board held:

> We entertain little difficulty in reaching the conclusion that Contention 5 is admissible in its entirety. In a word, New Jersey has provided adequate support for its insistence that the dose modeling provided in the DP is inadequate to determine the potential long-term impact that leaving the slag pile in situ might have upon those residing in the vicinity of the facility.

Id. In short, the Board found "little difficulty" in finding merit in New Jersey's technical contention on the decommissioning plan. Id. Because it was clear that Shieldalloy's decommissioning plan would need significant revision, the Board stayed any decision on New Jersey's remaining contentions. (A266-A269, Order at 24-27).

In response to the third decommissioning plan, the NRC Staff issued a 73-part Request for Additional Information ("RAI"), which identified many of the same factual and technical flaws in the plan as was identified in New Jersey's hearing request. (A305-A351). The EPA also review the plan and found it to be "severely deficient." (A352). For example, the NRC Staff's RAI, the EPA, and New Jersey's hearing request stated that the plan was flawed and failed to provide sufficient information concerning the following:

(1) potential leachate of radionuclides and other inorganic materials into the vadose and saturated zones, (A311, A319-A321, RAI ## 5, 17); (A356, EPA General Comment #11); (A139, A146, A197, Hearing Request Contentions ## 1, 2, 10);

(2) the K_d value, (A321-A322, RAI #18); (A139, A146, Hearing

Request Contentions ## 1, 2);

(3) the proposed cap, (A311, RAI #6); (A355, EPA General Comment #7); (A152, Hearing Request Contention #3);

(4) characterizing the site, (A315-A316, RAI #10); (A354-A356, EPA letter General Comments #1, 3, 4, 5, 6, 9, 12); (A159, A197, A201, Hearing Request Contention ##4, 10, 11);

(5) dose modeling, (A309, A319-A321, RAI #3, 17); (A354, EPA letter General Comment #2); (A164, Hearing Request Contention #5);

(6) the ALARA analysis, (A313-A314, A326-A334, RAI ## 8, 27-42); (A183, Hearing Request Contention #7);

(7) institutional controls, (A322-A326, A330, A342, A343, A345-A347, RAI ## 19-26 34, 60, 61, 66-68); (A353, A355, EPA letter page 2, General Comment #7); (A194, Hearing Request Contention #9); and

(8) eliciting public comments, (A348, RAI #71), (A210, Hearing Request Contention #14);

New Jersey's hearing request, Petition for Rulemaking, and Third Circuit appeal asserted that Shieldalloy's decommissioning plan and the NUREG-1757 provided insufficient financial assurance based upon an erroneous discount rate. (A191, Hearing Request Contention #8); (A112-A115, Pet. for Rulemaking at 18-21); (A484-A485, Third Cir Brief at 49-50). The NRC agreed and withdrew the

discount rate section from NUREG-1757. 72 Fed. Reg. 46102, 46103 (Aug. 16, 2007). The EPA also raised this issue. (A355).

New Jersey's hearing request, Petition for Rulemaking, and Third Circuit appeal raised the problem that the decommissioning plan and the NUREG-1757 were flawed because they only provided modeling for radioactive doses for 1,000 years even though doses under the Shieldalloy plan are expected to peak after year 1,000. (A179, Hearing Request Contention #6); (A106-A107, Pet. for Rulemaking at 12-13, 17-18); (A478-A480, Third Cir. Brief at 43-45). The NRC itself stated that for long-lived nuclides, dose modeling beyond 1,000 years would be required. 62 Fed. Reg. at 39083 (Response F.7.3). Furthermore, the court in Nuclear Energy Inst. v. Environmental Prot. Agency, 373 F.3d 1251, 1273 (D.C. Cir. 2004), held that the NRC was required to conduct modeling for nuclear waste based on its peak dosage.

New Jersey's Hearing Request, Petition for Rulemaking, and Third Circuit appeal challenged the LTC License on legal grounds. (A203, A206, A216-AA226, Hearing Request Contentions ## 12, 13, 15, 16, 17); (A104-A128, Pet. for Rulemaking at 9-34); (A465-A478, Third Circuit Brief at 30-43). New Jersey asserted that the AEA, 42 U.S.C. §§ 2232(a), 2233, requires the NRC to promulgate regulations before providing the LTC License. (A206, A234, Hearing Request Contentions ## 13, 17); (A103-A105, Pet. for Rulemaking at 9-11;

(A465-469, Third Circuit Brief at 30-34). As discussed above, the NRC has also repeatedly stated that additional regulations were required to approve the onsite disposal, unless the State or Federal government agree to take custody of the decommissioned facility. 58 Fed. Reg. at 62388; 59 Fed. Reg. at 43217; 62 Fed. Reg. at 39070; (A58, SECY 03-0069 page 28). NRC Commissioner Jaczko conceded in his dissent of an NRC Memorandum and Order that additional regulations were required before the NRC approves Shieldalloy's proposed on-site disposal plan. (A380-A382, Order pages 8-10). The majority did not deny that regulations were required but instead held that such issue was pending before the Atomic Safety and Licensing Board should render a decision before the Commission decides. (A379, Order page 7).

New Jersey also challenged the LTC license on the technical ground that the LTC license would lead to the creation of additional legacy sites in violation of the License Termination Rule's preference for unrestricted release and the NRC's own policies against the creation of legacy sites. (A203, A216, A218, Hearing Request Contentions ## 12, 15, 16); (A115-A128, Pet. for Rulemaking at 21-34); (A471-A478, Third Circuit Brief at 36-43). In issuing a decision in this matter, the NRC Commission reiterated its preference for conducting offsite disposal of radioactive waste to allow for unrestricted release. (A379, Order at 7). The NRC also

asked Shieldalloy to consider alternative options to the onsite disposal. (A239-A240). NRC Commissioner Jaczko stated in his dissent that Shieldalloy failed to adequately explore offsite disposal options for its waste. (A384-A385, Order at 12-13). Again, the majority did not deny this contention but waited to rule until the Atomic Safety and Licensing Board and the Board renders a decision on the issue. (A379, Order at 7). NUREG-1757 provides that the LTC license "should not be considered a guaranteed option, but would be a last resort under the criteria in 10 CFR 20.1403(b)." (A501, NUREG-1757 vol. I page M-9). The EPA also criticized the LTC license as proposed for Shieldalloy's site as not protective of human health and the environment. (A353, EPA letter page 2). The EPA also criticized Shieldalloy's failure to adequately consider alternative disposal plans. (A356, General Comment #8).

New Jersey sought to become an Agreement State because the 2005 Energy Policy Act (42 U.S.C. §§ 13201 et seq.) would have preempted New Jersey's long-standing regulation of naturally occurring and accelerator produced radioactive material ("NARM"). Axxx (R42 attachments 40 N.J.R. 5196(b) page 2). Because New Jersey wished to retain such authority, it sought Agreement State status. Id.

The regulations that New Jersey promulgated to implement its Agreement State authority also have options other than unrestricted

release. The regulations provide four options for decommissioning: unrestricted use, limited restricted use, restricted use, and alternative standards. N.J.A.C. 7:28-12.9. Under the first three options, the licensee is required to remediate radioactive contamination so that the soil concentration for radionuclides meet the concentration standards set forth in the tables at N.J.A.C. 7:28-12.9. Under the alternative standards option, the licensee is not required to meet the soil concentration levels under N.J.A.C. 7:28-12.9. Instead, the licensee is required to perform site specific computer dose modeling to ensure that the 15 millirem ("mrem") dose criteria is met. In addition, the licensee is required to perform such modeling to ensure that if all controls fail, radioactivity from the site will not cause a future on-site resident or worker to receive more than a 100 mrem dose of radiation in a given year.[2] N.J.A.C. 7:28-12.11(a)(1), (f)(2). Such dose modeling is not required if the licensee seeks to decommission using New Jersey's unrestricted use, limited restricted use, or restricted use options. N.J.A.C. 7:28-12.9(a), -12.10. Because Shieldalloy has not submitted a decommissioning plan under New Jersey's regulations, it is unclear the extent to which Shieldalloy would be required to dispose its radioactive waste offsite.

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[2]N.J.A.C. 7:28-12.15 requires licensees to comply with the alternative remediation standards where they seek to bury radioactive materials without remediation.

New Jersey's regulation also provides for exemptions from any of its provisions as long as the exemption does not result in radiation exposures above permissible limits. N.J.A.C. 7:28-2.8. Shieldalloy has requested an exemption from various requirements and will receive an administrative hearing on the request in the Office of Administrative Law ("OAL"). (A418-A419).

Under the NJDEP's regulations, Shieldalloy would be entitled to an administrative hearing in the OAL on a licensing decision. N.J.A.C. 7:28-4.18. The OAL is independent of the NJDEP pursuant to its authorizing statute and adjudicates cases from many other state departments. N.J.S.A. 52:14F-1. After the OAL issues its Initial Decision, the NJDEP issues a final decision. The licensee has the right to appeal the final NJDEP decision to the NJ Superior Court, Appellate Division, an independent appellate court in the judiciary branch. N.J. Court Rule 2:2-3(a)(2). "In New Jersey, judicial review of administrative agency determinations has the support of a special constitutional provision (art. VI, sec. 5, para. 4) which largely immunizes it from legislative curbs." In re Senior Appeals Examiners, 60 N.J. 356, 363 (1972). New Jersey courts apply the same arbitrary, capricious, and unreasonable standard to agency actions as federal courts. See, e.g., N.J. State League of Municipalities v. Dep't of Cmty. Affairs, 158 N.J. 211, 222 (1999); R & R Mktg., L.L.C. v. Brown-Forman Corp., 158 N.J. 170, 175

(1999). Unless a regulation is struck down as arbitrary, capricious, or unreasonable, New Jersey administrative agencies are required to comply with their own regulations. County of Hudson v. Dep't of Corr., 152 N.J. 60, 70 (1997).

During the brief period that New Jersey had Agreement State authority over Shieldalloy, it utilized its authority judiciously. On October 8, 2009, New Jersey informed Shieldalloy that the fourth decommissioning plan submitted to the NRC did not comply with New Jersey regulations since the plan did not call for the termination of Shieldalloy's license. (A391). It directed Shieldalloy to submit a compliant plan by January 31, 2010. Id. New Jersey also offered to extend the submission deadline. (A399-A400).

On a routine inspection, NJDEP inspectors recently discovered a hole in the fence surrounding Shieldalloy's radioactive waste pile. (A402). Shieldalloy promptly repaired the hole. (A298). The NJDEP did not issue any penalties because Shieldalloy's response was acceptable.

The D.C. Circuit Court decision stated in dicta that New Jersey's participation in prior or concurrent regulatory proceedings might indicate interference with the licensing proceeding and that New Jersey "has been consistently hostile" to the Shieldalloy decommissioning proceedings. Shieldalloy, supra, 624 F.3d at 493-95. This dicta was issued without any party raising

this issue in briefs. It is very unlikely that the Court would render a future holding that New Jersey is somehow biased where such issue would be fully briefed with the facts discussed above which demonstrate that New Jersey acted reasonably in raising most of the same issues that also concerned two NRC Commissioners, the Atomic Safety and Licensing Board, the NRC Staff, and the EPA.

Furthermore, a court may not hold that a state is biased without any direct proof, especially in light of the states' sovereignty. The Constitution "specifically recognizes the States as sovereign entities." Alden v. Me., 527 U.S. 706, 713 (1999). Such sovereignty reserves to the states "a substantial portion of the Nation's primary sovereignty, together with the dignity and essential attributes inhering in that status." Id. at 714.

Courts have not found agency bias where the agency has simply been performing its statutory responsibilities. See, e.g. Navistar Int'l Transp. Corp. v. United States EPA, 941 F.2d 1339, 1360 (6th Cir. 1991); United States v. GM, 876 F.2d 1060, 1068-69 (1st Cir. 1989). Challengers to EPA enforcement actions have argued that where the EPA is considering a revision to an existing state implementation plan ("SIP"), the EPA should be barred from initiating an enforcement action under the current SIP because the EPA may have a bias or improper motive when reviewing the SIP revision. Id. At least two Circuit Courts have rejected such

arguments and held that bias or improper motive cannot be found where the agency was performing its statutory duties. Id.

Because New Jersey was raising legitimate concerns regarding Shieldalloy's decommissioning plans, many of which were also raised by NRC Commissioners, the NRC Staff, and the EPA, such concerns cannot be construed as showing bias or improper motive. Rather, it demonstrates that New Jersey was taking prudent measures to further the protection of its citizens' public safety and the environment.

5. Shieldalloy's Money Spent on the Decommissioning Plans.

The Court stated that the NRC failed to adequately respond to Shiedalloy's assertion that it has spent over $2 million in 2007-2009 on preparing a decommissioning plan under the NRC's regulations, which would be wasted if New Jersey obtained authority. Shieldalloy, supra, 624 F.3d at 493. The NRC should respond by directing Shieldalloy to provide an itemized and certified statement of the decommissioning costs incurred. A mere assertion of costs incurred without a certified itemization should be rejected. See Instant Air Freight Co. v. C.F. Air Freight, Inc., 882 F.2d 797, 801-02 (3d Cir. 1989) (rejecting the assertion of irreparable harm, in part, because the company failed to support its assertions with any financial statements or projections).

Furthermore, our review of Shieldalloy's fourth decommissioning plan (1b) indicates that most of it would apply to a decommissioning under New Jersey's regulations with minimal revision. For example, the plan includes sections on Operational History, Facility Description, Radiological Status, Environmental Information, Project Management and Organization, Health & Safety Program, Environmental Monitoring and Control Program, Quality Assurance Program, Facility Radiological Surveys, and an Environmental Report. These sections are all applicable and may require only minimal revisions under New Jersey's regulations.

In any event, Shieldalloy cannot legitimately complain of costs incurred in seeking approval of its on-site disposal plans in light of its blatant violation of its obligations to submit an acceptable decommissioning plan and its disregard of the Timeliness Rule, 10 C.F.R. §40.42(d). Shieldalloy has failed to submit an acceptable decommissioning plan in twelve years. (A359, Memorandum at 3). Its years of dilatory submissions of woefully deficient decommissioning plans to the NRC are the cause for the time and expense which Shieldalloy complains. Shieldalloy has only itself to blame.

The NRC's Timeliness Rule requires licensees to inform the NRC that it has ceased licensed operations within 26 months of ceasing operations or within 2 months of deciding to cease principal

activities. 10 C.F.R. §40.42(d). The licensee is required to submit an acceptable decommissioning plan within 12 months of the notification. Id. Despite the fact that Shieldalloy ceased licensed operations in 1998, (A359, Memorandum at 3), it waited to notify the NRC of the cessation until August 2001, (A9-A11). Shieldalloy delayed submitting its first decommissioning plan until August 2002. (A12). Shieldalloy's first decommissioning plan was deficient. Id. The NRC rejected the plan, in part, because Shieldalloy failed to provide sufficient information regarding its site-specific dose modeling, its ALARA analysis, and its proposed institutional controls. Id.

Despite waiting over 2.5 years from the rejection letter to submit the second decommissioning plan, the second plan was also deficient. (A91-A93). The NRC rejected the second plan, in part, because Shieldalloy failed to provide sufficient information regarding its site-specific dose modeling and its proposed institutional and engineered controls. Id. The NRC notified Shieldalloy of these same deficiencies in the first decommissioning plan. (A12).

Shieldalloy submitted its third decommissioning plan in June 2006, (ADAMS ML061980092), but this plan was also deficient and required the NRC to issue a 73-part Request for Additional Information ("RAI"), (A305-A351). As discussed above, the RAI

pointed out that Shieldalloy again failed to provide sufficient information regarding its site-specific dose modeling, (A309-A322, RAIs # 3-18), its ALARA analysis, (A326-A344, RAIs # 27-42), and its proposed institutional and engineered controls, (A322-A326, A330, A342, A343, A345-A347, RAIs # 19-26 34, 60, 61, 66-68). The NRC noted these same deficiencies in Shieldalloy's first and second decommissioning plans. (A12, A91-A92).

The twelve years without an acceptable decommissioning plan is a clear violation of the intent and spirit of the Timeliness Rule. The Atomic Safety and Licensing Board agreed. (A369, Memorandum at 13). The Board found that Shieldalloy's failure to submit an acceptable decommissioning plan violated the spirit of the Timeliness Rule and place the safety of Newfield area residents at a continuing risk. Id. The Board noted that the decommissioning concerns "nothing more than a slag pile. As such, we would think that the [NRC] Staff inquiry here rates relatively low in comparative complexity among the numerous site decommissioning proposals it confronts." Id.

Shieldalloy cannot now complain of the time and expense incurred by its choice to continue to pursue one failed on-site disposal plan after another for a non-complex decommissioning.

Point II

THE ATOMIC ENERGY ACT DISFAVORS DUAL REGULATION.

Because the AEA disfavors dual regulation by different governmental entities, New Jersey's authority should include all source material licensees. See Illinois v. Kerr-McGee Chem. Corp., 677 F.2d 571, 580 (7th Cir. 1982). In Kerr-McGee, the court referenced the Senate report included in the legislative history to the AEA that recognized "the dangers of conflicting, overlapping, and inconsistent standards in different jurisdictions . . . ." Id. The court stated that the intent of the statute was to have radiation hazards regulated and licensed either by the NRC, or by the State, but not by both. Id. at 581.

Point III

SIGNIFICANT LEGAL OBSTACLES EXIST TO THE ONSITE DISPOSAL.

An additional reason for the NRC to transfer jurisdiction over Shieldalloy to New Jersey is because many significant legal obstacles stand in Shieldalloy's way to obtaining approval for the onsite disposal plan under the NRC's authority. The major legal hurdles follow.

First, the NRC would be required to alter the License Termination Rule to allow decommissioning without actually

terminating the license. See, e.g., 20 C.F.R. § 20.1403 (defining the term "Decommission" and providing the requirement of terminating the license); "Radiological Criteria for License Termination," 10 C.F.R. Part 20 Subpart E (emphasis added).

Second, the NRC would be required to promulgate a rule or regulation that sets forth the terms and conditions of the LTC license and the information required to be set forth in the license application. See 42 U.S.C. §§ 2232(a), 2233. The NRC so far has only provided the LTC license in a guidance document. (A500, NUREG-1757 vol. 1 at 17-65). Currently, the NRC regulations only provide licenses for the active use and possession of source material.[3] 10 C.F.R. § 40.1(a). The regulations in this part also provide licenses for the disposal and long-term care and custody of byproduct[4] and residual radioactive material.[5] 10 C.F.R. § 40.1(a).

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[3]Source material is defined as uranium or thorium or ores containing one or more of the foregoing materials above certain concentrations. 42 U.S.C. § 2014(z). Shieldalloy's radioactive waste is considered source material since it contains uranium and thorium. (SMC Decom. Plan, Rev 1, at xxii-xxiii).

[4]Byproduct material is defined in this Part as "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes." 10 C.F.R. § 40.4. Shieldalloy's radioactive waste is not considered byproduct material because it was processed for its ferrocolumbium, not for its source material. (SMC Decom. Plan, Rev 1, at xxii-xxiii).

[5]Residual radioactive material is defined in this Part as waste subject to the Uranium Mill Tailings Radiation Control Act of

However, the regulations in this part do not provide licenses for the disposal or long-term care and custody of source material. Shieldalloy's radioactive waste is considered source material.

NRC Commissioner Gregory B. Jaczko conceded in his dissent of an NRC Memorandum and Order that additional regulations were required before the NRC approves Shieldalloy's proposed on-site disposal plan. (A380). The majority did not deny that additional regulations were required but instead held that such issues were pending before the Atomic Safety and Licensing Board and the Board should render a decision before the Commission decides. (A379, Order at 7).

Third, the NRC would be required to conduct a programmatic Environmental Impact Statement ("EIS") of the LTC license program. Although the Third Circuit ruled against New Jersey on this issue, it lacked jurisdiction to make any substantive rulings. See New Jersey, supra, 526 F.3d at 104; Sinochem Int'l Co. v. Malay. Int'l Shipping Corp., 127 S. Ct. 1184, 1191 (2007). Furthermore, the Court's decision was not directly on point. The Court held that a programmatic EIS was not required because the NRC was not engaged in "segment[ing] the LTC license program into individual sites"

1978 ("UMTRCA"). 10 C.F.R. § 40.4. UMTRCA only applies to processing sites that sold uranium to the Federal government prior to January 1, 1971. 42 U.S.C. §§ 7911(6)(A), 7912(a). Shieldalloy did not extract uranium from ore at its Newfield site, but rather produced ferrocolumbium. (SMC Decom. Plan, Rev 1, at xxii-xxiii).

since Shieldalloy was the only facility applying for the license. New Jersey, supra, 526 F.3d at 103. However, New Jersey was making a different argument, that an agency is required to conduct a programmatic EIS where it proposes to alter a major federal program that significantly affects the quality of the human environment. Kleppe v. Sierra Club, 427 U.S. 390, 395-414 (1976); Public Citizen v. NRC, 940 F.2d 679, 685 (D.C. Cir. 1991). If the NRC intends to provide the LTC license for the onsite disposal of long-lived radioactive waste in lieu of State or Federal custody of a decommissioned site, such decision would alter a major federal program that affects the public safety and environment. A programmatic EIS would therefore be required.

CONCLUSION

For the reasons set forth above, the State of New Jersey recommends that the NRC return jurisdiction over the Shieldalloy facility.

Respectfully submitted,

PAULA T. DOW
ATTORNEY GENERAL OF NEW JERSEY

By: /s/ Andrew Reese
Andrew D. Reese
Deputy Attorney General

Enclosures: Appendix on Behalf of the State of New Jersey
Certification of Service

c.: Service List

In the Matter of	)	
	)	
SHIELDALLOY METALLURGICAL CORP.)		Docket No. 40-7102-MLA
	)	
(License Amendment Request for	)	
Decommissioning the	)	
Newfield, New Jersey Facility	)	

CERTIFICATION OF SERVICE

I hereby certify that copies of the enclosed Letter and Appendix on behalf of the state of New Jersey have been served upon the following by electronic mail on this date, followed by deposit of paper copies in the U.S. mail, first class, or overnight mail where noted by an asterisk.

SherVerne R. Cloyd
U.S. Nuclear Regulatory Commission
Atomic Safety and Licensing Board Panel
Mail Stop T-3 F23
Washington, DC 20555-001

Alan S. Rosenthal, Chair
Administrative Judge
E-mail: alan.rosenthal@nrc.gov

Richard E. Wardwell
Administrative Judge
E-mail: richard.wardwell@nrc.gov

William Reed
Administrative Judge
E-mail: whrcville@embargmail.com

Jay E. Silberg, Esq.*
Matias F. Travieso-Diaz, Esq.
Robert B. Haemer, Esq.
Pillsbury Winthrop Shaw Pittman, LLP
2300 N. Street, N.W.
Washington, DC 20037-1128
E-mail: jay. silberg@pillsburylaw. com

Grace Kim, Esq.
U.S. Nuclear Regulatory Commission
Office of the General Counsel
Mail Stop O-15-D21
Washington, DC 20555-0001

Catherine Scott, Esq.
Michael J. Clark, Esq.
catherine.marco@nrc.gov
michael.clark@nrc.gov

OGC Mail Center: OGCMailCenter@nrc.gov

Office of Commission Appellate
Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: ocaamail@nrc.gov

matias.travieso-diaz@pillsburylaw.com
robert.haemer@pillsburylaw.com

Andrew L. Bates, Acting Secretary
U.S. Nuclear Regulatory Commission
Office of the Secretary
Washington, DC 20555-0001

/s/ Andrew Reese
Andrew D. Reese

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USCA Case #11-1449 Document #1382996 Filed: 07/19/2012 Page 768 of 779

DOCKETED
February 11, 2011 (4:30 p.m.)
OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

State of New Jersey
OFFICE OF THE ATTORNEY GENERAL
DEPARTMENT OF LAW AND PUBLIC SAFETY
DIVISION OF LAW
25 MARKET STREET
PO BOX 093
TRENTON, NJ 08625-0093

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

PAULA T. DOW
Attorney General

ROBERT M. HANNA
Director

February 11, 2011

U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, DC 20555-0001

Re: In re Shieldalloy Metallurgical Corp. (License Amendment Request for Decommissioning of the Newfield, NJ Site)
Docket No. 40-7102-MLA

Dear Commission:

This office represents the State of New Jersey. Please accept this letter in reply to Shieldalloy Metallurgical Corp.'s February 4, 2011 submission in the above referenced matter.

Shieldalloy asserts that the U.S. Court of Appeals for the D.C. Circuit decision and mandate "signify that the Commission is to retain jurisdiction over the Newfield Facility." (Sb8).[1] However, the Court's decision and mandate were based on a narrower ruling-the NRC failed to explain how the transfer of authority would not interfere with the processing of a license application.

[1] "Sb" refers to Shieldalloy's February 4, 2011 brief to the Commission.

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Shieldalloy Metallurgical Corp. v. NRC, 624 F.3d 489, 497 (D.C. Cir. 2010). Once the NRC provides an explanation, it may transfer authority back to New Jersey. As New Jersey stated in its February 4, 2011 letter, transferring authority does not interfere with a license application because it was Shieldalloy's choice to delay the submission of its first decommissioning plan for four years, in violation of the Timeliness Rule, and then to pursue for eight years its onsite disposal plans despite its repeated failures to adequately address various legal and technical issues. (NJL2-7).[2]

Shieldalloy asserts that transferring authority to New Jersey would violate Criterion 25 because "New Jersey was, and remains, opposed to the processing of the DP applications." (Sb9). However, as discussed in New Jersey's February 4, 2011 submission, New Jersey has only raised legitimate concerns regarding factual, technical, and legal problems with Shieldalloy's proposed decommissioning plans. (NJL14-23). In fact, the Atomic Safety and Licensing Board, the NRC Staff, various NRC Commissioners and the U.S. Environmental Protection Agency ("EPA") raised most of the same problems with Shieldalloy's decommissioning plan as New Jersey. Id. Once New Jersey obtained authority over Shieldalloy, it directed Shieldalloy to submit a decommissioning plan that complied

[2] "NJL" refers to New Jersey's Feburary 4, 2011 letter to the Commission.

alternative criteria. N.J.A.C. 7:28-12.9, -12.11. Also, BER's regulations provide procedures to request an exemption from any regulatory requirement as long as the exemption does not result in radiation exposures above permissible limits. N.J.A.C. 7:28-2.8. Shieldalloy would be entitled to a hearing on a BER licensing decision in the Office of Administrative Law ("OAL"), which is independent of the NJDEP and the BER. N.J.A.C. 7:28-4.18; N.J.S.A. 52:14F-1. The licensee has the right to appeal the final NJDEP decision to the NJ Superior Court, Appellate Division, an independent appellate court in the judiciary branch. N.J. Court Rule 2:2-3(a)(2); In re Senior Appeals Examiners, 60 N.J. 356, 363 (1972).

Shieldalloy asserts that the D.C. Circuit Court rejected the NRC's position that the Atomic Energy Act ("AEA") precludes the partial transfer of authority unless requested by the State. (Sb10-11). However, the Court actually held: "On the current record we cannot decide the interpretation of the statute." Shieldalloy, supra, 624 F.3d at 495. The NRC has discretion to interpret the statute it administers. Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 837, 842-43, 104 S. Ct. 2778, 81 L. Ed. 2d 694 (1984). The NRC's interpretation of the AEA on this issue is reasonable and would likely be upheld if fully briefed to the Court.

Shieldalloy claims that the NRC should retain authority because New Jersey's regulations require off-site disposal. (Sb12-13). Shieldalloy claims that based upon the analyses in its decommissioning plans, offsite disposal would result in greater doses of radiation to workers and the public than the onsite disposal. (Sb13). Shieldalloy asserts that such analysis "has not been controverted at any time by the Staff or by New Jersey." (Sb13).

However, Shieldalloy must have overlooked the NRC Staff's Request for Additional Information ("RAI"), which had fourteen parts devoted to Shieldalloy's flawed analysis on this issue in its third decommissioning plan (Rev. 1a). (A313-A314, A326-A334, RAI ## 8, 27-42). When comparing different disposal options, the NRC Staff noted that the "primary (but not the only) benefit is generally the collective dose averted in the future." (A327, RAI #30). The Staff criticized Shieldalloy's analysis because it failed to consider this primary benefit for each alternative and instead only considered the costs in terms of the doses incurred for each alternative. (A327-A328, RAI #30). The Staff notes some other basic flaws in Shieldalloy's analysis: failing to specify which criteria the plan is utilizing (ALARA or net harm) and failing to clearly demonstrate either option, (A236, RAI #27); failing to consider costs and benefits over the entire 1,000-year period, (A331-A332,

RAI ##35, 36); failing to consider the costs and benefits for each alternative, (A331, RAI #37); overly discounting the value of future doses, (A332, RAI #38); using biased values for the dose assessments, (A333, RAI #40); and overestimating rail fatalities, (A334, RAI #42).

Shieldalloy states that the conclusions of such analyses remained unchanged in earlier revisions of the decommissioning plan and that "DP Rev. 1a (June 2006) is identical to Rev. 1 in this area." (Sb13 n.20). However, the NRC Staff rejected the first plan (Rev. 0) on the basis that Shieldalloy failed to submit sufficient information regarding its site-specific dose modeling and its ALARA analysis. (A12). The NRC Staff rejected the second plan (Rev. 1) on the basis that Shieldalloy again failed to submit sufficient information regarding its dose modeling. (A91). As mentioned in the previous paragraph, Shieldalloy again failed to conduct an adequate dose modeling and ALARA analysis in its third decommissioning plan (Rev. 1a). Shieldalloy's present assertion that its ALARA/net harm analysis in its various decommissioning plans "has not been controverted at any time by the Staff or by New Jersey," (Sb13), demonstrates Shieldalloy's intentional disregard of the NRC Staff's comments and is consistent with its history of submissions to the NRC of deficient decommissioning plans. Such disregard of its decommissioning responsibilities indicates that transferring

authority to New Jersey would not interfere with Shieldalloy's decommissioning.

Nevertheless, if Shieldalloy can eventually demonstrate that onsite disposal is the safer option, that may be a basis for seeking the exemption to the New Jersey regulations it is currently pursuing. (Exhibit A,[4] page 13). Shieldalloy has been granted a hearing on the exemption request in the OAL. (A418).

Shieldalloy asserts that fairness requires the NRC to retain jurisdiction. (Sb14-15). But New Jersey's February 4, 2011 submission discusses at length the various NRC representations indicating that the onsite disposal may not be approved. (NJL8-13). Furthermore, the resources Shieldalloy spent on its decommissioning plans would not be wasted. (NJL29). New Jersey's review of Shieldalloy's fourth decommissioning plan (Rev. 1b) indicates that most of it would apply to a decommissioning under New Jersey's regulations with revisions. Id.

Shieldalloy states that the NRC has expertise in decommissioning matters and great familiarity with the Newfield facility. (Sb14). Shieldalloy overlooks the fact that the NJDEP also has expertise in decommissioning and great familiarity with the Newfield facility. New Jersey's regulation of radioactive materials dates back to December 31, 1952 with the creation of the

[4] "Exhibit" refers to the exhibits attached to this letter.

Radiological Health Program within the N.J. Bureau of Adult and Industrial Health. (Exhibit D page 1 of 14, ADAMS ML090510713 page 129). The Program focused on inspecting x-ray and fluoroscopic shoe fitting machines and monitoring air samples for radiation. Id. By 1960, New Jersey promulgated the New Jersey Radiation Protection Code, which dealt with general requirements for radiation protection and required the registration of x-ray units and radioactive materials. Id. at 2 of 14. By 1965, New Jersey began licensing the possession and use of all radioactive materials not subject to AEC control. Id. at 4 of 14. The NJDEP has been regulating the decommissioning of facilities containing radioactive materials since 1976. Solid Waste Management Act, N.J.S.A. 13:1E-38 (L. 1976, c. 99, effective Oct. 7, 1976) (defining "hazardous waste" to include a "radioactive" waste material); Spill Compensation and Control Act, N.J.S.A. 58:10-23.11B (L. 1986, c. 143) (defining "hazardous substances" to include those substances on the hazardous substances list adopted by the EPA pursuant to section 101 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980).

In fact, Shieldalloy had stored large amounts of ferrovanadium slag, a radioactive material, at its Newfield facility. (Exhibit B ¶¶ 3, 4). Because such materials came within New Jersey's jurisdiction, the NJDEP oversaw Shieldalloy's disposal of the

material. Id. The NJDEP has also overseen Shieldalloy's ongoing remediation of chromium and other contaminants from the groundwater at the Newfield facility. (Exhibit C).

In footnote 26 of Shieldalloy's submission, it claims that "New Jersey has unambiguously declared that its regulations do not allow license termination based on onsite remediation. December 11, 2009 NJDEP letter to Shieldalloy's counsel." (Sb16 n.26). However, a review of that letter (A399-A400) indicates that no such representation was made.[5] Under New Jersey's unrestricted use, limited restricted use, and restricted use options, the licensee is required to remediate radioactive contamination so that the soil concentration for radionuclides meet the concentration standards set forth in the tables at N.J.A.C. 7:28-12.9. The regulations also provide a fourth decommissioning option that allows licensees to seek alternative standards. Under this option, the licensee is not required to meet the soil concentration levels under N.J.A.C. 7:28-12.9. Instead, the licensee is required to perform computer dose modeling to ensure that radioactivity from the site will not cause a future on-site resident or worker to receive more than a 15 millirem ("mrem") dose of radiation in a given year and 100 mrem in a given year if all controls fail. N.J.A.C. 7:28-12.11(a)(1), (e),

[5]Shieldalloy requested and received a hearing in the OAL on the December 11, 2009 NJDEP letter, which denies Shieldalloy's exemption request. (A401, A418).

(f)(2). Such dose modeling is not required if the licensee seeks to decommission using the Department's unrestricted use, limited restricted use, or restricted use options. N.J.A.C. 7:28-12.9(a), -12.11(a). Also, N.J.A.C. 7:28-12.15 requires licensees to comply with the alternative remediation standards where they seek to bury radioactive materials without remediation. Thus, the regulations may permit the onsite disposal of certain radioactive materials.

Shieldalloy asserts identical claims which it raised to the D.C. Circuit Court of Appeals, but not ruled on by the Court, that the New Jersey and NRC regulatory programs are incompatible. (Sb15-18). Such arguments were already addressed at length by the NRC counsel's brief and New Jersey's amicus brief. For the reasons set forth therein, New Jersey's program should be found to be compatible.[6]

Respectfully submitted,

PAULA T. DOW
ATTORNEY GENERAL OF NEW JERSEY

By: /s/ Andrew Reese
Andrew D. Reese
Deputy Attorney General

[6]The NRC previously reviewed New Jersey's program as part of its application to become an Agreement State and found it to be "adequate to protect public health and safety and compatible with the NRC's program." 74 Fed. Reg. 51882 (Oct. 8, 2009).

Enclosure: Exhibits
Certification of Service

c.: Service List

In the Matter of	)	
	)	
SHIELDALLOY METALLURGICAL CORP.	)	Docket No. 40-7102-MLA
	)	
(License Amendment Request for	)	
Decommissioning the	)	
Newfield, New Jersey Facility	)	

CERTIFICATION OF SERVICE

I hereby certify that copies of the enclosed Letter and Exhibits on behalf of the state of New Jersey have been served upon the following by electronic mail on this date, followed by deposit of paper copies in the U.S. mail, first class.

SherVerne R. Cloyd
U.S. Nuclear Regulatory Commission
Atomic Safety and Licensing Board Panel
Mail Stop T-3 F23
Washington, DC 20555-001

Grace Kim, Esq.
U.S. Nuclear Regulatory Commission
Office of the General Counsel
Mail Stop O-15-D21
Washington, DC 20555-0001

Alan S. Rosenthal, Chair
Administrative Judge
E-mail: alan.rosenthal@nrc.gov

Catherine Scott, Esq.
Michael J. Clark, Esq.
catherine.marco@nrc.gov
michael.clark@nrc.gov

Richard E. Wardwell
Administrative Judge
E-mail: richard.wardwell@nrc.gov

OGC Mail Center: OGCMailCenter@nrc.gov

William Reed
Administrative Judge
E-mail: whrcville@embargmail.com

Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: ocaamail@nrc.gov

Jay E. Silberg, Esq.
Matias F. Travieso-Diaz, Esq.
Robert B. Haemer, Esq.
Pillsbury Winthrop Shaw Pittman, LLP
2300 N. Street, N.W.
Washington, DC 20037-1128
E-mail: jay. silberg@pillsburylaw. com

matias.travieso-diaz@pillsburylaw.com
robert.haemer@pillsburylaw.com

Andrew L. Bates, Acting Secretary
U.S. Nuclear Regulatory Commission
Office of the Secretary
Washington, DC 20555-0001

/s/ Andrew Reese
Andrew D. Reese

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