

PR 40
49 FR 46418
AB50-2
PDR

JAN 31 1984

205/KD/84/01/11

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MEMORANDUM FOR: Chairman Palladino
Commissioner Gilinsky
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal

FROM: William J. Dircks
Executive Director for Operations

SUBJECT: INPUT FROM AFFECTED STATES ON PROPOSED AMENDMENTS TO
URANIUM MILL TAILINGS REGULATIONS AND ADVANCE NOTICE
OF PROPOSED RULEMAKING (SECY-83-523)

Staff requested Commission approval to publish proposed amendments to 10 CFR Part 40 conforming to EPA's final standards for uranium and thorium mill tailings at licensed sites in SECY-83-523, dated December 28, 1983.

In order to meet the tight schedule required by the six month Congressional mandate, preliminary views of affected Agreement State representatives were obtained by the Office of State Programs in parallel. The affected States are Washington, Colorado, New Mexico, and Texas. The State representatives expressed the need to review the proposed changes in more depth and they plan to provide detailed comments during the public comment period.

Several general concerns were expressed but the State representatives did not consider that these concerns must be resolved before publication for comment. The State representatives share staff preference for a single comprehensive rulemaking procedure but generally understood our position that we should be as responsive as possible to the Congressional six month mandate. Individual states expressed concerns about the loss of certain prescriptive provisions, about a perceived move toward reliance on active maintenance and related funding needs, and about a perceived overlap of the retained Appendix A provisions on ground water and monitoring programs with provisions in the EPA standard which will be addressed in the second rulemaking described in the proposed Advance Notice of Proposed Rulemaking (ANPRM). After re-examining the proposed rule, staff has concluded that these and other individual concerns would involve only clarifying or explanatory changes to the proposed rule itself.

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In discussions held with three of the four States by DWM staff, their greatest concerns were with respect to: (1) the two-step rulemaking approach and (2) the changes, or lack thereof, being proposed for Criterion 5, which deals with ground water protection. Views expressed by individual states on these two issues varied considerably, and largely amounted to desires or concerns rather than disagreements. These early discussions were very useful for conveying the staff's rationale to the States, and in providing for an exchange of views and information relative to the proposed rule and ANPRM. Further discussions will be continued in meetings to be held in Denver, Colorado on January 30 and 31, 1984, following planned publication of the proposed rule.

Notwithstanding the nature of the preliminary input from the States, staff strongly recommends that the proposed rule and the ANPRM be published for comment as recommended in SECY-83-523 and as soon as possible so that the March 31, 1984 deadline for a final conforming rule can be met.

William J. Dircks
Executive Director for Operations

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United States Court of Appeals

For the Tenth Circuit

SLIP OPINION

PUBLISH
UNITED STATES COURT OF APPEALS
TENTH CIRCUIT

FILED
United States Court of Appeals
Tenth Circuit
SEP 03 1985
HOWARD K. PHILLIPS
Clerk

AMERICAN MINING CONGRESS, UNITED)
NUCLEAR CORPORATION, HOMESTAKE MINING)
COMPANY, QUIVIRA MINING COMPANY, KERR-)
MCGEE CORPORATION, SIERRA CLUB, THE)
ENVIRONMENTAL DEFENSE FUND, INC.,)
NATIONAL RESOURCES DEFENSE COUNCIL,)
SOUTHWEST RESEARCH AND INFORMATION)
CENTER, and JEAN SLATTERY,)

Petitioners,)

v.)

LEE M. THOMAS, Administrator,)
Environmental Protection Agency, and)
ENVIRONMENTAL PROTECTION AGENCY,)

Respondents.)

STATE OF COLORADO,)

Intervenor.)

Nos. 83-1014
83-1041
83-1206
83-1300

Petition for Review of the Standards
Promulgated by the Environmental Protection Agency

Anthony J. Thompson (Charles E. Sliter, Robert F. Reklaitis, Edward S. Shipper, Jr., and Edward A. McCabe, of counsel, with him on the briefs) of Hamel, Park, McCabe & Saunders, Washington, D.C., for American Mining Congress.

Peter J. Nickles (Charles H. Montange, Richard A. Meserve, and William F. Greaney, also of Covington & Burling, Washington, D.C., and G. Stanley Crout, Sunny J. Nixon and Michael S. Yesley of Stephenson, Carpenter, Crout & Olmstead, Santa Fe, New Mexico, with him on the briefs) for United Nuclear Corporation, Kerr-McGee Nuclear Corporation, Kerr-McGee Corporation, and Homestake Mining Company.

Roger Beers (Kathryn Burkett Dickson, also of Beers & Dickson, San Francisco, California, and Robert E. Yuhnke, Environmental Defense Fund, Boulder, Colorado, with him on the briefs) for Sierra Club,

Environmental Defense Fund, Natural Resources Defense Council, Southwest Research and Information Center, and Jean Slattery.

David W. Zugschwerdt, Attorney (F. Henry Habicht, II, Acting Assistant Attorney General, Jose R. Allen, Attorney, also of Department of Justice, Washington, D.C., and A. James Barnes, Acting General Counsel, William F. Pedersen, Associate General Counsel, and Charles S. Carter, Assistant General Counsel, of counsel, Environmental Protection Agency, Washington, D.C., with him on the briefs) for Respondents.

Duane Woodard, Attorney General, Charles B. Howe, Deputy Attorney General, Richard F. Forman, Solicitor General, and Richard L. Griffith, Assistant Attorney General, Denver, Colorado, filed briefs for the State of Colorado.

Walter Perry, III, Senior Assistant Attorney General, Dennis M. Boal, Assistant Attorney General, James M. Ellerbe, Legal Intern, Cheyenne, Wyoming, filed an amicus curiae brief for the State of Wyoming.

Before LOGAN and McWILLIAMS, Circuit Judges, and BOHANON, District Judge.*

LOGAN, Circuit Judge.

*Honorable Luther L. Bohanon, Senior United States District Judge for the District of Oklahoma, sitting by designation.

These consolidated cases involve challenges to the Environmental Protection Agency's (EPA) standards for the cleanup and disposal of uranium mill tailings originating from designated inactive mill sites. The EPA established these standards pursuant to its authority under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as amended, 42 U.S.C. §§ 2022 and 7901-7942. The UMTRCA required the EPA to promulgate standards that could be applied generally to protect the environment and the public health and safety from radioactive and nonradioactive hazards posed by uranium mill tailings at both active and inactive processing

sites. Under the statutory scheme the federal government and the affected state share the costs of the remedial action taken to control mill tailings, see 42 U.S.C. § 7917, with the possibility of later reimbursement from private parties, *id.* § 7925. The EPA standards that we review here pertain only to inactive mill sites. In a companion case released this day we review regulations relating to active mill sites. See American Mining Congress v. Thomas, ___ F.2d ___ (10th Cir. 1985) (Active Sites Case).

The following parties filed petitions for review of these standards: the American Mining Congress, a trade association; joint petitioners United Nuclear Corporation, Kerr-McGee Corporation, Kerr-McGee Nuclear Corporation, and Homestake Mining Company; joint petitioners Sierra Club, Environmental Defense Fund, Natural Resources Defense Council, Southwest Research and Information Center and Jean Slattery; and the State of Colorado as intervenor. In addition, the State of Wyoming filed an amicus brief.

I

The final product of the milling process for uranium ore is uranium-rich "yellowcake," U_3O_8 . The milling process also produces a residue of either slime or coarse sand. This residue, which comprises the uranium mill tailings piles, contains radioactive material, the most significant of which is radium. Radium decays to produce radon. Radon is an inert gas, some of which escapes from the tailings particles into the atmosphere. Airborne radon degrades into a series of short half-life decay products that are hazardous if inhaled. If the radon gas does not

escape the mill tailings piles, its decay products remain in the piles and produce gamma radiation, which may be harmful to people and animals living near the mill tailings piles. Uranium mill tailings also contain potentially dangerous nonradioactive materials such as arsenic and selenium. These toxic and radioactive materials may be ingested with food or water. 48 Fed. Reg. 590, 592 (1983). See generally I Environmental Protection Agency, Final Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites 3-68 (1982) [hereinafter FEIS-IN].

To deal with the perceived dangers presented by uranium mill tailings, Congress enacted the UMTRCA. When it passed this legislation in 1978, it stated, in a section titled "Congressional findings and purposes":

"uranium mill tailings located at active and inactive mill operations may pose a potential and significant radiation health hazard to the public, and that the protection of the public health, safety, and welfare . . . require[s] that every reasonable effort be made to provide for the stabilization, disposal, and control in a safe and environmentally sound manner of such tailings in order to prevent or minimize radon diffusion into the environment and to prevent or minimize other environmental hazards from such tailings."

42 U.S.C. § 7901(a).

In the UMTRCA, Congress gave the Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC) responsibility for implementing a remedial program to clean up and dispose of the mill tailings. See id. §§ 7911-7924. The EPA is responsible for promulgating the general standards that the implementing agencies must meet. See id. §§ 2022(a), 7918(a).

The EPA issued proposed general standards for the remedial program in two parts: cleanup standards and disposal standards. The EPA intended the cleanup standards to reduce the detrimental health consequences of tailings that have been dispersed from the tailings piles or used in construction. 45 Fed. Reg. 27,370, 27,370 (1980). The EPA intended that the disposal standards place the tailings piles "in a condition which will be safe for a long time." *Id.*

On April 22, 1980, the EPA Administrator published for comment "Proposed Cleanup Standards for Inactive Uranium Processing Sites." 45 Fed. Reg. 27,370 (1980). These proposed standards were "for the cleanup of open lands and buildings contaminated with residual radioactive materials (mainly tailings) from inactive uranium processing sites." *Id.* The EPA made them immediately effective as interim standards pending comment, review, and promulgation of the final standards. The EPA also issued a draft environmental impact statement to support the proposed standards.

The proposed cleanup standards established allowable levels of radium concentration in soil contaminated by dispersed tailings. The standards also set permissible levels of radon decay product concentration and gamma radiation in occupied or occupiable buildings affected by the tailings.¹

¹ The proposed standard for soil contamination read:

"(a) the average concentration of radium-226 attributable to residual radioactive material from any designated processing site in any 5 cm thickness of soils or other materials on open land within 1 foot of

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In addition, these proposed standards contained exceptions to strict compliance if certain criteria were met. *Id.* at 27,375. At qualifying sites, the implementing agency was to perform remedial action that would come as close as possible to meeting the standard to which the exception applied. *Id.*

The EPA issued the second set of proposed standards, the disposal standards, on January 9, 1981. 46 Fed. Reg. 2556 (1981). The disposal standards placed limits on the radon release to the atmosphere from the tailings piles and also placed limits on water contamination from the piles. *Id.* These standards required that the tailings be disposed of in a manner "that provides a reasonable expectation that these limits will be satisfied for at least one thousand years."² *Id.*

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the surface, or in any 15 cm thickness below 1 foot, shall not exceed 5 pCi/gm."

45 Fed. Reg. at 27,374. A curie is the amount of radioactive material that produces 37 billion nuclear transformations per second. One picocurie (pCi) = 10^{-12} Ci. *Id.*

The proposed standard for buildings stated that the levels of radioactivity in any occupied or occupiable building shall not exceed, due to residual radioactive materials from any designated processing site, either: (1) 0.015 WL as an average annual indoor radon decay product concentration, including background; or (2) 0.02 milliroentgen/hour of indoor gamma radiation above background. *Id.* at 27,374-75. A WL or working level is "any combination of short-lived radon decay products in one liter of air that will result in the ultimate emission of alpha particles with a total energy of 130 billion electron volts." *Id.* at 27,374.

² Specifically, the proposed standard for the radon emission limit from the tailings pile read: "(a) The average annual release of radon-222 from a disposal site to the atmosphere by residual radioactive materials will not exceed 2 pCi/m²-sec." 46 Fed. Reg. at 2562. A footnote to the standard read:

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In the proposed disposal standards the EPA left little doubt that it foresaw covering the tailings piles as the most viable means to achieve the proposed radon emission standards. The EPA stated,

"In the draft EIS we analyze the health and environmental protection benefits and the costs of several levels of controlling tailings, assuming a variety of potential control methods. We find that radon emission levels of an 'average' pile can be reduced to approximately the levels characteristic of ordinary land by applying a soil cover at costs in a range of about 1 to 14 million (1979) dollars."

Id. at 2559.

One of the standards established limits for concentrations of toxic substances in underground sources of drinking water.³

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"The radon emitted from a tailings site after disposal will come from the tailings and from materials covering them. Radon emissions from the covering materials should be estimated as part of developing a disposal plan for each site. . . . After disposal, the radon emission standard is satisfied if the emission rate is less than or equal to 2 pCi/m²-sec plus the emission rate expected from the disposal materials."

³ This standard provides:

"(b) Substances released from residual radioactive materials after disposal will not cause

(1) The concentration of that substance in any underground source of drinking water to exceed the level specified in Table A, or

(2) An increase in the concentration of that substance in any underground source of drinking water, where the concentration of that substance prior to remedial action exceeds the level specified in Table A for causes other than residual radioactive materials. This subsection shall apply to the dissolved portion of any substance listed in Table A at any distance greater than 1.0 kilometer from a disposal site that is part of an inactive processing site, or greater than 0.1 kilometer if the disposal site is a depository site.

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Another water standard required that substances released from the disposal site "after disposal will not cause the concentration of any harmful dissolved substance in any surface waters to increase above the level that would otherwise prevail." *Id.* at 2562.

The EPA received extensive comments on both the proposed cleanup and disposal standards. See II FEIS-IN (summary of comments and responses). The comments were wide ranging--the industry petitioners argued that there was insufficient evidence of risk of harm to warrant the standards, while the environmental groups argued that the proposed standards did not provide adequate protection against the risks posed by the tailings. Both sides buttressed their arguments with technical studies and expert analysis.

Congress in 1982 discussed amendments to the UMTRCA to extend the deadline for the promulgation of final standards and enacted

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Table A

Milligrams/liter:

Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Molybdenum	0.05
Nitrogen (in nitrate)	10.0
Selenium	0.01
Silver	0.05

pCi/liter:

Combined radium-226 and radium-228	5.0
Gross alpha particle activity (including radium-226 but excluding radon and uranium)	15.0
Uranium	10.0"

an amendment on January 4, 1983. See Act of Jan. 4, 1983, Pub. L. No. 87-415, sec. 18, 96 Stat. 2067, 2077 (1983) (codified at 42 U.S.C. § 2022(a)) (generally referred to as the "1982 amendment"). Anxious to institute standards for the mill tailings, Congress also provided that should the EPA miss the extended deadline, remedial action would commence using the proposed standards. *Id.*; House Conf. Rep. No. 884, 97th Cong., 2d Sess. 44-45, reprinted in 1982 U.S. Code Cong. & Ad. News 3603, 3614-15. By the time Congress passed the amendment its specified deadline for inactive sites had already passed. See 42 U.S.C. § 2022(a). Important for our purposes is that Congress also included in the 1982 amendment a sentence explaining the various factors that it required the EPA to consider in developing the standards: "In establishing such standards, the Administrator shall consider the risk to the public health, safety, and the environment, the environmental and economic costs of applying such standards, and such other factors as the Administrator determines to be appropriate." *Id.*

On January 5, 1983, one day after Congress passed the amendment, the EPA promulgated the final "Standards for Remedial Actions at Inactive Uranium Processing Sites," which covered both cleanup and disposal requirements. 48 Fed. Reg. 590 (1983) (filed Dec. 30, 1982) (codified at 40 C.F.R. §§ 192.00-.43 (1984)). The final regulations differed, in some ways quite substantially, from the proposed standards. In explaining the changes in general terms the EPA said:

"In response to comments on the proposed standards for disposal and for cleanup, we have evaluated a number of alternatives in terms of their costs and the reductions achievable in potential health effects. A

number of changes have been made, including raising some of the numerical limits and eliminating some requirements. The purpose of most of these changes is to make implementation easier and less costly. The changes should not result in any substantial loss of health or environmental protection over that which would have been provided by the proposed standards."

48 Fed. Reg. at 590.

After specifically explaining in a table the various alternatives it had considered for disposal of the mill tailings piles, the EPA divided the alternatives into categories of least cost, optimized cost-benefit, or nondegradation alternatives. *Id.* at 591. To justify the less stringent final disposal standards, the EPA said that the original standards it had proposed were close to nondegradation standards and that they would have been difficult to implement because they required cleanup and control limits close to background levels of radiation. *Id.* It also said that "the small incremental health benefits, when compared to the benefits for less stringent alternatives, do not appear to justify the large additional costs." *Id.* In its final standards, the EPA purported to select an "optimized cost-benefit" rather than a "least cost" alternative. *Id.* The final standard for control or disposal of the tailings piles set the radon emission limit at 20 pCi/m²s rather than the proposed 2 pCi/m²s limit.⁴ *Id.*

4

"§ 192.02 Standards.

Control shall be designed to:

(a) Be effective for up to one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years, and,

(b) Provide reasonable assurance that releases of radon-222 from residual radioactive material to the

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Furthermore, the EPA changed the flat 1000 year disposal longevity requirement, qualifying it with the language, "to the extent reasonably achievable and, in any case, for at least 200 years," 40 C.F.R. § 192.02(a) (1984).

The final regulation set the cleanup standard for land, the maximum concentration level of radium 226, at 5 pCi/gram averaged over the first 15 centimeters of soil and at 15 pCi/gram for soil layers more than 15 centimeters below the surface.⁵ This standard was an increase from the 5 pCi/gram level set out in the proposed standard for subsurface soil. 46 Fed. Reg. at 2562. After explaining the differences between the proposed and final regulations for dispersed tailings contaminating the soil, the EPA

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atmosphere will not:

- (1) Exceed an average release rate of 20 picocuries per square meter per second, or
- (2) Increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than one-half picocurie per liter."

40 C.F.R. § 192.02 (1984) (footnotes omitted) (emphasis in original).

5

"§ 192.12 Standards

Remedial actions shall be conducted so as to provide reasonable assurance that, as a result of residual radioactive materials from any designated processing site:

(a) The concentration of radium-226 in land averaged over any area of 100 square meters shall not exceed the background level by more than--

(1) 5 pCi/g, averaged over the first 15 cm of soil below the surface, and

(2) 15 pCi/g, averaged over 15 cm thick layers of soil more than 15 cm below the surface."

40 C.F.R. § 192.12 (1984) (emphasis in original).

stated that it believed the final standards "will result in essentially the same degree of cleanup, and will be simpler to implement." 48 Fed. Reg. at 600.

The EPA also adjusted the final standards on the limits for radioactivity in buildings affected by the mill tailings. The EPA increased the maximum permissible level of radon decay product concentration from 0.015 WL to 0.03 WL, requiring, however, that "reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL." 40 C.F.R. § 192.12(b)(1) (1984). The level of gamma radiation allowed by the final standards is no more than 20 microroentgens per hour over background level. *Id.* § 192.12(b)(2).

Commenting upon the difficulty of assessing water contamination at the various sites and stating a belief that there was a low probability of additional contamination at most sites, the EPA retreated from its proposed water regulations, stating that it was refusing to enact general regulations on the subject. 48 Fed. Reg. at 599. The EPA, however, did recognize the potential for site-specific water contamination problems. In the cases where there was a potential for ground water contamination, the EPA declared that it had provided:

"in the implementation section of these standards, that judgments on the possible need for monitoring or remedial actions should be guided by relevant considerations described in EPA's hazardous waste management system, and by relevant State and Federal Water Quality Criteria for existing and anticipated uses of the aquifer."

Id. at 599-600. The EPA adopted the same approach to surface water contamination, leaving the regulatory burden to the DOE and the NRC on a site-specific basis, although it indicated that it thought surface water would be adequately protected in any case by its general disposal standards. Id.

The final standards, like the proposed standards, incorporated provisions allowing the implementing agency to grant exceptions if certain criteria were met. See 40 C.F.R. §§ 192.21-.22 (1984).

The industry petitioners, the environmental groups, and the State of Colorado raise the following issues for our consideration: (1) whether the EPA must find that the mill tailings piles present "a significant risk" of harm before promulgating standards under the UMTRCA; (2) whether the EPA's radon emission and radium-in-soil standards are invalid because they are on-site standards beyond the EPA's authority to promulgate; (3) whether the EPA standards unlawfully impose management, design, and engineering requirements; (4) whether the EPA should engage in a cost-benefit analysis in establishing the standards for the final regulations, particularly the radon emission standard; (5) whether the EPA's standards for the mill tailings piles are arbitrary and capricious because they are unsupported by the record and bear no rational relationship to the protection of the public safety and health and the costs required to implement them; and (6) whether by abandoning general water

quality standards and standards regarding non-radiological toxic pollutants the EPA has acted contrary to the law.

The UMTRCA refers to the Administrative Procedure Act, 5 U.S.C. §§ 701-706, for standards of judicial review of rules promulgated under it. See 42 U.S.C. § 2022(c)(2). The appropriate standard of review for this type of informal, notice and comment rulemaking is that an agency's action may be set aside if found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," 5 U.S.C. § 706(2)(A). The Supreme Court recently has reiterated a restrictive view of the arbitrary and capricious standard, stating:

"The scope of review under the 'arbitrary and capricious' standard is narrow and a court is not to substitute its judgment for that of the agency. Nevertheless, the agency must examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.' . . . In reviewing that explanation, we must 'consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.' . . . Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."

Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Automobile Insurance Co., 463 U.S. 29, 43 (1983) (citations omitted). In addition, as part of our review, we also determine: (1) whether the agency acted within the scope of its authority, and (2) whether the agency complied with the prescribed administrative procedures. See Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 415-17 (1971); American Petroleum Institute v. EPA,

540 F.2d 1023, 1028 (10th Cir. 1976), cert. denied, 430 U.S. 922 (1977); 5 U.S.C. § 706(A)(2)(C) & (D).

II

A preliminary question arises as to what documents we may review in considering these petitions. The EPA, supported by the environmental petitioners, has moved to strike references in the briefs filed by industry petitioners to documents and reports not in the record. Industry petitioners not only allege that those items are proper for our consideration but have moved to supplement the record to include the documents and reports that they cite. A decision on the appropriate use of these materials is important, because, in this case, we are a reviewing body, not, an independent decision maker. We do not substitute our judgment for the judgment of the agency simply because we might have decided matters differently. We agree with the comments in Deukmejian v. Nuclear Regulatory Commission, 751 F.2d 1287, 1323-1326 (D.C. Cir. 1984), that the agency's action must be reviewed on the basis articulated by the agency and on the evidence and proceedings before the agency at the time it acted. Aggressive use of extra-record materials also would run directly counter to the admonitions of the Supreme Court in Motor Vehicle Manufacturers Association.

Thus, any exception to this general rule against the use of extra-record materials must be extremely limited. Nevertheless, a few courts have found exceptions. A recent law review article discusses the problem that we, and all other appellate courts, face in determining whether and how to use extra-record citations.

Stark & Wall, Setting No Records: The Failed Attempts to Limit the Record in Review of Administrative Action, 36 Ad. L. Rev. 333, 335 (1984). The article notes that, on review, parties have offered extra-record studies and other evidence under a number of justifications, including: (1) that the agency action is not adequately explained and cannot be reviewed properly without considering the cited materials, see Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 420 (1971); (2) that the record is deficient because the agency ignored relevant factors it should have considered in making its decision, see Hiatt Grain & Feed, Inc. v. Bergland, 446 F. Supp. 457, 467 (D. Kan. 1978), aff'd on other grounds, 602 F.2d 929 (10th Cir. 1979), cert. denied, 444, U.S. 1073 (1980); (3) that the agency considered factors that were left out of the formal record, see Environmental Defense Fund, Inc. v. Blum, 458 F. Supp. 650, 661 (D.D.C. 1978); (4) that the case is so complex and the record so unclear that the reviewing court needs more evidence to enable it to understand the issues, see Bunker Hill Co. v. EPA, 572 F.2d 1286, 1292 (9th Cir. 1977); and (5) that evidence coming into existence after the agency acted demonstrates that the actions were right or wrong, see American Petroleum Institute v. EPA, 540 F.2d 1023, 1034 (10th Cir. 1976), cert. denied, 430 U.S. 922 (1977). As Stark and Wall observe, when such justifications are offered the court is forced as a practical matter to examine the material, whether or not motions to supplement the record are granted. 36 Ad. L. Rev. at 343-44.

In the instant case one or more of the above justifications are advanced with respect to virtually all extra-record citations.

We have in fact considered those materials to see if they fall within any of these possible justifications. But the fact that we examine these materials for the limited purposes set forth above does not mean that the cited items should become a part of the record in these cases. The references to such extra-record items, we believe, are substantially akin to the practice of citation to scientific treatises in ordinary civil cases. Therefore, we deny the EPA's motion to strike the references; but we also deny all motions to supplement the record except the EPA's unopposed motion to supplement the record with a letter of transmittal dated June 8, 1983, from Christopher Herman of the EPA to Larry Boggs, counsel for petitioner American Mining Congress and two accompanying memoranda dated April 27, 1983, and June 7, 1983.

III

The industry petitioners⁶ contend that the language and legislative history of the UMTRCA require the EPA to find that the mill tailings piles pose a "significant risk" before the EPA may promulgate regulations dealing with the mill tailings piles. Petitioners rely on Industrial Union Department, AFL-CIO v. American Petroleum Institute, 448 U.S. 607 (1980) (hereinafter the Benzene case). In the Benzene case, Justice Stevens, for the plurality, invalidated OSHA regulations intended to protect workers from the carcinogenic effects of benzene. Justice Stevens and three other members of the Court agreed that under §§ 3(8) and

⁶ In the text of this opinion we refer to American Mining Congress, United Nuclear Corporation, Kerr-McGee Corporation, Kerr-McGee Nuclear Corporation, and Homestake Mining Company as the "industry petitioners." Although we recognize that some of their arguments differ, most do overlap.

6(b)(5) of the Occupational Safety and Health Act⁷, before the Secretary may promulgate any permanent standards for workers' health and safety, he must find that their workplace presents a significant risk of harm. *Id.* at 642. In so concluding, the plurality relied heavily upon the actual language from §§ 3(8) and 6(b)(5). *Id.* at 641-42.

We believe that the ~~Benzene~~ case and all the other OSHA cases requiring a threshold finding of significant risk are readily distinguishable from the case at hand. In the UMTRCA Congress commanded the EPA, the NRC, and the DOE to deal with the problems posed by uranium mill tailings:

"The Congress finds that uranium mill tailings located at active and inactive mill operations may pose a potential and significant radiation health hazard to the public, and that the protection of the public health, safety, and welfare and the regulation of interstate commerce require that every reasonable effort be made to provide for the stabilization, disposal, and control in a safe and environmentally sound manner of such tailings in order to prevent or minimize radon diffusion into the environment and to prevent or minimize other environmental hazards from such tailings."

42 U.S.C. § 7901(a) (emphasis added). It would be disingenuous to hold, after reading Congress' own statement of its findings and purposes, that the EPA must make its own determination of whether radon emissions present a risk significant enough to warrant regulation under the UMTRCA. Admittedly, the language "may pose a potential and significant radiation health hazard to the public" might lead one to question whether Congress was resolute on the degree of danger the mill tailings pose. Yet, even if Congress was unsure of the absolute risk posed by mill tailings, it was

⁷ 29 U.S.C. §§ 652(8) and 655(b)(5).

sure of its desire to stabilize and dispose of the tailings and that "every reasonable effort be made to provide for the stabilization, disposal, and control in a safe and environmentally sound manner" *Id.*

The legislative history of both the UMTRCA and its 1982 amendment confirm our belief that it is unnecessary for the EPA to make its own determination that the tailings pose a significant risk. The House Report on the UMTRCA stated, "[a]s a result of being for all practical purposes, a perpetual hazard, uranium mill tailings present the major threat of the nuclear fuel cycle." H.R. Rep. No. 1480, Part 1, 95th Cong., 2d Sess. 11, reprinted in 1978 U.S. Code Cong. & Ad. News 7433, 7433. Thus, Congress considered the mill tailings a hazard, despite evidence brought before it that mill tailings might not pose an immediate danger to current generations. In part two of the same House Report the NRC Chairman, Dr. Joseph M. Hendrie, described how the mill tailings piles present a hazard to the public health:

"Unlike high-level radioactive waste from the back end of the nuclear fuel cycle, which contains products of the fission reaction, mill tailings contain only naturally occurring radioactive elements, in small quantities. . . .

The health effects of this radon production are tiny as applied to any one generation, but the sum of these exposures can be made large by counting far into the future, large enough in fact to be the dominant radiation exposure from the nuclear fuel cycle."

Id. at 25, 1978 U.S. Code Cong. & Ad. News at 7452. By including such passages in its report, Congress showed it was clearly aware that the mill tailings themselves did not pose an immediate grave danger to persons in being. Nevertheless, Congress chose to

regulations, EPA and NRC should exercise their best independent technical judgment in making such a determination. At all times, the conferees fully intend that EPA and NRC recognize as their paramount responsibility protection of the public health and safety and the environment."

Id.

In this conference report there was no mention of the necessity of finding "significant risk" before promulgating regulations. We believe it would be outside the appropriate bounds of judicial review for us to require a showing of significant risk when Congress has been clear in its approval of the EPA's approach to mill tailing regulation.⁸

⁸ Two discussions, one in the House and one in the Senate, on the conference report may imply that the EPA should make a determination that it must find that radon presents a significant risk. In one, Congressman Lujan stated:

"In addition, the conferees' action is intended to lay to rest suggestions, such as those made by EPA officials to mill operators in my State, that the preamble to the Mill Tailings Act represents a congressional predetermination that a significant risk exists from radon from mill tailings or that particular forms of remedial action must be taken.

128 Cong. Rec. H8816 (daily ed. Dec. 2, 1982).

In the other, Senator Simpson, the bill's floor manager, discussed the significance of risks with Senator Wallop.

"Mr. WALLOP: . . . It is my understanding that EPA and NRC have stated that they felt compelled by the Mill Tailings Act to impose stringent requirements, such as a 2-picocurie radon emanation standard, irrespective of costs, because of language in the preamble to the 1978 Mill Tailing Act. From my reading of the applicable provision, the 1978 act directed the agencies to take 'every reasonable effort' necessary to protect public health. Implicit in that language is a direction to exercise reasonable discretion. Have [sic] the amendment dispelled the misapprehension of the agencies on this point?

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consider protecting future generations by enacting the UMTRCA and requiring the immediate stabilization and disposal of those tailings.

The 1982 amendments did not change the thrust of the original UMTRCA plan. The changes in the legislation that pertained to the EPA's duties under the UMTRCA, according to the House Conference Report, were not designed to change the EPA's basic regulatory approach. House Conf. Rep. No. 884, *supra*, at 47, 1982 U.S. Code Cong. & Ad. News at 3617. Instead, Congress designed the amendments to set out the factors that the EPA should consider in developing the standards. The Conference Report indicated that Congress did not find fault with the EPA's proposed standards.

"In each instance, the conferees have agreed to include specific references in the appropriate sections of the Atomic Energy Act directing EPA and NRC, in promulgating such standards or regulations, to consider the risk to the public health, safety, and the environment, the environmental and economic costs of such standards of [sic] regulations, and such other factors as EPA or NRC, respectively, determine to be appropriate.

. . . The conferees note that this language reflects accurately the current regulatory approach of the agencies. The language agreed to by the conferees should not result in any delays in establishment of remedial action standards. EPA, for example, has already advised the conferees that it is considering costs in formulating its inactive site requirements. . . . Moreover, in adopting the language, the conferees intend neither to divert EPA and NRC from their principal focus on protecting the public health and safety nor to require that the agencies engage in cost-benefit analysis or optimization.

The conferees are of the view that the economic and environmental costs associated with standards and requirements established by the agencies should bear a reasonable relationship to the benefits expected to be derived. This recognition is consistent with the accepted approach to establishing radiation protection standards, and reflects the view of the conferees that, in promulgating such general environmental standards and

IV

The industry petitioners argue that the EPA's radon "flux" or emission limits and radium-in-soil cleanup standards exceed the

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Mr. SIMPSON: I say . . . that, in my best estimate, they have. The statement of [the] managers clearly states that it is the agreement of the conferees that EPA and NRC, in promulgating standards and regulations, should exercise their best independent technical judgments. The agencies should determine the risks associated with [sic] mill tailings and the significance of those risks. They should also examine various regulatory approaches to deal with significant risks that are identified. Of course, we expect the approach ultimately adopted to be reasonably related to the risks in terms of costs. In short, Congress has not directed any specific regulatory program. On technical issues relating to the regulation of mill tailings, EPA and NRC should both exercise reasonable judgment on the appropriate course to accomplish the basic purpose of the act, which is to protect the public health and safety from unreasonable risks."

128 Cong. Rec. S13,055-56 (daily ed. Oct. 1, 1982).

We recognize the assistance in interpretation that these discussions of the amendments provide. We are constrained, however, by the language of the UMTRCA and the conference report to find that no showing of significant risk is necessary. A colloquy between two House or Senate members cannot change the conference report, it merely is of assistance in interpreting it. See Remarks by Congressman Udall, 128 Cong. Rec. H8824 (daily ed. Dec. 2, 1982) (" . . . we cannot with a colloquy change the law. We cannot change the conference report. We can indicate what it means and how it is interpreted by Members who served on it."). To hold that the EPA must determine that the tailings piles pose a significant risk before regulating would change the entire structure of the statute.

It is more reasonable to interpret the quoted comments to mean that the EPA must consider the significance of the risk in weighing the costs and benefits of the alternative standards, a subject we discuss in Part VI. We do not believe that Congress intended the UMTRCA to require the EPA to go through a two-phase analysis of: (1) determining the significance of risk of radon emissions before regulating, and (2) after a significance finding, balancing the costs of the regulations against the benefits (reductions of risks, among other things) of the alternatives. The language of the statute itself and the legislative history of

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EPA's statutory authorization because they operate inside the mill tailings sites. This argument that the EPA may not adopt standards that operate at the mill tailings sites derives from the 1970 Reorganization Plan which transferred the Atomic Energy Commission (now NRC) authority to set generally applicable environment standards to the EPA. See generally Quivira Mining Co. v. EPA, 728 F.2d 477, 480 (10th Cir. 1984) (history of reorganization). That act defined standards to mean "limits on radiation exposures or levels, or concentrations or quantities of radioactive materials, in the general environment outside the boundaries of locations under the control of persons possessing or using radioactive material." 84 Stat. 2086, 2088 (1970) (codified at 5 U.S.C. App. § 2(a)(6) at 1132-33). The AEC (now NRC) was to retain authority over the licensing of commercial operations using or producing radioactive materials. 5 U.S.C. App. at 1135.

The American Mining Congress argues that this strict distinction between the EPA operating outside site boundaries and the NRC operating on-site has been maintained in the UMTRCA. The reference to "outside the boundaries," however, does not appear in the final version of § 275 of the UMTRCA. 42 U.S.C. § 2022(b). As finally enacted that statute requires the EPA to adopt only "standards of general application," leaving "implementation and enforcement" to the NRC in the conduct of its licensing

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the statute and the amendment are too clear on the need for regulations concerning uranium mill tailings for us to interpret the statute to require a significant risk finding before regulating. Instead, we believe that the alternative that the EPA selects for regulating the piles should reflect the significance of the risk that it believes the piles present.

activities. *Id.* at § 2022(d). The legislative history and administrative interpretations prior to the promulgation of these regulations are less than clear. Yet Congress' concern all along has been the protection of the general public from radiation and other hazards connected with these operations. See House Conf. Rep. No. 884, *supra*, at 47, 1982 U.S. Code Cong. & Ad. News at 3617. If one of the principal hazards is inert radon gas that escapes from a pile into the atmosphere and travels some distance, the obvious remedy is to prevent that escape. Such remedy requires measures applicable at the source. We hold that the EPA has not exceeded its statutory authority in adopting this remedy.

V

The American Mining Congress argues that the radon "flux" or emission limits and radium-in-soil cleanup standards limits are invalid because they influence, and to a great extent define, the type of engineering or design standard to be selected by the implementing agency. See H.R. Rep. No. 1480, Part 1, *supra*, at 17, reprinted in 1978 U.S. Code Cong. & Ad. News at 7439 ("The EPA standards and criteria should not interject any detailed or site-specific requirements for management, technology or engineering methods . . . on the Department of Energy.").

As noted above, Congress sought in the UMTRCA to divide responsibility for disposal and cleanup among the agencies, with the EPA setting standards for general application and the DOE and the NRC implementing those standards. See 42 U.S.C. §§ 7911-7925. This division of responsibility and authority, however, should not be read to prevent the EPA from instituting a radon flux or radium

limit that could be translated into a covering measurement requirement. As we discuss in the next section, the EPA had to meet a congressional mandate of some sort of cost-benefit analysis in promulgating the regulations. To do so it had to be able to estimate the cost of implementing the regulations. To determine the cost, the EPA had to have an approximate idea of the type of remedial action that will be undertaken; otherwise, its task is impossible. We therefore hold that the EPA did not exceed its authority by enacting emission limitations that appear to correlate directly with covering measurements. Furthermore, because the standards are general in nature--they apply to all sites--we do not view them as site-specific "management, technology or engineering" methods.

VI

All petitioners criticize the EPA's approach in considering costs and benefits in developing the standards. The industry petitioners find fault with what they describe as the EPA's failure to consider costs of disposal and cleanup in comparison with what they perceive as the limited health benefits of the regulation. The environmental petitioners,⁹ on the other hand, argue that the EPA should promulgate strict feasibility standards,

⁹ In the text of this opinion we refer to joint petitioners Sierra Club, Environmental Defense Fund, Natural Resources Defense Council, Southwest Research and Information Center, and Jean Slattery as the "environmental petitioners." The arguments of the State of Colorado as intervenor and the State of Wyoming as amicus generally parallel those of the environmental petitioners.

with a very limited review of the costs of implementing those standards.

The environmental petitioners argue that the UMTRCA requires the EPA to protect the public health to the maximum extent possible, constrained only by technical feasibility, and, to some extent economic feasibility. Feasibility analysis, as the Supreme Court has used that term, places a less severe restraint on agency action intended to forestall environmental harm than cost-benefit analysis. See American Textile Manufacturers Institute, Inc. v. Donovan, 452 U.S. 490, 507-09 & n.27 (1981). Feasibility analysis and cost-benefit analysis are mutually exclusive approaches. *Id.* at 509. In light of the language of the 1982 amendment to the UMTRCA we must reject the environmental petitioners' argument that control of mill tailings should be as extensive as is capable of being performed. The amendment foreclosed the EPA's use of a feasibility standard in promulgating regulations by requiring the EPA to consider "the environmental and economic costs" of applying the standards. 42 U.S.C. § 2022(a). The legislative history also reveals Congress' intent to forgo a feasibility standard. The conference report noted that there should be a reasonable relationship between the environmental and economic costs associated with the standards and the benefits to be derived from them. House Conf. Rep. No. 884, *supra*, at 47, 1982 U.S. Cong. & Ad. News at 3617.¹⁰

¹⁰ Also, discussing the amendments in the Senate with Senator Schmitt, Senator Simpson rejected feasibility analysis for these regulations:

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We agree with the industry petitioners that the UMTRCA does require a consideration of costs relative to benefits, a cost-benefit analysis,¹¹ by requiring a reasonable relationship between costs and benefits. We have no doubt, after reading the UMTRCA and its legislative history, that Congress gave the EPA a clear indication of its intent to require some sort of cost consideration. See American Textile Manufacturers, Inc., 452 U.S. at 510-11.

Nevertheless, although Congress acknowledged a cost-benefit requirement, it did not define what the EPA must do to meet that requirement in promulgating regulations. The label "cost-benefit analysis" encompasses everything from a strict mathematical

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Sen. Schmitt: "By requiring a consideration of environmental and economic costs, is my understanding correct that the Senator wants the regulatory agencies to consider more than just the feasibility of their standards and regulations?"

Mr. SIMPSON. The Senator's understanding is correct. The direction to consider costs requires more than a perfunctory determination of whether a given cost can be borne by the uranium industry or a particular licensee."

128 Cong. Rec. S13,055 (daily ed. October 1, 1982).

¹¹ Senator Simpson indicated that the amendment to the statute did not require an "itemized cost-benefit approach." He stated:

"As indicated in the statement of managers, standards and requirements must bear a reasonable relationship to the expected benefits; that is, the costs to comply should be commensurate with the risks. This is not to say that an itemized cost-benefit optimization approach is required. In balancing costs and risks to assure a reasonable relationship between the two, judgment must be exercised by the agencies."

128 Cong. Rec. S13,055 (daily ed. Oct. 1, 1982) (colloquy between Sen. Simpson and Sen. Schmitt).

balancing formula to a less strict standard that merely requires the agency to recognize both the costs and benefits of specific proposed alternatives and consider the differences in choosing an appropriate alternative. "Labels are neither important nor determinative." American Petroleum Institute v. EPA, 540 F.2d 1023, 1037 (10th Cir. 1976), cert. denied, 430 U.S. 922 (1977).

We read the UMTRCA to provide that the EPA must consider the costs involved in the regulations and, with the guidance of Congress' intent, find that these costs bear a reasonable relationship to the benefits derived. See House Conf. Rep. No. 884, *supra*, at 47, 1982 U.S. Code Cong. & Ad. News at 3617. The EPA must consider Congress' intent to protect the public health and safety and the environment in its decision, because this intent refines the cost-benefit standard by assigning the values or weights that the EPA must use in its determination of a balance of benefits and costs. *Id.* (Congress considered protection of these things to be "paramount"); see generally American Petroleum Institute, 540 F.2d at 1028 ("the guiding star is the intent of Congress All issues must be viewed in the light of that intent."). The EPA labeled its final standard for control of the tailings piles as an "optimized cost-benefit" alternative. 48 Fed. Reg. at 591. The legislative history of the statute specifically stated that an optimized cost-benefit analysis was not necessary. It also stated that even a cost-benefit analysis was not required.

In the House Conference Report, discussing the 1982 amendment, it states,

"The language agreed to by the conferees should not result in any delays in establishment of remedial action standards. EPA, for example, has already advised the conferees that it is considering costs in formulating its inactive site requirements. . . . Moreover, in adopting the language, the conferees intend neither to divert EPA and NRC from their principal focus on protecting the public health and safety nor to require that the agencies engage in cost-benefit analysis or optimization."

House Conf. Rep. No. 884, *supra*, at 47, reprinted in 1982 U.S. Code Cong. & Ad. News at 3617 (emphasis added). The topic sentence of the next paragraph states, however, that "[t]he conferees are of the view that the economic and environmental costs associated with standards and requirements established by the agencies should bear a reasonable relationship to the benefits expected to be derived." *Id.* This language, in the context of the entire legislative history of the 1982 amendments, see *infra* notes 10 and 11, convinces us that Congress intended cost-benefit analysis, but less strict than an optimized cost-benefit analysis.

VII

We must examine each standard to determine whether the EPA properly considered in its analysis each factor required by Congress. Moreover, we must determine whether the EPA's record supports the EPA's action. See *Ethyl Corp. v. EPA*, 541 F.2d 1, 36 (D.C. Cir.) (en banc), cert. denied, 426 U.S. 941 (1976).

A

The industry petitioners criticize the EPA's change in and justification for: its radon emission standard (allegedly from a risk of lung cancer to a risk of misuse); its linear-nonthreshold calculations of radon risk; and its projected life-savings from the promulgation of the regulations. They also criticize the

insubstantial benefits of the regulations, which they say bear no rational relationship to their substantial costs.

We do not believe that misuse is an unreasonable justification for the standard, particularly in light of the fact that misuse of the tailings helped lead to the enactment of the UMTRCA. See H.R. Rep. No. 1480, Part 1, *supra*, at 11, 1978 U.S. Code Cong. & Ad. News at 7434.¹² We do not believe that the EPA shifted its justification for the radon standard in a manner that denied any party the opportunity to comment on the alleged newly asserted justification, misuse of tailings. In its description of the proposed standard for "Control of Tailing Piles" the EPA stated: "Many interrelated factors affect the long-term performance of tailings pile disposal methods. They include external natural phenomena, such as earthquakes, floods, windstorms, and glaciers, internal chemical and mechanical processes, and human activities." 46 Fed. Reg. at 2558 (emphasis added). Thus, given the legislative history of the Act and the EPA's own language in the proposed standards, misuse, as a

¹² The Report stated:

"From the early 1940's through the early 1970's there was little official recognition of the hazards presented by these tailings. Federal regulation of the industry was minimal. As a consequence, mill tailings were left at sites, mostly in the Southwest, in an unstabilized and unprotected condition. Some of these tailings were used for construction purposes in the foundations and walls of private and public buildings. There, through the concentrated emission of radon gas, the hazard of the tailings and public exposure increased substantially."

H.R. Rep. No. 1480, Part I, *supra*, at 11, 1978 U.S. Code Cong. & Ad. News at 7434.

justification for the standards, was sufficiently foreshadowed in the proposed scheme; the parties here were not deprived of notice or an effective opportunity to respond. See Small Refiner Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 547 (D.C. Cir. 1983); Beirne v. Secretary of Department of Agriculture, 645 F.2d 862, 865 (10th Cir. 1981).

This court recognizes the industry concerns over the costs that must be incurred to prevent, using the EPA's calculations, approximately 170 to 240 potential lung cancer deaths per century in the United States from uncontrolled mill tailings from all inactive sites. 48 Fed. Reg. at 593; I FEIS-IN at 67. We think there is reasonable authority to support the EPA's method of risk calculation in regard to its potential lung cancer deaths estimate.¹³ See Reserve Mining Co. v. EPA, 514 F.2d 492, 507 n.20 (8th Cir. 1975) (en banc) ("Indeed, a number of the disputes involve conflicting theories and experimental results, about which it would be judicially presumptuous to offer conclusive findings.").

¹³ This estimate is based upon a linear nonthreshold theory of radiation danger. This theory presupposes that a linear extrapolation of high dose radiation data yields an accurate estimate of low-level radiation risk. Many question this theory of radiation risk. See Management of Commingled Uranium Mill Tailings: Hearings Before the Subcomm. on Procurement and Military Nuclear Systems of the House Comm. on Armed Services, 97th Cong., 2d Sess. 176, 186-87 (1982) (comments on proposed EPA standards). Nevertheless, we believe that, in making policy decisions, the EPA may adopt a linear nonthreshold calculation to compute risks from low levels of radiation. See McGarity, Substantive and Procedural Discretion in Administrative Resolution of Science Policy Questions: Regulating Carcinogens in EPA and OSHA, 67 Geo. L.J. 729, 733-34 (1979).

The industry petitioners also criticize the EPA's "estimate that people living continuously next to some of the piles may have lifetime excess lung cancer risks as high as 4 chances in 100." 48 Fed. Reg. at 593, 598. They criticize these figures on several bases,¹⁴ arguing that: (1) few people, if any, are subjected to this risk; (2) the estimate is unreasonable in its assumption that someone would live continuously near a tailings pile; (3) the radon daughter concentrations to which nearby individuals are allegedly exposed, which the EPA listed in the Final Environmental Impact Statement, do not correlate with the radon concentrations in the study the EPA cites; (4) the EPA based the radon measurements on inadequate sampling data; and (5) the risk measurements include background radiation, not just radon from the tailings piles. We address separately these arguments.

The EPA has made a "4 in 100" excess risk of lung cancer calculation for those residing near the inactive sites in its radon risk calculation.¹⁵ This figure defines both the risk created by the inactive mill tailings and the benefit to be derived from instituting the radon emission standard--avoidance of

¹⁴ The industry petitioners also draw our attention to the fact that uranium tailings sites are a "trivial" source of radon in comparison to natural and agricultural releases. This fact may well be true, but it does not prove that uranium mill tailings sites are not a source of radiation risk that Congress instructed the EPA to address.

¹⁵ At one point in the text preceding the final regulations, the EPA stated this risk to be about 3 chances in 100. 48 Fed. Reg. at 597. We analyze the risk estimate as 4 chances in 100, however, because that is what the EPA ultimately concluded to be the risk. *Id.* at 593, 598.

that risk. We believe the evidence in the record reasonably supports this risk estimate figure.

Most of the inactive uranium mill tailing sites are located in rather sparsely populated areas. Congress no doubt was aware of this fact when it enacted the UMTRCA and designated the specific sites to which the regulations would apply.¹⁶ See 42 U.S.C. § 7912. There are, however, piles located near cities with sizeable local populations, such as Salt Lake City, Utah, and Grand Junction, Colorado. See I FEIS-IN at 60, Table 4-3. In addition, as the EPA points out, population distributions may change, as a consequence exposing more people to the dangers of radon. I FEIS-IN at 59 ("Although we have ignored population changes since 1970, a future increase in population at several of the urban sites seems likely."). Therefore, although we may agree with the industry petitioners that few people are currently exposed to radon from the piles, this fact does not necessarily negate the need for regulation, especially in light of Congress' presumed knowledge regarding the population density in areas surrounding the designated sites.¹⁷

We also reject industry petitioners' assertion that it is

¹⁶ The Final Environmental Impact Statement states that:

"We have estimated local and regional exposure at 6 of the 24 inactive sites (SW81). Although this sample is limited, it includes all important urban sites except Canonsburg, Pa. The remaining piles are in remote areas and collectively have only about one tenth of the local and regional population exposures that these six piles collectively have."

I FEIS-IN at 59.

¹⁷ See 42 U.S.C. § 7912 (regarding site designations).

unreasonable that someone would live continuously near a pile. Supposedly rational people in our society continuously expose themselves to risks of greater magnitude than those involved here: workers with nuclear materials, underground coal miners, and many others. Some do it for money, some because they underestimate the risk. Radon emission from these piles will occur for thousands of years unless prevented. Public awareness of the dangers may wane. The industry petitioners' criticism does not undermine the validity of the risk assessment; it only points to the limited number of persons who currently may be subject to the risk.

Industry petitioners are correct that there were some discrepancies between the exposure level estimates used to calculate the risk factor included in the Final Environmental Impact Statement, and the referenced study conducted by consultants Ford, Bacon and Davis Utah, Inc.¹⁸ See Letter from

¹⁸ The EPA readily acknowledged the discrepancy in the figures used in Table 4-5 of the Final Environmental Impact Statement. See Letter from Christopher Herman, Brief of American Mining Congress, Addendum F. These discrepancies are as follows:

City	Cited Exposure Level	Recalculated* Exposure Level
Salt Lake City**	0.045 WL	0.04 WL
Grand Junction	0.045 WL	0.04 WL
Durango	0.026 WL	0.02 WL
Rifle***	0.007 WL	0.0085 WL
Gunnison	0.008 WL	0.007 WL

* These exposure levels are in turn used to calculate absolute and relative risk estimates.

** The EPA suggested that this discrepancy resulted from the change in the equilibrium factor from the Draft to the Final Environmental Impact Statement.

*** The EPA also conceded that it overstated the distance from the pile to the nearest residents. It used a figure of 0.5 miles when it should have used 0.1 miles.

Christopher Herman, Attorney, Air, Noise and Radiation Division, United States Environmental Protection Agency, Brief for American Mining Congress, Addendum F. Although these discrepancies alter the risk estimates, we do not think that the deviation is sufficiently significant to render the EPA's upper limit risk estimate to be unsupported by available data. Precision is desirable, yet these discrepancies do not rise to a level that would require invalidation of an estimate as an arbitrary decision.

Industry petitioners criticize the EPA for calculating risk from figures they allege were derived from inadequate sampling data and data that included background levels of radiation, instead of figures based solely on the radon emitted from the inactive sites. We do not find these flaws fatal to the EPA's conclusions. The sampling data compiled by the researchers for the EPA is adequate to support the EPA's estimates.¹⁹ An estimate

¹⁹ The American Mining Congress faults the Ford, Bacon study's radon measurements because the figures are based on "a single 24-hour sample." They contend that because of the "variability of outdoor radon levels measurements must be taken over an extended period of time." They indicate that they would approve of forty-eight hour samples taken at three-week intervals over a twelve-month period.

This argument misrepresents the scope of the Ford, Bacon study. It is true that each of the study's radon measurements in all the various locations at each mill tailings site appears to have extended over a twenty-four hour period. See, e.g., Joint Appendix at 36, 39, 54, 77, 136. Yet it is also true that the EPA consultants used numerous sampling locations at each tailings pile site when they conducted these twenty-four hour measurements. See e.g., id. at 36, 41 (fifteen locations in Durango); 54, 62 (eight locations in Grand Junction); 77, 83 (twenty-six locations in Salt Lake City); 136 (three locations at Spook site in Converse, Wyoming). Any statistician would appreciate that larger sample sizes yield more reliable data. But at some point a study must

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of risk may reasonably include possible background risk--to exclude it could lead to unrealistic assumptions regarding the dangers that the sites do present.

B

The industry petitioners' arguments against the EPA's radium-in-soil concentration standard, 40 C.F.R. § 192.12(a) (1984), are similar. They say the standards are invalid because (1) the EPA's assumptions about the likelihood of significant exposures from the concentrations do not support the standard; and (2) the EPA's assumptions about the relationship between radium concentrations in the soil and indoor radon exposure and potential health effects are arbitrary.

As the EPA points out, contaminated soil under or near a building contributes significantly to indoor radon. 48 Fed. Reg. at 600. The EPA admits in the FEIS-IN, and the industry

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compromise perfection because of cost and limited time and resources. Here the consultants extrapolated their data using models that took into account existing information on the topography, weather patterns, and local climate of each site as well as the current location and configuration of tailings and residue at each site. See, e.g., *id.* at 40, 58-59, 79. We think that in these circumstances such a model was an acceptable substitute for periodic samples taken over an extended period of time. The American Mining Congress does not question the validity of the data which comprised the model. It only questions the methodology.

We are not scientists; we are generalist judges deciding whether the methods used were reasonable. We have not been presented with any reasons to distrust a twenty-four hour sample but not a forty-eight hour sample. Given the other information in the consultants' study about variations in radon release at different hours of the day, see, e.g., *id.* at 39, a cycle covering an entire day and night does not seem arbitrary. Likewise, given information that climate and weather patterns may affect radon release, a model that takes into account variations over an entire year of the particular site seems quite reasonable.

petitioners point out, that the actual exposure to radon from contaminated soil may vary from the levels that the EPA assumed. Even considering the possible inaccuracies of the EPA's assumptions, there is nothing in the record or arguments presented to convince us that the EPA acted arbitrarily or capriciously in promulgating this standard to deal with a significant danger the tailings piles present.

The State of Colorado claims that the EPA provided inadequate notice and opportunity for comment on the one hundred square meter sample area for the radium concentration standard. Although this sort of area designation admittedly could influence the effectiveness of the standard, it is not the sort of change that necessitates a new round of comment.

C

In its final standard the EPA increased the allowable level of indoor radon concentration from 0.015 WL to a maximum level of 0.03 WL, stressing that reasonable effort should be made to achieve a radon concentration level of 0.02 WL. See 40 C.F.R. § 192.12(b)(1) (1984). The EPA justified this change on the basis that it would ease implementation of the final standard. See 48 Fed. Reg. at 600. It further stated that "the final standard deals adequately with complications introduced by the presence of any high concentration of naturally-occurring radionuclides, and avoids unnecessary and costly remedial actions that produce only marginal improvements."²⁰ Id.

²⁰ In a claim related to this indoor radon concentration standard, the State of Colorado asserts that the EPA exceeded its

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The environmental petitioners criticize the final standard for allowing an unjustified increase in risk, represented by the changes from the proposed to the final standard. The proposed standard of 0.015 WL had an estimated residual risk of lung cancer of 0.8 in 100. I FEIS-IN at 108, Table 7-1. The "reasonable effort" level of the final standard, 0.02 WL, had an estimated residual risk of lung cancer of 1.3 in 100. Id. Contrary to the environmental petitioners' argument, the EPA did evaluate the residual risk of lung cancer of the ceiling level of radon decay product, 0.03 WL including background, by considering a range of levels between 0.0 WL above background and 0.05 WL above background. Id. The FEIS-IN shows a residual risk of lung cancer of 5 in 100, which appears to be the top side risk at 0.05 WL above background. Although this is a significant increase in the risk, we cannot say the EPA acted arbitrarily or capriciously or beyond its authority in allowing the higher level and its

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authority to set standards of general application and usurped the authority of the states and implementing agencies by allowing the use of sealants, filtration and ventilation devices to provide reasonable assurance of reductions from 0.03 WL to below 0.02 WL. See 40 C.F.R. § 192.20(b)(3) (1984). The regulation provides that:

"Residual radioactive materials should be removed from buildings exceeding 0.03 WL so that future replacement buildings will not pose a hazard (unless removal is not practical--see § 192.21(c)). However, sealants, filtration, and ventilation devices may provide reasonable assurance of reductions from 0.03 WL to below 0.02 WL."

40 C.F.R. § 192.20(b)(3) (1984) (emphasis added). We do not read this language as compelling any particular action; instead we read it as suggesting possible alternatives to reduce radon concentration levels.

attendant risk.

D

Accepting the EPA's risk calculation estimates and thus its conclusion that the control of the tailings piles will reduce health risks and provide benefits Congress desired, we must now determine whether there existed a reasonable relationship between the estimated benefits of control of the tailings piles and the costs of providing those benefits. We start with the obvious premise that there can be no reasonable relationship in the abstract. As we indicated earlier, Congress' intent serves to define the reasonableness of any relationship between costs and benefits. Given Congress' admonition that the EPA recognize as its "paramount responsibility protection of the public health and safety and the environment," House Conf. Rep. No. 884, *SUPRA*, at 47, 1982 U.S. Code Cong. & Ad. News at 3617, we review the EPA's adoption of the 20 pCi/m²/sec radon emission standard.

In the Final Environmental Impact Statement the EPA analyzed the "Benefits Derived From Controlling Uranium Mill Tailings Piles," specifically considering the benefits that would be provided under various remedial alternatives--ranging from "No Standards" to the EPA's originally "Proposed Standard." See I FEIS-IN at 99, Table 6-6. The benefits enumerated were: the probable reduction or elimination of human misuse of the tailings after control; the permanence of the controls inhibiting misuse and erosional spreading; the reduction in vulnerability of the site to flooding; the reduction in the residual risk of lung cancer; the deaths avoided; and the surface water protection

provided. The alternative the EPA ultimately selected in the final regulations, a 20 pCi/m²/sec standard,²¹ provides significant benefits, meeting Congress' concern that the standard protect the public health, safety, and environment. The selected standard and its corresponding control method,²² see I FEIS-IN at 91, according to the Final Environmental Impact Statement, will most likely prevent misuse of the tailings for over a thousand years, prevent erosional spreading for many thousands of years, leave no sites vulnerable to flooding, reduce residual risk of lung cancer by over 95%, avoid 190 deaths in the first 100 years of protection, and protect surface water from contamination for many thousands of years. I FEIS-IN at 99, Table 6-6.

The environmental petitioners criticize the validity of the final radon emission standard for not "preventing or minimizing" diffusion of radon into the atmosphere. See 42 U.S.C. § 7901(a) & (b)(1). In the same vein, they also criticize the tenfold increase in the level of emissions permitted by the final standard, an increase from 2 pCi/m²s to 20 pCi/m²s. Despite this significant increase, we believe that the EPA, through its final radon standard, has sought to prevent or minimize radon emission, thus meeting the Congress' mandate. See I FEIS-IN at 99, Table 6-6, at 101. Given the reduction in risk provided by the final

²¹ See I FEIS-IN at 128-29 (Alternative B selected).

²² EPA's selected alternative correlates to a three meter earth cover requirement. I FEIS-IN at 91, Table 6-2. In addition Alternative B assumes three of the piles will be moved for flood control reasons. See *id.* at 91; B-16.

standard, we do not believe that the "tenfold increase" in the level of emissions allowed by the final standard makes that standard unreasonable, even in light of the change. We hold that the final standard is within a zone of reasonableness, *see Small Refiner Lead Phase-Down Task Force*, 705 F.2d at 525, and a logical outgrowth of the proposed standard, *id.* at 547.

All of the petitioners find fault with the EPA's suggested longevity requirement for the final radon emission standard--that the standard control emissions to the extent reasonably achievable, have an effective life of 1000 years, and in any case, for at least 200 years. 40 C.F.R. § 192.02(a) (1984). The industry petitioners consider the thousand-year longevity goal unrealistic. The environmental petitioners consider the reduced two hundred-year minimum inadequate, especially in light of the thousand-year proposed standard. We cannot say the final standard fails to accomplish Congress' goal of long-term stabilization in view of Congress' command to take costs into consideration. The final standard meets Congress' desire to avoid the health risks presented by the tailings piles and provide a remedial program that will result in long-term stabilization of the piles.

Congress stressed that the "remedial action must be done right the first time." H.R. Rep. No. 1480, *supra*, at 40, 1978 U.S. Code Cong. & Ad. News at 7467. Given Congress' expressed desire to have a remedial program that will stabilize the tailings piles and additionally, not require continuous allocations of funds, *id.*, we believe the EPA acted reasonably in promulgating a standard based primarily upon the adoption of a passive measure,

an earth covering. The industry petitioners particularly are critical of EPA's refusal to consider remedial measures that are more dependent upon active controls such as "maintenance" and "monitoring" by the implementing agencies. The EPA did consider such an alternative. I FEIS-IN at 102, Alternative E. But it rejected that alternative upon review of the benefits it would provide. Id. at 98-104, 128-29. Arguably, EPA could have placed more reliance upon the maintenance and monitoring activities of the implementing agencies. Congress, however, did not require it to do so and instead indicated its preference for a more permanent remedial program. The EPA's understanding of its duty under the statute to rely principally upon passive control is sufficiently rational to withstand our review. See Chemical Manufacturers Association v. National Resources Defense Council, Inc., 53 U.S.L.W. 4193, 4196 (U.S. Feb. 27, 1985).

EPA's cost estimates for remedial action at the mill sites and for off-site cleanup were 158 and 38 million (1981) dollars, respectively. EPA stated that the DOE had estimated its additional costs for program development and management ("overhead") at 118 million (1981) dollars. The total estimated expenditure was 314 million (1981) dollars. These figures include both cleanup (off-site) and disposal (on-site) costs. 48 Fed. Reg. at 596. We recognize the tremendous costs that this cleanup program represents. Nevertheless, we cannot condemn as arbitrary the EPA's determination that these costs bear a reasonable relationship to the benefits to be provided. In fact, in enacting the UMTRCA Congress was well aware of the potential costs of the

program. Assessing the economic impact of the legislation in 1978, the House Report stated:

"This legislation is not expected to have any significant inflationary impact. Over the next 7 years, 22 tailing sites will be treated at a total cost ranging anywhere from \$15 million to \$200 million, depending largely upon whether tailings will be treated and stored at their present location or, instead, moved to newly prepared disposal sites. Little of this cost is expected to be incurred during the next 3 years because of the time required to identify and prepare disposal sites. Additional costs may be borne by individual states if new disposal sites are required. But even taking these additional costs into account, the impact of the legislation on inflation and overly [sic] economic performance is expected to be immeasurable [sic]."

H.R. Rep. No. 1480, *supra*, at 47, 1978 U.S. Code Cong. & Ad. News at 7474. We must defer to the EPA's finding of a reasonable relationship between the costs and the benefits of the remedial action program for disposal of the mill tailings at the inactive sites. As we have said before in another context, "[w]e are convinced that EPA made a serious, careful, and comprehensive study of the costs which compliance will impose If Congress believes that the cost is too high, it can amend the Act. All we say is that EPA has complied with the statutory mandate." *American Petroleum Institute v. EPA*, 540 F.2d 1023, 1038 (10th Cir. 1976), cert. denied, 430 U.S. 922 (1977).

VIII

There is one area in which we agree with some of the petitioners or the intervenor that the EPA standards are not in compliance with the law or are inadequate and require remand.

In its final standards the EPA abandoned its proposed general standards for limits of concentrations of toxic substances in

surface and ground water.²³ See 48 Fed. Reg. at 591, 594; see also 46 Fed. Reg. at 2562 (text of proposed standards). The EPA concluded that potential contamination of surface and ground water should be dealt with on a site-specific basis. 40 C.F.R. § 192.20(a)(2) (1984); see also 48 Fed. Reg. at 594 (discussion of final rules). In place of the proposed standard for control of waterborne pollutants the EPA included a guideline, stating that the DOE should assess each site individually and establish any corrective or preventive programs necessary to meet relevant state and federal water quality standards. 48 Fed. Reg. at 591. It stated that those programs should be consistent, to the maximum extent practicable, with the Solid Waste Disposal Act (SWDA), 42 U.S.C. §§ 6901-6986. 48 Fed. Reg. at 591; 40 C.F.R. § 192.20(a)(2) & (3) (1984).

We agree with the environmental petitioners and the State of Colorado that by its actions the EPA violated its duty under the statute. In its proposed regulations the EPA stated that there was a problem with water contamination: "There is evidence of limited ground water contamination at some of the inactive sites, but the prospects for long-term contamination have not been fully assessed." 46 Fed. Reg. at 2560. It then proposed specific standards for water quality generally. *Id.* at 2559-63. In the final regulations the EPA acknowledges there are problems, 48 Fed. Reg. at 593, but states: "We do not believe that the existing evidence indicates that ground water contamination from inactive mill tailings is or will be a matter of regulatory concern." *Id.*

²³ See supra note 2.

at 599. We do not believe that the EPA, in issuing the final regulations, declared that it was wrong before; indeed, by stating that potential contamination should be dealt with on a site specific basis, *id.* at 594, it acknowledged that problems exist at some sites.

The draft Environmental Impact Statement gave little indication of the possibility that the EPA would reject the proposed water standards and adopt a "guidance" outline for the implementing agencies, abandoning any attempt at specific numerical limits of toxic elements. The only statement we could find in the draft EIS that could be construed to indicate consideration of an alternative similar to that adopted is this: "The proposed ground water protection standards could be considered too strict if implementing them would be unreasonably costly or if they would be impossible to apply." Environmental Protection Agency, Draft Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites 8-8 (1980). The explanation of the proposed water quality standard anticipated possible increases in disposal costs to insure against future ground water contamination, but gave no indication that this possibility would make the proposed standards infeasible. 46 Fed. Reg. at 2560. Many of the comments submitted to the EPA during the comment period after publication of the proposed rules suggested that the EPA abandon its proposed ground water standards. *See, e.g.,* II FEIS-IN at D-36, -37, -44, -45, -46. But, regardless of the tenor of some of the comments, the final

"guidance" standard does not represent a logical outgrowth from the proposed regulations.

In our view when the EPA acknowledged that ground water contamination is a problem at some of the inactive sites, it was required to adopt general standards.²⁴ The UMTRCA provides that the EPA "promulgate standards of general application." 42 U.S.C. § 2022(a). The EPA was not to adopt "site-specific requirements." H.R. Rep. No. 1480, Part I, *supra*, at 16-17, reprinted in 1978 U.S. Code Cong. and Ad. News at 7439. By directing the DOE to follow "relevant" state and federal quality standards consistent "to the maximum extent practicable" with the SWDA, *see* 48 Fed. Reg. at 591; 40 C.F.R. § 192.20(a)(2) and (3) (1984), the EPA was unlawfully delegating to the states or to the DOE its own rulemaking authority or was itself establishing standards that could vary from site to site.

We do not agree, however, with Colorado's argument that an unlawful delegation is involved by the provision of the regulations allowing exceptions from the standards in particular circumstances--permitting the implementing agencies, the NRC and the DOE, to "select and perform remedial actions that come as close to meeting the otherwise applicable standard as is reasonable under the circumstances." 40 C.F.R. § 192.22(a) (1984). So long as general standards are in place, permitting exceptions for special circumstances in which costs might be outrageous or compliance impossible is not an abrogation of the

²⁴ Of course, a site with no contamination problems would automatically meet any general requirements the EPA might set without further corrective action.

duty to promulgate general standards. A court could determine, if required to do so, the reasonableness of an exception granted in a specific case.

The environmental petitioners also complain that the EPA has a duty to formulate general standards for nonradiological hazards, toxic chemicals in the uranium tailings, see 42 U.S.C. § 2022(a), but has not specifically addressed the subject except in conclusory form:

"We have reviewed the available data on toxic elements in tailings and improved the FEIS-IN in this respect [Appendix C]. We have concluded that it is reasonable to expect that hazards from toxic elements will be adequately limited if control and cleanup are carried out according to these final standards."

18 Fed. Reg. at 597. We are satisfied that the EPA's general regulations on radon emissions, requiring control of the movement of and probable covering of the tailings adequately deal with the nonradiological hazards of the toxic chemicals, except as they may enter waterways or underground water supplies. If there is a possibility that toxic chemicals will enter underground water supplies or waterways, the statute mandates that the problem be dealt with by general standards. On remand, the EPA will have to treat these toxic chemicals that pose a ground water risk as it did in the active mill site regulations.

IX

We reject all challenges to the regulations except as discussed in Part VIII above. The following regulation, concerning water contamination is set aside: 40 C.F.R. § 192.20(a)(2)-(3) (1994). The case is remanded to the agency for further consideration of that specific provision.

9/3/85

83-2226 - 83-2227
83-2277 - 83-2504
83-2524 - 84-1349
84-1352 - 84-1482

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PR 40
49 FR 46418

United States Court of Appeals
For the Tenth Circuit

SLIP OPINION

PUBLISH

UNITED STATES COURT OF APPEALS

TENTH CIRCUIT

AMERICAN MINING CONGRESS, UNITED NUCLEAR)
CORPORATION, HOMESTAKE MINING COMPANY,)
AMAX, INC., SOLAR LOBBY, THE ENVIRON-)
MENTAL DEFENSE FUND, INC., NATIONAL)
WILDLIFE FEDERATION, SIERRA CLUB,)
AL MANGAN, CHAUNCEY KEPFORD and)
JUDITH H. JOHNSRUD,)

Petitioners,)

v.)

LEE M. THOMAS, in his capacity as)
Administrator of the United States)
Environmental Protection Agency, and)
ENVIRONMENTAL PROTECTION AGENCY,)

Respondents,)

STATE OF COLORADO, et al,)

Intervenors.)

FILED
United States Court of Appeals
Tenth Circuit:

SEP 03 1985

HOWARD K. PHILLIPS
Clerk

Nos. 83-2226
83-2227
83-2277
83-2504
83-2524
84-1349
84-1352
84-1482

Petitions for Review of an Order of the
Environmental Protection Agency

UNITED NUCLEAR CORPORATION, HOMESTAKE)
MINING COMPANY, and QUIVIRA MINING)
COMPANY,)

Plaintiffs-Appellants,)

v.)

UNITED STATES ENVIRONMENTAL PROTECTION)
AGENCY, LEE M. THOMAS, and UNITED)
STATES NUCLEAR REGULATORY COMMISSION,)

Defendants-Appellees.)

No. 84-1908

Appeal from the United States District Court
for the District of New Mexico
(D.C. CIV No. 83-1602 HB)

Anthony J. Thompson (Edward A. McCabe, Charles E. Sliter, Robert F. Reklaitis and Edward S. Shipper, Jr., also of Hamel & Park, Washington, D.C.; of counsel Larry A. Boggs, Senior Counsel, American Mining Congress, Washington, D.C., with him on the briefs) for the American Mining Congress.

Peter J. Nickles (Richard A. Meserve, "also of Covington & Burling, Washington, D.C.; G. Stanley Crout, Sunny J. Nixon, Michael S. Yesley, and Rebecca Dempsey of Stephenson, Carpenter, Crout & Olmsted, Santa Fe, New Mexico, with him on the briefs), for United Nuclear Corporation, Homestake Mining Company, and Quivira Mining Company.

Robert E. Yuhnke, Regional Counsel (James B. Martin, Staff Attorney, also of the Environmental Defense Fund, Boulder, Colorado; Roger Beers and Kathryn Burkett Dixon of Beers & Dixon, San Francisco, California; and Frances M. Green, Staff Counsel; National Wildlife Federation, Boulder, Colorado, with him on the briefs) for the Environmental Defense Fund, the National Wildlife Federation, the Sierra Club and Al Mangan.

Barry S. Neuman, Attorney (F. Henry Habicht, II, Assistant Attorney General, Land and Natural Resources Division, Margaret N. Strand, Martin W. Matzen and John A. Bryson, Attorneys, Environmental Defense Section, U.S. Department of Justice, Washington, D.C.; of counsel A. James Barnes, General Counsel, Gerald Yamada, Acting General Counsel, William F. Pedersen, Associate General Counsel, Charles S. Carter, Assistant General Counsel, and Christopher C. Herman, Office of General Counsel, Environmental Protection Agency, Washington, D.C., with him on the briefs) for Respondents.

Adonis A. Neblett, Assistant Attorney General (Duane Woodard, Attorney General, Charles B. Howe, Deputy Attorney General, and Richard H. Forman, Solicitor General, Denver, Colorado, with him on the briefs) for Intervenor State of Colorado.

Chauncey Kepford and Judith Johnsrud, State College, Pennsylvania, filed briefs as pro se petitioners.

Richard O. Austermann, Senior Counsel Regulatory Affairs, Amax, Inc., Golden, Colorado, filed briefs for Petitioner Amax, Inc.

Before LOGAN and McWILLIAMS, Circuit Judges, and BOHANON, District Judge.*

LOGAN, Circuit Judge.

*Honorable Luther L. Bohanon, United States District Judge for the District of Oklahoma, sitting by designation.

I

These consolidated cases involve challenges to the Environmental Protection Agency's (EPA) standards governing stabilization and control of byproduct materials, primarily mill tailings, at licensed commercial uranium and thorium processing sites (the active mill sites). The EPA established these standards pursuant to its authority under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as amended, 42 U.S.C. §§ 2022 and 7901-7942, the same statute that required the EPA to promulgate standards applicable to the inactive mill sites. With the exception of No. 84-1908, jurisdiction in this court is based upon 42 U.S.C. § 2022(c)(2). No. 84-1908 arises out of a district court action in which plaintiffs asserted that the active mill site regulations were promulgated outside the time limits prescribed by the UMTRCA. The district court dismissed the suit on the ground that the exclusive method of review was by petition in the court of appeals under 42 U.S.C. § 2022(c)(2); plaintiffs have appealed that dismissal although they are raising the

identical issue regarding timeliness of promulgation under their concurrent petition filed under § 2022(c)(2).

As in the inactive mill site challenges, see American Mining Congress v. Thomas, ___ F.2d ___ (10th Cir. 1985) [hereinafter Inactive Sites Case], petitioners may be divided essentially into two categories: (1) the industry petitioners--the American Mining Congress, a trade association; and joint petitioners United Nuclear Corporation (and its subsidiary Quivira Mining Company) and Homestake Mining Company; and (2) the "environmental" petitioners--The Environmental Defense Fund, the National Wildlife Federation, the Sierra Club, the Solar Lobby, Al Mangan, Chauncey Kepford, and Judith Johnsrud. Intervenor, the State of Colorado, aligns itself on most issues with the environmental petitioners. AMAX, Inc. aligns itself with the industry petitioners although it is challenging only the inclusion of molybdenum as a constituent of the nonradiological hazards designated in the ground water portion of the regulations.

The substances to be controlled and the UMTRCA's legislative background have been discussed briefly in the companion case filed this day involving regulations for inactive mill sites. The relevant hazards addressed by the UMTRCA and its legislative history are the same for the active and inactive site regulations, so we need not repeat that discussion here. See Inactive Sites Case, ____ F.2d at ____ (slip op. part I).

Congress, apparently angered by the EPA's inaction, imposed time limits upon the EPA's authority to formulate regulations to govern the active mill sites. A 1983 amendment to the UMTRCA

provided, "If the Administrator fails to promulgate standards in final form under this subsection by October 1, 1983, the authority of the Administrator to promulgate such standards shall terminate" in favor of the Nuclear Regulatory Commission. 42 U.S.C. § 2022(b)(1). The EPA published proposed standards for the active mill sites in the Federal Register on April 29, 1983. 48 Fed. Reg. 19,584 (1983). The Administrator signed final standards on September 30, 1983, and apparently released copies to the public on that day. The regulations did not appear in the Federal Register, however, until October 7, 1983. 48 Fed. Reg. 45,926 (1983) (codified at 40 C.F.R. § 192.30-.43 (1984)).

The EPA's final standards, except those for ground water, were essentially identical to those adopted for the inactive mill sites. Standards to be applied after the site closure period were to assure control of radiological hazards "for one thousand years, to the extent reasonably achievable, and, in any case, for at least two hundred years" 40 C.F.R. § 192.32(b)(1)(i) (1984). The final standards also established radon emission limits not to exceed an average release rate of 20 picocuries per square meter per second ($\text{pCi}/\text{m}^2\text{s}$). *Id.* § 192.32(b)(1)(ii). On-site land that meets the described standard is not subject to the disposal standards elsewhere in the regulations. That described standard, based on the maximum concentration level of radium-226 averaged over areas of 100 square meters, is the same as that at the inactive mill sites: 5 picocuries per gram (pCi/g) averaged

over the first 15 centimeters of soil and 15 pCi/g for soil layers more than 15 centimeters below the surface. *Id.* § 192.32(b)(2).

The EPA ground water standards for the active mill sites are in two parts: (1) a primary standard applicable to new waste storage areas, including lateral expansions of existing tailings piles, and (2) a secondary ground water protection standard applicable to both old and new piles. *Id.* § 192.32(a)(1)-(2). In almost all circumstances the primary standard would require a liner under new impoundments and lateral extensions capable of preventing migration of waste into the ground and water. *See* 48 Fed. Reg. at 45,940-41 (discussion of § 192.32(a)(1)-(2) requirements). Liners were not required for existing impoundments, even though new waste could be added. *See id.* at 45,931 (discussion of § 192.32(a)(2) requirements). The secondary standard in effect requires that the ground water be protected by reducing the level of toxic materials in the ground water to concentration limits permitted by the Solid Waste Disposal Act (SWDA), 42 U.S.C. §§ 6901-6986. The regulations necessitate monitoring programs. 40 C.F.R. § 192.32(a)(2) (1984). One SWDA requirement of impermeable cover material was altered in the final regulations to permit permeable cover in arid areas where evaporation exceeds precipitation. *Id.* § 192.32(a)(1); *see* 48 Fed. Reg. at 45,940 (discussion of basis for alteration). The standards permit exceptions, with the consent of the EPA, for particular existing piles that cannot meet those standards except at extraordinary cost. 40 C.F.R. § 192.32(a)(2)(iv); *see* 48 Fed. Reg. at 45,941 (discussion of potential exceptions). The

standards add molybdenum and uranium to the list of hazardous ground water constituents. 40 C.F.R. § 192.32(a)(2)(i).

For purposes of discussion and analysis we divide the petitioners' contentions into four categories: (1) the allegation that the EPA acted beyond its authority because it did not promulgate the regulations within the time requirements of the statute; (2) those arguments sufficiently common to challenges to both the inactive and active mill site regulations that they may be answered, at least in part, by reference to the companion Inactive Sites Case; (3) the challenges to the ground water regulations; and (4) AMAX, Inc.'s objection to the addition of molybdenum as a constituent of hazardous material in the ground water regulations.

II

Petitioners United Nuclear Corporation, Homestake Mining Company, and Quivira Mining Company (hereinafter United Nuclear) assert that the EPA exceeded its jurisdictional authority because it promulgated these regulations after the statutory deadline. In early 1983 Congress passed an amendment to 42 U.S.C. § 2022(b)(1), which provides as follows:

"If the Administrator [of the EPA] fails to promulgate standards in final form under this subsection by October 1, 1983, the authority of the Administrator to promulgate such standards shall terminate, and the [Nuclear Regulatory] Commission may take actions under this chapter without regard to any provision of this chapter requiring such actions to comply with, or be taken in accordance with, standards promulgated by the Administrator."

It is apparently undisputed that the Administrator signed the final regulations on September 30, 1983, and made them available

to the public on that day. In the preamble to the regulations the EPA stated, "This standard is promulgated on the date signed." 48 Fed. Reg. at 45,946. The agency filed the regulations with the Office of the Federal Register on October 6; they appeared in the Federal Register on October 7, 1983.

The federal district court for the District of New Mexico dismissed a challenge to the regulations' timeliness, holding that judicial review of the rules was vested exclusively in the appropriate court of appeals pursuant to 42 U.S.C. § 2022(c)(2). We have consolidated the plaintiffs' appeal of that ruling with the various petitions for review of the regulations in the proceeding before us. We agree with the district court that all challenges to rulemaking action of the agency, including assertions that the agency acted in excess of its statutory authority or beyond its jurisdiction, should be initiated in the court of appeals. See FCC v. ITT World Communications, Inc., 52 U.S.L.W. 4507, 4509 (U.S. April 30, 1984). The Administrative Procedure Act authorizes this reviewing court to set aside agency action that is "in excess of statutory jurisdiction, authority or limitation." 5 U.S.C. § 706(2)(C).

Courts considering the statutory periods of limitations for petitions for judicial review of administrative rulemaking, which commonly refer to the date of "promulgation" of rules, e.g., 42 U.S.C. § 2022(c), have held that review petitions are timely if filed within a designated period after publication in the Federal Register. See Environmental Defense Fund v. Gorsuch, 713 F.2d 802, 812 (D.C. Cir. 1983); Laminators Safety Glass Ass'n v. CPSC,

578 F.2d 406, 408 (D.C. Cir. 1978). Relying principally upon these cases, United Nuclear argues for a uniform interpretation of the word "promulgate" as meaning publication in the Federal Register. Under that interpretation the EPA acted too late and thus beyond its statutory authority.

We agree with those decisions that measure the limitations period for seeking judicial review as beginning on the date of publication in the Federal Register. No doubt many parties affected by a rule first learn of it upon publication in the Federal Register. We believe, however, that "promulgation" does not have a single accepted meaning in all contexts. We agree with the EPA that the purpose of the statutory provision was to compel action by the EPA before October 1, 1983. See House Conf. Rep., No. 884, 97th Cong., 2d Sess. 43-45, reprinted in 1982 U.S. Code Cong. & Ad. News 3603, 3613-15. In establishing the deadline discussed here, Congress was actually extending deadlines that the EPA had missed in 1979 and 1980. See *id.* The EPA represents, and the other petitioners do not dispute, that the Administrator signed the rules on September 30, 1983, and released them to the public on that same day. At least one meaning of promulgate is to make public; the EPA's action here effectively achieved that end. We do not think Congress intended to throw away the fruits of EPA's labors simply because it did not publish the rule before the end of September. We hold that the EPA met Congress' deadline requirement.

III

Most of the arguments by the various petitioners are substantially identical to those in the consolidated Inactive Sites Case decided this day.¹ On the basis of the analysis in that opinion, we again hold:

(a) that a finding by the EPA of a "significant risk" is not a prerequisite to promulgating the regulations (see Inactive Sites Cases, ___ F.2d at ___ [slip op. part III]);

(b) that the EPA may promulgate standards to apply within the boundaries of the mill sites (see id. at ___ [slip op. part IV]);

(c) that the EPA's standards do not unlawfully impose management, design, and engineering requirements (see id. at ___ [slip op. part V]); and

(d) that the EPA properly considered cost-benefit factors in establishing standards (see id. at ___ [slip op. part VI]).

Most of the various petitioners' arguments that the EPA's standards for radon emission and radium in the soil are arbitrary and capricious are also sufficiently discussed in the opinion on the inactive site regulations. We need not elaborate on or repeat that discussion here. Some of the figures with which we must deal are different, however, and a few arguments have changed somewhat between the two sets of cases.

In formulating the active site regulations the EPA estimated

¹ Some environmental petitioners challenge the EPA's failure to promulgate any regulations controlling radon emissions from the uranium processing itself, as opposed to the end product tailings. This issue was not briefed and is not discussed herein. It has been held in abeyance by court orders requested by the parties pending negotiations between the parties.

more potential lung cancer deaths from the active mill site tailings, absent regulation, than from the inactive mill site tailings: 500 deaths versus 170-240 deaths per century. See 48 Fed. Reg. at 45,929 (active sites); *id.* at 593 (inactive sites). Although its final regulations for the active sites repeated the 4 in 100 lifetime cancer risk for occupants of houses on tailings in Grand Junction, Colorado--the figure it used in its inactive site calculations--the EPA estimates a 2 in 100 lifetime risk for people living continuously next to "some tailings sites." *Id.* at 45,929. The EPA estimated the cost of active site cleanup at \$260 million (1983 dollars) for tailings existing today at licensed sites, but a total of \$310 million to \$540 million total cleanup cost to the uranium milling industry for all tailings now in existence and to be produced through the year 2000. *Id.* at 45,945. For the standard selected for radon emissions, 20 pCi/m²s, the range of incremental costs per death avoided is estimated from \$130,000 (nationwide for 1000 years) to \$2.5 million (regionally for 100 years). *Id.* at 45,944-45. See generally Regulatory Impact Analysis of Final Environmental Standards for Uranium Mill Tailings at Active Sites 4-1 to 5-39 (detailed EPA costs and benefits discussion). These are significant costs, if the EPA's figures are accurate. But we remain convinced that Congress placed the responsibility for evaluating them upon the EPA without imposing a specific cost-benefit requirement. See Inactive Sites Case, ___ F.2d at ___ [slip op. part VI]. Therefore, the industry petitioners' arguments that the costs are too high for the benefits gained, and the environmental petitioners' arguments that the industry should

be forced to incur the greater costs of standards that would save even more lives, should be addressed to Congress or to the EPA, not to this court. See American Petroleum Institute v. EPA, 540 F.2d 1023, 1038 (10th Cir. 1976), cert. denied, 430 U.S. 922 (1977). The EPA has considered and responded to both of these complaints in justifying its actions. See 48 Fed. Reg. at 45,933; see also II Environmental Protection Agency, Final Environmental Impact Statement for Standards for the Control of Byproduct Materials from Uranium Ore Processing [A.3-12 to -14] (1983) [hereinafter FEIS-AC].

In arguing that the EPA acted arbitrarily and capriciously the American Mining Congress relies upon a 1984 report by a subcommittee of the EPA's Scientific Advisory Board which stated that the EPA "has not assembled and presented a risk assessment that provides a clear and adequate statement of the scientific basis for developing standards to regulate airborne radionuclide emissions." Subcommittee on Risk Assessment for Radionuclides, Scientific Advisory Board, U.S. Environmental Protection Agency, Report on the Scientific Basis of EPA's Proposed National Emission Standards for Hazardous Air Pollutants for Radionuclides 34 (1984). The EPA objects to our consideration of this report because it was not in existence at the time the EPA issued its final regulations.² Also, the EPA points out that this report

² The EPA has filed a motion to strike references to extra-record items cited by the various petitioners. The industry petitioners have moved to supplement the record with these additional materials. For the reasons we state in the Inactive Sites Case, ___ F.2d at ___ [slip op. part II], we deny the motions to strike and also deny all contested motions to supplement the record.

addressed the agency's proposed standards in a separate rulemaking proceeding under the Clean Air Act, that it was not based upon a review of the agency's record before us, and that the Scientific Advisory Board criticisms were aimed generally at the manner in which the EPA assembled the information for decision-making rather than being critical of the background documents themselves. We do not believe that report requires overturning the instant regulations. The report itself acknowledges that scientists may differ in regulatory philosophy, adopting different approaches to risk assessment.³

Industry petitioners also protest strongly that the EPA acted inconsistently in the way these regulations require addressing the risks compared with other regulations promulgated under other acts: e.g., control of radiation from high toxicity waste. We cannot evaluate here all the factors that caused the EPA to adopt a different approach in connection with its rulemaking under other laws, if indeed it did act differently. The record shows that the EPA did consider and respond to this inconsistency complaint. See

³ The report states:

"[I]n the process of risk assessment, many assumptions must be made. Scientists may be swayed in their choice of assumptions by their underlying regulatory philosophy. The choice of a linear non-threshold dose-response relationship compared to a linear quadratic or other relationship is a good case in point. As evidenced by the National Academy of Science's third report on Biological Effects of Ionizing Radiation (BEIR III), knowledgeable scientists disagree on which dose-response relationship is best."

Subcommittee on Risk Assessment for Radionuclides, Scientific Advisory Board, U.S. Environmental Protection Agency, Report on the Scientific Basis of EPA's Proposed National Emission Standards for Hazardous Air Pollutants for Radionuclides 7.

II FEIS-AC at A.3-2 to -4. We are satisfied that the EPA acted consistently in formulating regulations for the inactive and active mill sites--except with respect to the ground water regulations, which we discuss separately in these opinions. That the EPA may be faulted for its rulemaking under other acts is not the kind of internal inconsistency we found to be arbitrary and capricious in Squaw Transit Co. v. United States, 574 F.2d 492, 495-96 (10th Cir. 1978).

The American Mining Congress and the State of Colorado make somewhat different arguments that a 5 pCi/g radium standard for land adjacent to a tailings pile is inconsistent with the radon emission standard of 20 pCi/m²s on the pile itself. See 40 C.F.R. § 192.32(b) (separate standards listed). We accept the EPA's answer that there is no inconsistency and that the radium cleanup standard was designed to push concentrations in the land sufficiently low to allow unrestricted use, contrary to treatment of the tailings piles. See 48 Fed. Reg. at 45,947; II FEIS-AC at A.5-33.

IV

The EPA adopted a two part ground water standard for active mill sites. 40 C.F.R. § 192.32(a)(1)-(2). The primary standard, requiring use of a "liner," applies only to new waste depositories and to new portions of existing waste depositories. 48 Fed. Reg. at 45,941. The secondary standard, applicable to all impoundments, essentially adopts the standards EPA issued under the Solid Waste Disposal Act (SWDA) for hazardous wastes. *Id.* at 45,940. It requires monitoring and levels of concentration low

enough to meet drinking water standards within 500 meters of the edges of the waste impoundments. *Id.* at 45,940-41.

The American Mining Congress argues that these ground water standards are unlawful because they apply within the boundaries of the mill sites, and because they impose management, design, and engineering requirements. These arguments do not impress us. We have dealt with the on-site question in the context of radium cleanup and radon emission standards in Part IV of the *Inactive Sites Case*, ___ F.2d at _____. We see nothing that compels a different conclusion in the EPA's adoption of ground water standards for active mill sites. The optimal method of preventing pollution of off-site water supplies is to prevent radiological and other hazardous substances from entering the ground water. General application standards that allow the DOE to choose the means of implementation are consistent with the authority Congress vested in the EPA. Although the regulations require a "liner" for new piles and extensions thereof, we understand that term to refer to any impermeable barrier the DOE may approve that will prevent seepage. See, e.g., II FEIS-AC at A.1-28, A.4-7. The regulations require the industry to satisfy SWDA drinking water concentration standards at specified distances from the pile, but they do not dictate the kind of monitoring system that must be used or the method by which purity levels must be achieved. These decisions are left to the implementing agencies, the Department of Energy and the Nuclear Regulatory Commission. See *id.* at A.1-22, A.6-2.

Section 275(b) of UMTRCA states that the EPA's generally applicable standards must provide "protection of human health and

environment consistent with the standards required under subtitle (C) of the Solid Waste Disposal Act [SWDA], as amended, which are applicable to such hazards" 42 U.S.C. § 2022(b)(2) (emphasis added). The industry petitioners' principal argument against the EPA's ground water regulations is that the standards adopted were regulations for high-toxicity low-volume chemical wastes and the EPA should have analogized to low-toxicity high-volume mining wastes. Thus, the argument is based upon the contention that the EPA did not adopt standards for similar hazards. Further, the industry petitioners assert that the mill tailings rest over aquifers unsuitable for use as drinking water and that it is improper for the EPA to establish drinking water standards.

The EPA made findings that conditions at tailing impoundments are not sufficiently different from the conditions it considered in developing SWDA standards to necessitate a change in approach. 48 Fed. Reg. at 45,941; II FEIS-AC at A.1-2 to -3. In its SWDA regulations the EPA refused to draw a distinction between high-volume low-toxicity mining wastes and low-volume high-toxicity chemical wastes. See 45 Fed. Reg. 33,140, 33,173-75 (1980) (discussion of basis for decision). Apparently Congress has barred the EPA from applying SWDA regulations to certain mining wastes pending an agency study that was incomplete at the time the EPA was required to promulgate final regulations for the active mine sites. See II FEIS-AC at A.1-2 to -3. Yet, the EPA was under pressure from Congress to promulgate license site standards by the October 1 deadline. Congress required the EPA to adopt

general standards applicable to all sites. The EPA did adopt such standards. In this circumstance, the EPA acted permissibly in adopting standards equivalent to the drinking water standards.

United Nuclear argues that the EPA's ground water standards impermissibly intrude on state control of ground water, a contention that we summarily reject. If United Nuclear has standing to raise the question of preemption, cf. Mountain States Legal Foundation v. Costle, 630 F.2d 754, 767 (10th Cir. 1980) (denying standing to pro-industry private organization seeking to challenge EPA air quality regulations), cert. denied, 450 U.S. 1050 (1981), we are satisfied that the UMTRCA's directive provides the basis for preemption.

The environmental petitioners argue that the ground water regulations are inadequate. They first claim the EPA's decision not to apply the primary standard to existing tailings impoundments is unreasonable because seepage from these sources is already fouling the environment. The EPA's response is that the existing impoundments are only exempted from the primary standard requiring an impermeable barrier. The impoundments are still subject to the secondary standard. 40 C.F.R. § 192.32(a)(2). Violation of the secondary standard may require the operator to cease making new deposits and take corrective action. *Id.* § 192.33; see 48 Fed. Reg. at 45,941 (discussion of § 192.33). The EPA says it only adopts standards, leaving the methods to achieve the standards to those charged with management of the piles. It also argues that mandatory stoppage of adding to existing piles or removal of existing piles to new, lined

impoundments could increase radon emissions and render additional large amounts of land permanently contaminated and unproductive by increasing the number of piles. See 48 Fed. Reg. at 19,594-95; II FEIS-AC at A.4-10. We accept as rational the EPA's reasoning on these points.

The environmental petitioners also contend that the EPA should require cleanup beyond the site boundaries. The EPA argues in response that the issue is not properly before us because it was not raised during the comment period and because the challenge is in reality one to the SWDA regulations themselves. In addition, the EPA explains that it determined that existing off-site contamination should be addressed through its emergency powers under SWDA and the "Superfund" statute, the Comprehensive Environmental Response Compensation and Liability Act, 42 U.S.C. §§ 9604, 9606. It notes 1984 congressional amendments to SWDA that require some changes in its approach under that act, and admits it must reevaluate its position under the UMTRCA in light of that development which occurred after it issued the active site final regulations. See Brief of Respondents at 93 n.83. We accept as rational this explanation for not imposing requirements for outside-the-boundaries cleanup, and we cannot say the EPA's actions were arbitrary or capricious.

The environmental petitioners assert that the EPA did not properly respond to comments during rulemaking, particularly those concerning "compliance point" monitoring, which suggested that seepage should be monitored in the vadose zone of rocks or sediment to detect pollution before it reaches the aquifers. We

are satisfied that the EPA undertook a determined effort to respond to comments during the rulemaking comment period. See generally II FEIS-AC at A.1-1 to 7-5 (summarized comments and responses). The record shows that the EPA did respond to comments on ground water compliance point monitoring generally, and possible vadose zone monitoring in particular. *Id.* at A.4-36 to -37 (compliance point monitoring), A.6-2 to -3 (vadose zone monitoring). The response to comments on vadose zone monitoring was somewhat limited--but apparently because implementation of ground water monitoring has been left to the Nuclear Regulatory Commission. See *id.* at A.1-22, A.6-2. We cannot say that the ground water monitoring guidelines laid down by the EPA are irrational or unsuited to the task. See 48 Fed. Reg. at 45,942' (guidelines listed).

Petitioners Kepford and Johnsrud argue that the EPA did not give adequate consideration to deep well disposal of mill tailings. The record shows that the EPA did consider this proposal. See, e.g., 48 Fed. Reg. at 19,590; *id.* at 45,931-32; I FEIS-AC at 8-16. The EPA acted within its powers in rejecting this method, rationally finding it had potential for more serious ground water contamination.

In sum, we reject all challenges to the EPA's ground water regulations for the active mill sites.

- V

AMAX, Inc., one of the world's leading producers of molybdenum, has petitioned for review of the active site regulations for the specific purpose of challenging the EPA's

designation of molybdenum as a "hazardous constituent" of uranium and thorium mill tailings and subjecting molybdenum to the ground water protection standards. No other petitioner has focused any attack on the identification of particular minerals as non-radiological hazards. Therefore, before considering the merits of AMAX's claims we must consider AMAX's standing to raise the issues in its petition. The EPA asserts that AMAX lacks standing to challenge any aspect of the UMTRCA active site regulations because it does not own or operate any licensed uranium mill tailings sites and therefore is not affected by the regulations. The regulations specifically state that molybdenum is listed as a hazardous constituent "only for purposes of controlling uranium and thorium byproduct materials. EPA does not intend in this rulemaking to add molybdenum . . . to the SWDA list of hazardous constituents." 48 Fed. Reg. 45,926, 45,944 (1983).

Two sections of the United States Code apply directly to this case. The UMTRCA itself provides that

"[j]udicial review of any rule promulgated under this section may be obtained by any interested person only upon such person filing a petition for review within sixty days after such promulgation in the United States court of appeals for the Federal judicial circuit in which such person resides or has his principal place of business. . . . The court shall have jurisdiction to review the rule in accordance with chapter 7 of Title 5 and to grant appropriate relief as provided in such chapter."

42 U.S.C. § 2022(c)(2) (emphasis added). Section 10(a) of the Administrative Procedure Act, 5 U.S.C. § 702, states that

"[a] person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof."

The concept of standing combines both constitutional and prudential considerations. See Allen v. Wright, 52 U.S.L.W. 5110, 5114 (U.S. July 3, 1984); Valley Forge Christian College v. Americans United for Separation of Church and State, Inc., 454 U.S. 464, 471 (1982); Ozodoff v. Berzak, 744 F.2d 224, 227 (1st Cir. 1984). At a minimum, Article III of the constitution requires

"the party who invokes the court's authority to 'show [1] that he personally has suffered some actual or threatened injury as a result of the putatively illegal conduct of the defendant,' . . . and [2] that the injury 'fairly can be traced to the challenged action' and [3] 'is likely to be redressed by a favorable decision.'"

Valley Forge Christian College, 454 U.S. at 472 (citations omitted).

As a preliminary matter, we note that the reviewing court, when ruling on a motion to dismiss for lack of standing, "must accept as true all material allegations of the complaint, and must construe the complaint in favor of the complaining party." Warth v. Seldin, 422 U.S. 490, 501 (1975). Even reading AMAX's petition and affidavit generously, we hold that it fails to meet either the constitutional or prudential requirements of the standing doctrine.

First, the injury that AMAX claims it would suffer as a result of the EPA's listing of molybdenum as a toxic substance is indirect. Neither AMAX nor its customers own any uranium mill tailings sites. Therefore, they are not subject to the UMTRCA or its regulations. AMAX, however, alleges that state and local agencies that regulate AMAX's customers are likely to restrict or

prohibit the discharge of molybdenum if the EPA classifies molybdenum as a hazardous substance. See Affidavit of Dr. Gary G. Van Riper (Deputy Director of Environmental Control, Climax Molybdenum Company, division of AMAX). If this should occur, AMAX would be unable to sell its product and would suffer economic injury. Although an indirect injury can be sufficient to confer standing on a party, the Supreme Court has stated:

"When a governmental prohibition or restriction imposed on one party causes specific harm to a third party, harm that a constitutional provision or statute was intended to prevent, the indirectness of the injury does not necessarily deprive the person harmed of standing to vindicate his rights. . . . But it may make it substantially more difficult to meet the minimum requirements of Art. III: to establish that, in fact, the asserted injury was the consequence of the defendant's actions, or that prospective relief will remove the harm."

Warth v. Seldin, 422 U.S. at 504-05 (citation omitted).

Although the challenged regulation was adopted over two years ago, AMAX does not refer to a single agency that has restricted or proposed to restrict discharge of molybdenum as a result of this action. AMAX refers only to a proposed state regulation in Texas in 1979 classifying molybdenum as a toxic substance that was used as the basis for similar regulations in New Orleans, El Paso, and Dallas. Affidavit of Dr. Gary G. Van Riper at 2-3. Absent any allegation that a single state or local agency has considered adopting the EPA's classification of molybdenum as a hazardous substance, we believe that AMAX has failed to demonstrate that it has or will suffer "concrete and certain harm" as a result of the EPA's action. National Collegiate Athletic Ass'n v. Califano, 622 F.2d 1382, 1386 (10th Cir. 1980); see also United States v. SCRAP,

412 U.S. 669, 688-89 (1973) ("A plaintiff must allege that he has been or will in fact be perceptibly harmed by the challenged agency action, not that he can imagine circumstances in which he could be affected by the agency's action.").

In reaching this conclusion, we are also influenced by the decision of the United States Court of Appeals for the District of Columbia Circuit in Association of Investment Brokers v. SEC, 676 F.2d 857 (D.C. Cir. 1982). In that case, the petitioners challenged the Securities and Exchange Commission's (SEC) adoption of revisions to Form U-4, the Uniform Application for Securities Industry Registration. *Id.* at 858-59. The SEC only required broker-dealers that it directly regulated to use the form. *Id.* at 859. However, forty-six states and several self-regulatory organizations, including the National Association of Securities Dealers, Inc. and the New York Stock Exchange, also adopted Form U-4. *Id.* The petitioners were not subject to the SEC's regulation; instead, they alleged that they were indirectly injured by the SEC when other regulatory organizations and states adopted the SEC revisions. In rejecting standing, the court stated that "[a]n order to the Commission concerning the form could require cancellation or modification of provisions for SECO broker-dealer filings but could not direct the self-regulatory organizations and the states to follow suit." *Id.* at 862. The situation before us is comparable; if state and local agencies follow the EPA and classify molybdenum as a toxic substance, AMAX's complaint should be raised before these entities. Indeed, it is possible that the EPA's classification of molybdenum will

cause state and local entities to initiate their own investigations of the toxicity of molybdenum. If so, it would be the rules adopted as the result of such investigations that might injure AMAX, not the EPA's actions under an act that does not regulate AMAX's business.

Even if we were to find that AMAX has met the constitutional requirements for standing, we would have to deny it standing based on prudential factors. The Supreme Court recently described the prudential aspects of a court's determination of standing:

"Standing doctrine embraces several judicially self-imposed limits on the exercise of federal jurisdiction, such as the general prohibition on a litigant's raising another person's legal rights, the rule barring adjudication of generalized grievances more appropriately addressed in the representative branches, and the requirement that a plaintiff's complaint fall within the zone of interests protected by the law invoked."

Allen v. Wright, 52 U.S.L.W. 5110, 5114 (U.S. July 3, 1984).

Although several courts have questioned the continued viability of the zone of interests aspect of the standing doctrine, the Supreme Court has continued to apply it. *Id.* at 5114. This circuit has been lenient in applying the "zone of interest" test. We have said that "unless the legislative history shows the plaintiff to be clearly not within the statute's 'zone of interest,' and it rarely does, a court should demand no more than a sensible relation between some subject of the statute and the plaintiff's interest in the outcome of the litigation." National Collegiate Athletic Ass'n v. Califano, 622 F.2d at 1386. The EPA specifically disclaims any treatment of molybdenum as a toxic substance other than for purposes of mill tailings

byproducts disposal. See 48 Fed. Reg. at 45,949. Even generously interpreting the test, particularly in the face of this disclaimer, it is difficult to read the UMTRCA as a statute that in any way intends to regulate producers such as AMAX who do not own or operate any licensed mill tailings sites.

Although AMAX correctly states that direct regulatory impact is not required for a petitioner to come within the interests test, the cases on which it relies involved a far more direct regulatory impact than AMAX alleges that it might incur. In Cotoysky-Kaplan Physical Therapy Assoc., Ltd. v. United States, 507 F.2d 1363 (7th Cir. 1975), for example, the plaintiffs, five professional physical therapy corporations, were permitted to challenge HEW regulations that conditioned Medicare payments to home health agencies on their hiring of nonprofit physical therapy corporations. *Id.* at 1364-65. As a result of those regulations, several home health agencies notified plaintiffs of their intent to terminate their contracts. *Id.* In allowing the private corporations to challenge the regulations, even though they did not apply directly to them, the court stated that

"if, pursuant to what it perceives to be its statutory authority, a government agency regulates the contractual relationships between a regulated party and an unregulated party, the latter as well as the former may have interests that are arguably within the regulated zone for purposes of testing standing, . . ."

Id. at 1367. In contrast, neither AMAX, its customers, nor the state and local agencies that might adopt the EPA regulations are regulated under the UMTRCA.

In addition, in each of the cases that AMAX cites, the plaintiff was injured when an agency effectively forbade a third

party from entering into or continuing a beneficial relationship with the plaintiff. See Cotovsky-Kaplan Physical Therapy Assn. Ltd. v. United States, *supra*; Apter v. Richardson, 510 F.2d 351 (7th Cir. 1975) (subject on behalf of whom application for government grant was submitted entitled to challenge denial of grant).⁴ In the instant case, however, the EPA has exercised no authority over either AMAX or its customers.

Accordingly, based on both constitutional and prudential factors, we deny AMAX standing and do not consider its arguments on the merits.

VI

The challenges of all petitioners are rejected; we affirm the validity of the active mill site regulations.

⁴ AMAX also cites New Jersey Chapter Incorporated of the American Physical Therapy Ass'n v. Prudential Life Ins. Co., 502 F.2d 500 (D.C. Cir. 1974), cert. denied, 420 U.S. 1004 (1975). In this decision, however, the court never decided the standing issue because it determined that, regardless of standing, the defendants would prevail on the merits. *Id.* at 504.