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Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
ATTN: Rulemaking and Adjudications Staff
<secy@nrc.gov>
and
Ms. Phyllis Sobel
Office of Nuclear Material Safety and Safeguards
(RE: Environmental Scoping Process)
<pas@nrc.gov>
and
Ms. Trisha Holahan, NRC staff (please forward)

RE: 68 Federal Register 40, Proposed Rules
pp.9595-9602, February 28,2003
Rulemaking on Controlling the
Disposition of Solid Materials: Scoping
Notice of Workshop NRC 10 CFR 20

The following comments on the NRC Proposed Rulemaking on "Controlling the Disposition of Solid Materials" are submitted on behalf of the Sierra Club. They are supplemental to, and they incorporate by reference, comments of the Sierra Club representative on NRC's panel at the sole public meeting on this issue, held at NRC Headquarters, Rockville, MD, May 21-22. Sierra Club appreciates the invitation and opportunity to participate with the panel and to submit comments.

First, the Sierra Club respectfully requests that the Commission reopen the public comment period for a minimum of 90 additional days following announcement and the conduct of additional public meetings throughout the nation. This request, per staff recommendation, is here directed to Ms. Trisha Holahan, for whom this commenter has no e-mail or other address.

Justification for these requests are based on the national scope of the potential impacts upon all members of the public from this Proposed Rulemaking in the absence of nationwide public meetings to solicit public comments and for the NRC staff to respond to questions from public stakeholders. Given the many years since the early 1980's that this issue, in its numerous terminologies and guises, has been repeatedly proposed by the NRC, no undue hardship will result to the Commission or the generators and owners of the subject materials and wastes from an extension and expansion of comment opportunity for the affected public. To the contrary, it is members of the general public whose interests in total will be most affected by the outcome of options offered in this notice. The denial of any realistic opportunity for citizens throughout the nation to attend and participate in public meetings, which are provided for in the Federal Register Notice of this proposed "enhanced participatory" rulemaking (page 9595: Summary), is an arbitrary Commission action. It is rightly identified as a capricious decision, having no reasonable basis for the NRC's failure to allow the overwhelming majority of the nation's citizens to participate. It is also contrary to provisions of the federal Administrative Procedure Act, the National Environmental Policy Act, and to customary administrative agency practices.

Notice of Submission of Comments: These comments are being submitted electronically to the Secretary of the Commission and in paper hard copy via the U.S. Postal Service to meet the mailing deadline imposed by the February 28, 2003 Federal Register Notice.

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SECY-02

Primary Recommendations:

For reasons that are enumerated and discussed below, and that have been stated to the NRC repeatedly for many years by members of the public, it is recommended that the Commissioners withdraw this proposal which, under its present options, will result in initial and subsequent recycling into the biosphere of potentially unlimited and unspecified quantities of "slightly radioactive" or "low-activity" materials and wastes. These "slightly contaminated" materials can and will be incorporated into a vast variety of objects, reused in myriad ways that will bring them into contact with human beings. They will administer small but additive exposures, cumulative from an undetermined number and types of sources of unmeasurable radioactive content and uncertain hazard. We stress that NRC has tried repeatedly for more twenty years to promulgate this or similar rules. It has met with successful public, industry, and Congressional opposition every time. There is no public-interest justification for trying yet again.

None of the five options offered here (with the exception of the added Option Six) is acceptable as a means of handling the "disposition" of radioactive materials and wastes. Instead, it is cheap disposal by deregulation to benefit NRC's licensees. The five options can be reduced to letting go or dumping, Neither of these is acceptable. This is not to deny the seriousness of the isolation problem. The Commission's exhaustible financial resources can and should be put to better use in developing more effective means of reducing and ending the generation of radioactive materials and wastes, and in assuring their long-term isolation from the environment and human beings.

Most persuasive among many reasons for rejection of this proposed rulemaking and NRC's five options is the role of ionizing radiation, at any dose level, in posing risks of injury that is detrimental to human health – an exercise of the Precautionary Principle. More than a decade ago, the EPA had noted that the lifetime risk of fatal cancer at the 100 millirem per year public exposure standard would be on the order of 1 in 283. If the linear dose/response (no threshold) hypothesis that was recognized in 1990 by the National Research Council's Committee on the Biological Effects of Ionizing Radiation is applied, the consequence of the one millirem per year exposure standard that NRC now proposes to adopt could be responsible for more than 28,000 cancer fatalities per year – clearly an unacceptable risk for the public.

If, despite the inadvisability of proceeding, the Commission persists in this rulemaking, we recommend that the scope must be altered, first, to focus on more effective and efficient methods of isolating the radioactive materials and wastes already produced. A second focus is to replace risk- and dose-based standards-setting that is unacceptably imprecise and subject to wrongful manipulations. NRC's focus should instead be directed to ways to detect the isotopic content, concentration levels and hazardous life of the subject materials and wastes, and to improved methods of isolation under assured continuous long-term regulatory control at facilities that are licensed for the purpose of maintaining the sequestration of these materials and wastes for their full hazardous life. The focus should include development of ever more sensitive detection capability to ascertain the presence, levels, and duration of the radioactivity in all materials at licensed nuclear sites in order to provide for continued control of those materials. Once released from control and recycled, it is far more difficult and costly to recover and return to control. Moreover, the Sierra Club suggestion during the panel meeting for a sixth "other" option should be pursued by NRC: to seek, identify and recapture radioactive materials and wastes that have previously been released, lost, stolen, orphaned, never regulated, or are otherwise at large in the environment. Above all, in order to resolve the issues of maintenance of control over radioactive materials and wastes and waste generation, NRC should now devote its resources to terminating nuclear generation and licenses as rapidly as possible.

Comment on the Summary:

The NRC announces in this Summary that it is considering options for disposition of "solid materials" which, the Commission contends, may or may not have "very small amounts" of radioactivity that result from licensed operations or activities. The failure to identify these "materials" (and wastes) as radioactive – even if they are deemed to be "low-level" or "low-activity"– is misleading for members of the public who will come into contact with them when and if they are released from regulatory control; and when they enter the unrestricted free market; and when they are recycled into a potentially unlimited host of consumer products or put to other uses that may involve public contacts. Members of the public are unlikely to possess sensitive enough measuring equipment to ascertain the presence or absence of the radioactivity, or the various isotopes and their concentrations, in consumer goods or in other reuses. If this rulemaking continues, the Commission must clearly inform the public that the materials (and wastes) at issue are or may be radioactive, even if at low activity and low dose levels. The NRC has a duty also to warn the public that low doses are not safe, that there is considered to be no "safe" threshold of exposure to ionizing radiation, and that all exposures carry a risk of biologic damage to the recipient. We also assert that all of the questions that are raised in public comments on the FRN must be fully answered by the staff, and that the scoping recommendations must be added to the staff's required GEIS agenda. Additional Sierra Club recommendations are found throughout these comments.

The Summary plainly states that the Commission is "seeking stakeholder participation and involvement in identifying alternatives and their environmental impacts." If that is true, then the staff must offer real opportunities for that participation in the form of the public meetings, face to face, throughout the nation, that are requested above. People are the major affected stakeholders, not licensees. The Summary notes that the NRC is "building on existing information to focus on potential solutions." It is our recollection and understanding that in prior NRC-proposed rulemaking efforts, particularly in 1999-2000, many public-interest organizations refused to participate in the process for varied reasons having to do in large part with the NRC's limitations on topics allowed to be addressed. Extensive comments offered in one small meeting with a Commissioner and some staff appear to have been omitted from NRC's reports of those few stakeholder meetings with members of the public. We must conclude that the staff expects to be selective in its consideration of prior information and should therefore clarify this to the public.

Section-by-Section Comments on Supplementary Information:

I. Introduction:

The NRC states that the staff is explaining why they are conducting this exercise and that no decision has been made from among the options offered. Those options, however, are limited to ones that have been promoted by the regulators and the regulated. They ignore options that have been suggested by members of the public during the years of NRC's repetitive efforts to promulgate a rule for deregulation and recycling. It would have been helpful for the public to have a full description of the fates of those prior NRC efforts to gain approval for deregulation -- such as the steelworkers' union opposition in 1980-81, the *de minimis* approach in the mid-1980s, and the 1992 Congressional National Energy Policy Act revocation of NRC's "Below Regulatory Concern" policy statement. The EPA's brief venture in BRC standards-setting failed as well. In the event that this rulemaking goes forward beyond this scoping stage, NRC has an obligation of full disclosure of those proposals and analysis of the reasons for their failures.

II. Background:

See the recommendation above concerning full disclosure of all relevant background information.

1. Solid Materials Being Considered:

Use of the term "solid materials" and the analogy with "many industrial operations (or in a home)" are, to put it bluntly, deceptive. To informed members of the public, likening the materials and wastes at issue to "trash" is belittling of potential hazards to people and their health. There are great risks from large radiation releases caused by accidents at nuclear facilities, but there are low-dose risks which we are only beginning to understand but which some scientists conclude may be more harmful than some higher dose levels. For personal reasons, or due to health conditions, a person may not choose to experience extra low doses without an ability to calculate the single and multiple exposures received from unmonitored and unlabeled recycled "low-activity" materials and wastes. NRC compares release to disposing of trash – "getting rid of that for which one has no further use" – without even the care required for one's garbage "disposal" at a regulated municipal solid waste landfill. The attitude displayed in this background information could be characterized as dismissive, almost contemptuous, of the legitimate concerns of the public, those who will bear the burden of unwanted and unneeded exposures.

This dismissive, or misleading, attitude of the regulators is further shown in their description of nuclear power reactors and fuel cycle facilities as those that merely "handle radioactivity as part of the generation of electricity." No hint of hazard. In particular, the use of such misleading language is inappropriate because the basic purpose of the proposed rule is to allow massively greater releases -- we are not told how great -- from regulation of radioactive and radioactively contaminated materials and wastes from the decommissioning of nuclear power and weapons plants and from other nuclear licensees – and to prepare the way for cheap disposition of the wastes from new nuclear reactors and new nuclear weapons plants. . The NRC must explain the real reasons for its proposed rule and the magnitude of radioactivity, volume, and longevity of the materials NRC wishes to get rid of.

2. The Nature of These Solid Materials:

In this section, the staff offers only a vague statement that "much" of the "solid material" has "no, or very small amounts of radioactivity." These generalizations provide insufficient information to the public. Among the many questions to which NRC must provide full and responsive answers: What volumes of materials eligible for release are at each site? What and how much will be released? How much allowed to remain under "Clearance" rules? In what forms are the materials/wastes destined for release and recycle? What isotopes do they contain? At what concentrations? How long are their hazardous lives? If "cleaned," how "clean" are they? Ascertained by what equipment? How old are the detection instruments? What was the disposition of the contamination that was "cleaned" from the materials? Are mixed hazardous and radioactive materials and wastes included? How are they measured to determine the nature and extent of hazard? How does 10 CFR 20.1003 define "undue risks" for these purposes? For an "impacted area," what are the "natural background and fallout levels" used in MARSSIM? On what research and modeling are these levels based? Who are the contractors? For whom have they worked? How is an "appreciable level of radioactivity" defined for these purposes?

All materials and wastes at all sites of licensed (or other) nuclear facilities should be subject to a radiological survey program in order to identify any unanticipated contaminations in materials that might otherwise be exempted or deregulated. NRC should not exempt any materials from non-restricted or

non-impacted areas from careful surveys that would identify any possible contamination; all should be checked. This subsection even lacks a clear definition of what is meant by a "solid material." Many, or most, materials and wastes may contain some amount of liquid content. How much liquid may be present in what's called a "solid material"? Is Part 61 averaging over a given volume of waste allowed? Exactly how does NRC expect to monitor a licensee's decisions to release its waste materials? What enforcement provisions are to be included in the proposed rule?

3. The NRC's Current Approach for Controlling the Disposition of Solid Materials:

The following questions exemplify the kinds of information that NRC must supply for this No Action option but it is a far from complete sample. In this section, NRC states that solid materials that have been in restricted or impacted areas must be surveyed before being released, but NRC does not explain what the detection level required for release is. Are detection instrumentation and guidance other than the outdated 1974 Regulatory Guide 1.86 used to determine "protective level" and permissible releases? Are all releases decided on a case-by-case basis? How is an individual object handled in a case-by-case review? How does the NRC justify releases now if future, presumably more sensitive, detection equipment becomes available? What, if any, conservatism to allow for future more sensitive detection capability is built in to NRC's current case-by-case decisions? What in this proposal will address this issue? What precisely is a "justified practice"? What is included in a single "justified practice"? What volume and total activity could be included in a single justified practice? How many justified practices does the NRC recognize? Does the NRC apply any other terminology to its case-by-case decision process for releases? Are general licenses treated in the same manner as specific licenses with respect to releases?

4. Why NRC is Examining This "Current Approach"?

With due regard for the National Academies, the Sierra Club strongly urgea the NRC not to adopt either a risk-based or dose-based approach to determining what is and is not deemed to be radioactive for purposes of release and recycle. Underlying assumptions, calculational methods, and modeling are all extremely subjective and usually not clarified for the public who would be receiving both the doses and the risks of injury. The opportunities for unwarranted assumptions are too great for the NRC to rely on these techniques in determining doses or risks. A wiser course for the agency is to abandon this endeavor and devote greater attention to reducing the quantities of radioactive materials and wastes that are produced. As the colloquial phrase has it: If t'ain't broke, don't fix it. Or in this instance: If it's under regulatory control now, keep it there. And: If it isn't controlled, control it.

5. Why NRC Is Conducting a Rulemaking to Potentially Revise its Current Approach:

The NRC cannot contend that it is conducting an "open process" that includes public meetings when in fact only one such meeting open to the public on the content of this document and scoping for the Environmental Impact Statement has been allowed. See Sierra Club comment on this failure at page 1. In order to obey its own promise, the Commission must schedule and publicize public meetings to be held nationwide on these NRC proposals at this early scoping stage and more throughout the process.

6. NRC's Guiding Policy in Conducting a Rulemaking to Develop a Regulation:

If protection of health, safety, and environment is truly the paramount objective of the NRC, as is stated, this rulemaking must be withdrawn. Radioactively contaminated materials and wastes are less likely to

be able to contaminate members of the public, or other forms of life, if they're under regulatory control. We urge NRC to approve measures needed to maintain that control over the full time of toxicity and threat to children and all others. The "performance goals" cited in this section need to be rewritten. The first one ("maintain safety, protect environment and common defense and security") fails entirely to mention human health protection, surely a goal.

The second goal cites increasing public confidence in NRC's regulatory process. This will never happen so long as NRC's actions belie any serious intent to meet that goal: e.g., failure to allow public meetings nationwide on this FRN. Or failures of regulation, e.g., the Davis-Besse case. Or its regulatory philosophy shift from a more conservative defense-in-depth and redundancy-of-safeguards to performance-based, risk-informed regulations. Or daily notices of relaxations of licensee requirements, reporting, maintenance and repair, or NRC inspection requirements, or staff's frequency of meetings with licensees and its reluctance to involve citizens in its processes, or NRC's proposal to eliminate or curtail adjudicatory license proceedings. Public confidence lessens; it cannot increase unless the NRC regulates first and foremost in the public's interests. NRC must prove itself; it has not done so..

The third "performance goal" rightly stresses "effective and efficient" regulation. However, the term "realistic" requires definition. Does it refer to licensees' demands for cost minimization? To NRC's budgetary constraints? Is health protection realistic? What is meant by "realism" in this context?

The fourth goal to "reduce regulatory burden on stakeholders" does not protect the public -- because the NRC clearly considers its "stakeholders" to be primarily its licensees. This goal transfers the burdens of health and economic damage to the public, whose interests have always been undervalued by this agency. Because the burden of proof under U.S. judicial practices lies with a victim of injury or premature death resultant from contaminants released into the environment, this goal is of particular concern and must be clarified. NRC has not defined its terms "unnecessary regulatory burdens," "necessary and sufficient," or "reasonable assurance." These, too, are essential to knowing what release levels would mean, and if they are or could be adequate to truly protect the public or the environment.

7. Alternatives for Controlling the Disposition of Solid Materials:

Apart from our Option 6 (Identify, Recapture, and Control), we find that none of the NRC's proposed alternatives is worthy of support. Each has failings serious enough to be fatal flaws. None of these options for release and reuse should be adopted. Radioactive materials and wastes should be controlled. Redefining what is and is not "radioactive" for the primipal purpose of allowing releases must not be permitted to occur.

A. Release: The Sierra Club cannot support release of radioactively contaminated materials or wastes. The earth's environment and its occupants are interconnected in so many and diverse ways that we have no means of assuring any one single consequence of actions we take that may have seemed to be safe. The fundamental issue of release of radioactive materials and wastes is the health and safety of the ultimate recipients of doses from these decaying unstable materials. Recent information from the realm of radiation microbiological research is providing confirmation of the existence of adverse impacts from low-dose and low dose-rate exposures. Basic research is only now being initiated for sorely needed studies of the complex interactions of multiple sources of exposures to radiation plus the many other hazardous substances that are routinely released into the biosphere -- the synergies affecting the individual human recipient and other forms of life. (See, for example, the bibliography of the January 2003 European Committee on Radiation Risk (ECRR) Report which Sierra Club has provided to the

NRC staff, Second International Symposium on Ionizing Radiation: Environmental Protection for Nuclear Facilities, Ottawa, Canada, 1999, and U.S. Department of Energy Low Dose Radiation Research Program Workshops I, II, and III, 2000-2002.) As an obligation of the NRC's statutory mandate to protect public health and safety -- especially in a situation in which the old radiation myths and beliefs are no longer valid -- it is imperative that radioactive and radioactively contaminated materials and wastes be kept out of the biosystem. That is NRC's premier assignment for health, safety and true security of the nation and its people.

A. (1) Unrestricted Use: The NRC must drop this proposal altogether. The American people – and even the nuclear industry – have spoken forcefully and repeatedly in opposition to the health, safety, environmental and economic burdens that unrestricted release and uses will cause.

A. (1) (Alternative 1): No Action: Continue NRC's current approach: For numerous reasons, this alternative cannot be supported on its face. For years, AEC and NRC have released materials and wastes at the request of licensees on a case-by-case basis without, so far as we can learn, public notification or opportunity to participate in the decision process – or even access records of what and how much and when and where releases have occurred. The NRC staff has indicated that release records are not, even now, available to the public – if, indeed, they exist, which was unclear from a staff statement. (NRC should make public all records on previous releases.) Moreover, the NRC continues to rely on its 1974 Regulatory Guidance 1.86, which in turn depends on detection equipment far out of date and hence unable to assure that released materials are not measurably radioactive by today's capabilities. If, as may be true, the use of case-by-case release decisions reduces the total quantities and activities of materials and wastes that are allowed to be recycled, then an updated version of No Action, with best achievable detection technologies and a revised regulatory guide that requires measurement of concentrations and information on isotopic content and hazardous life might potentially be comparatively more protective than alternative options offered by the staff. The goal the public needs and wants is retention of full regulatory control, not releases of radioactive materials and wastes into consumer goods or elsewhere in the environment. Even if these improvements are implemented, this option is not acceptable if it allows further exemptions and releases for recycling and reuses.

A. (1) (Alternative 2): Amend regulations to include a dose-based criterion for unrestricted use: Sierra Club cannot support either Unrestricted Release or Unrestricted Use. We also strongly urge NRC to eliminate the proposal to set either a risk-based or dose-based standard or criterion for unrestricted release and reuse. Although state regulators and the nuclear industry argue for this as a "bright-line" approach, we must repeat that such a criterion would be *de facto* a dose-based standard that in essence declares an object is non-radioactive even if detection equipment reveals that it is in actuality "slightly radioactive." Here again the status of our knowledge of the effects of low-level radiation upon human health – not to mention impacts upon all other biota – is in flux but with increasing evidence of damage at very low levels. This situation makes it imperative that no standard or criterion that denies the presence of radioactivity and allows unfettered release and reuse should be adopted.

A. (2): Conditional (Restricted) Use (Alternative 3): The NRC states that solid materials and wastes could be released for further restricted uses with "limited public exposures" in controlled or low dose environments. Such reuses might limit public doses but increase occupational exposures. The reused materials and wastes would not be required to be sequestered from the environment, potentially thereby adding to onsite contamination. Even if this alternative were limited to reuses onsite at a licensed facility and for limited purposes, it is rather like letting the cat out of the house onto an enclosed porch -- that has an escape hatch. The cat goes out, wherever it pleases. A first reuse may be under control of

licensee and regulator. But the facility will ultimately be closed, decommissioned, released (slightly contaminated) for future brownfield reuses, with perhaps more contaminated materials shipped onto the site. If the licensee then should apply to NRC for case-by-case release when the useful life of the reused object is at an end, or outright abandonment occurs upon license termination or default, there is no consideration given to the secondary and tertiary re-reuses that may allow the contaminated object entry into the biosystem. Regulation is a sometime thing.

Conditional reuses that lie beyond the boundaries of licensees are in the non-regulated public realm. The public may have more frequent and close contact with concrete roadbeds, steel bridge girders, or with ultimately the effluent flowing through sewer lines than the NRC apparently believes. That sewage will become a potable source somewhere downstream. Conditional (Restricted) Reuse is therefore not an acceptable alternative to full regulatory control. It is a half-way station to free release and doses to the public at best that does not provide any assurance of adequate protection of public health and safety beyond, possibly, a few initial reuse years.

B. Disposal: While we concur with a no-release approach and prohibition from general commerce, and with isolation from both the public and the environment that NRC predicts and promises, there are many concerns with the landfill disposal options NRC proposes.

B. (1): Landfill disposal (Alternative 4): Disposal in an EPA-regulated RCRA subtitle C or D landfill: This option would mix radioactively contaminated materials and wastes with hazardous ones, creating Mixed Wastes that EPA has been striving to turn over to the NRC by releasing them from RCRA permitting requirements. Here, NRC suggests an option that, instead, creates more of Mixed Wastes, sending them back to EPA's control. The analogy with a shell game may be suitable to describe this interaction among regulatory agencies, neither (none) of which wants to retain authority over these biologically damaging materials. Furthermore, to our understanding, EPA regulates Subtitle C landfills for only 30 years. Even if regulations continues for a longer time, these "slightly radioactive" materials and wastes may have a hazardous life that is far longer. The toxicity of combined radioactive and hazardous materials remains largely unknown but, when researched, may be shown to be even more dangerous to human health or to other organisms than is currently assumed. From an anthropocentric perspective, there is also legitimate concern for mutational alteration of organisms that may have a devastating impact upon human well-being. If the design safeguards of a Subtitle C facility are inadequate for the duration of the radioactive hazardous lives, the protections of a RCRA Subtitle D landfill are even less suited to the disposition of radioactive materials and wastes. Neither is appropriate for disposal. We cannot support these options.

B. (2): NRC/Agreement State-licensed low-level radioactive waste disposal site (Alternative 5): And so we return to the LLRW alternative of the 1980s and '90s, rejected in every Compact Host State in the country, with expenditure of many millions of dollars and much litigation. State siting and design regulations differ markedly nationwide in their ability to provide adequate sequestration for even the 300 500-year period of institutional controls that was provided for in the federal 1980 Low-Level Radioactive Waste Policy Act and its 1985 Amendments. NRC's 10 CFR Part 61 requirements are far too weak to be acceptable virtually anywhere today, even if local residents could be persuaded to an open-ended commitment to receive ever more "low-level" wastes and "slightly radioactive" materials. Even states that have developed the most protective LLRW designs and regulations were unable to find an accepting community. Future success in siting a LLRW facility will depend in substantial measure on whether or not the commercial nuclear industry succeeds in its revival efforts, producing more materials and wastes. It would have to be harshly imposed. We cannot support this alternative for these reasons.

Option 6: Identification, Recapture, and Control: Although not suggested as an option by the NRC, the May 21-22 panel discussion did include a proposed option for the identification and recapture of radioactive materials already released, or lost, stolen, orphaned, or abandoned, in order, in concert with States, to bring them under regulatory control and lessen their potential negative impacts upon members of the public. The Sierra Club supports reclamation and control of such materials and wastes by the NRC. The States might welcome cooperation with NRC in finding and sequestering some of the NORM and TENORM wastes over which NRC has no statutory regulatory control under the Atomic Energy Act.

It is well recognized that the isolation of radioactive – and hazardous – materials and wastes for which no one has further present use is an extremely difficult issue – an issue for which technologists have been unable, in half a century, to find an adequate, assured solution.

By rejecting the five options that the Commission offers and recommending that the Commission abandon this project, the Sierra Club is taking a responsible position. We reiterate that, working in concert with its fellow regulatory agencies, the NRC should devote much more of its resources to research into alternative approaches to the management of radioactive materials and wastes. The Commission's prudent regulatory approach should be to acknowledge that the nuclear industry has, from its inception, failed to recognize adverse health impacts at a microbiological level from low-level irradiation. The Commission should now give far more attention to low-level radiation impacts, should now accept that low-dose and low dose-rate exposures do pose individually unacceptable risks to human health, because an individual cannot assess the doses received, even with best achievable equipment. The right of an individual to be able to know and reject doses additive to naturally occurring background exposures should be recognized and respected by the NRC at all levels. The methodologies utilized for cost-benefit modeling and analyses must be made fully transparent, such that a recipient of non-naturally -occurring background anthropogenic irradiation should be enabled to determine if an added exposure provides a benefit greater than or commensurate with the additional risk that he or she incurs -- and accept or reject it.

The NRC must abandon "Standard Man" – the healthy young male working voluntarily in the nuclear industry. All human health-related regulation should be based on the most sensitive members of the population: ovum, embryo, fetus, rapidly growing young child, pregnant woman, the elderly, and those with impaired health, weakened immune systems and other disabilities. The NRC must acknowledge its failure to take into account the impacts of internal exposures that were not sufficiently considered in earlier standards-setting. The NRC must incorporate health effects associated with irradiation other than lifetime risk of fatal cancer, leukemia, and gross genetic effects. Among now-associated disorders are intensified infectious diseases of childhood, respiratory, gastrointestinal, and endocrine disorders, asthma and allergies, heart disease, mental retardation, chronic fatigue, and failure to thrive. They may be found to be more common in association with repetitive low-level exposures, internal emitters, and synergy with other pollutants. The NRC should devote its resources to finding out the importance of these factors, not merely proceeding to irreversible releases based on discredited beliefs of the past. The myth of the validity of the millirem as a basis for radiation protection must be considered, and the use of measurable concentrations be substituted. In short, the NRC needs to catch up with the new century.

Can overall societal protection be enhanced by consideration of a variety of approaches to materials and waste isolation, rather than reliance on a single option? One might suspect so. If so, what would be the salient criteria for successful sequestration in a variety of locations and physical settings and from differing licensed activities with differing content? How can near-term and long-term retrievability be assured? How best can we, today, assure equal opportunity for the maintenance of control in a manner

such that future populations, possibly far into the future, will be best enabled to recover and re-contain such materials and wastes in ways that will then continue to isolate them from the biosystem? These may be divergent ways of thinking about the issues that the NRC should investigate.

The questions are far from new. The urgency for taking them into consideration now is enormous. For if ever there were an application of the Precautionary Principle to governmental regulatory decision-making, surely this is it. For many years, the policies of the Sierra Club have been in opposition to the development (and, obviously, the use) of nuclear weapons and have also called for the timely phase-out of nuclear power reactors. The dilemmas of radioactive materials and waste management give urgency to these positions. Radioactive materials and wastes, from all sources, if they are fully isolated, are not contributing to doses to the public. Dose avoidance should be the paramount NRC goal. It requires far greater attention from the Commission. Moreover, seldom taken into consideration by engineers and technicians -- by our society in general -- is the very real possibility that we may not be clever enough, for all our technological prowess, to "solve" the problem of safe "disposal" or even long-term safe storage for the radioactive wastes that we have generated in half a century. It is a cautionary thought that we commend to the Commissioners and their staff for consideration and action.

III. Summary of Efforts to Date and What NRC Has Learned about Alternatives:
III. 1. Efforts to Date to Examine Alternatives:

By the staff's limiting the discussion in this section to the NRC's efforts to deregulate and recycle radioactive materials and wastes only from 1999 to the present, those who would want to understand the full history of the Commission's deregulation endeavors are deprived of instructive information that would enrich their contributions to this proposed rulemaking. The NRC must include in future public documents on this topic full descriptions of its prior regulatory efforts from the late 1970s onward and include Congressional, State, and public responses in opposition. However, staff may be commended for at least including the acknowledgment in SECY-00-0070 that unspecified "related actions of international and national organizations and agencies could be factors in NRC's decisionmaking." This is at least hint of the role that NRC has played in persuading other regulators to support transboundary trade in contaminated materials and adopt dose-based standards.

Unfortunately, unless one has closely followed the comparable deregulation proposals of IAEA, EC, DOE, DOT, DOD, and CRCPD, the magnitude of this interagency and internationalized drive for dose- or risk-based standards, exemptions, release from control, and dose-dispersing recycle will be unfamiliar. Not only wastes and materials released by NRC but also those similarly deregulated by the other agencies (and other nations) will be additive, but uncounted, components of those "small" additional radiation doses that NRC claims will be received by the public, both in the near and distant future. These other sources of dose components are ignored by NRC in its proposed dose- and risk-based standards. They must be factored into the calculations, whether or not NRC ultimately adopts such standards or any of these options. Here is another reason that the Sierra Club cannot support NRC's intent to approve either a dose- or risk-based cut-off of regulatory control: the totality of reuses and their doses is wholly unknown.

As for the National Academies' March 2002 report, we must dispute the conclusion that the current NRC control of the release of radioactive materials and wastes ["solid materials"] is adequately protective of public health. It certainly does not require a "revamping" that it would result in actually weakening the NRC's already inadequate controls. The NAS calls for broad stakeholder involvement and participation as "critical" for the NRC's process. But, as noted above, the public nationwide has been effectively excluded from any real, active participation due to the NRC's refusal to hold any public meetings.

The inclusion of the NAS statement that an individual dose standard of 1 mrem per year (10 [mu] Sv/yr) provides a "reasonable starting point" raises the specter of future allowable dose increases up to100 mrem/yr individual dose per justified practice. This level is shown as "possibly exemptable" [sic] in NRC's 1989 and 1990 graph presentations of the "Below Regulatory Concern" version of the current proposal. When confronted with these diagrams showing intent, an NAS Committee member's response was that that 100 mrem level referred to BRC – as if it therefore does not pertain to the renamed effort to deregulate waste. But, of course, it cannot be excluded from the concerns of the public that NRC may be expected to arbitrarily raise permissible dose limits in the future. It validates that "public perception" of consumer boycott that the industry so fears.

The topics of the NRC's internal technical studies of impacts on human health and the environment, costs to licensees, and radiation detection verification capability have been addressed in part above. Comment on the ones cited as having been released for comment will be submitted. to NRC separately. But further impeding full opportunity for effective public participation is the lack of open free access to studies and recommendations of the private radiation standards-setting organizations whose findings are cited in this section. Despite the NRC's assertion that "harmonization" with other regulatory entities will gain "consistency" and avoid "confusion," the NRC argument for accommodating "trade [in] materials released under other nations' regulations [arriving] as imports in the U.S." must not be used to permit increases in doses to the American people from this proposed option and possible rule. "Trade" should not be considered more significant than our citizens' health and the quality of their environment by this agency which is charged by law with protection of our health, safety and environment.

III. 2. Summary of Information and Comments Received to Date on Alternatives:

For the following discussion, see comments on Section III.6 and in other portions of this filing.

III. 2. A. Alternative 1. – No Action: The NRC's opinion concerning a radiation level that is "protective of public health and safety" has been challenged in contemporary research into low-level radiation impacts. The full effects of internal emitters, the bystander effect, and delayed mutational response are a few among recent findings that have not been incorporated into existing NRC public radiation standards. Nor has the NRC revised its standards to account for the full range of diseases, illnesses and other distress that are attributable in part to low-level radiation exposures or to the synergistic relationships between and among irradiation and the many environmental contaminants to which individuals are variably exposed. These factors must be taken into account in NRC's deliberations. They augment the argument favoring abandonment of the process and emphasis instead on improving all waste isolation.

All materials and wastes must be surveyed with the best achievable equipment wherever they may be found on the property of a licensee, not only in restricted or other limited areas. NRC's categorization of Alternative 1 advantages and disadvantages appears to match those of the regulated licensees and others with vested interests but differs markedly from those of many in the public realm. For example: NRC's current approach utilizing outmoded and insufficiently protective dose standards is not "sufficiently protective"; it is not workable in the public's interests; and the Commission must not evaluate other issues as "higher priority" than its task of protecting human health. The lack of a risk-based approach or of consistency with international regulations or licensees' problems or regulatory "finality" are not seen as disadvantages by the public, in comparison with the protection of public health by minimizing radiation exposures through strict maintenance of control over contaminated materials and wastes.

III. 2. B. Alternative 2. – Dose-Based Regulation on Unrestricted Use: We strongly object to the justification of release and unrestricted reuses utilizing a dose-based standard that is not inclusive of the full health consequences of low-level radiation and allows alleged "benefits" of recycle to prevail over health protection as this option would do. It is not clear even that the radiation survey would require the best achievable detection equipment. The NRC has continued to use Reg Guide 1.86 with values derived from detection of thirty years ago. Again, the wording of the NAS recommendation that 1 mrem/yr is a "good starting point" underscores the concern that the NRC may plan to raise later that permissible limit as high as indicated for BRC in 1989-90: viz. 100 mrem/yr. The NRC offers no statement to the contrary.

III. 2. B. Alternative 2. (1): Summary of information from scientific organizations on the unrestricted use alternative: See prior comments on risk assessments, above. In the numerous NRC and other agencies' presentations on this issue attended by the Sierra Club commenter, there has not been a clear-cut statement of to what specifically a 1 mrem/yr dose limit would apply -- to an individual recipient whose multiple exposures to slightly contaminated objects cannot be measured by him or her? Or to each object that is deemed slightly contaminated, or to the total of slightly contaminated released objects from a facility, or to a "practice" involving the release of many slightly contaminated objects from many facilities, or to another undefined release mechanism? The NRC must at long last tell us what it means..

The use of the term "negligible risk" by NCRP or ICRP is not convincing in view of, to our knowledge, their failure to recognize all sensitive categories of exposed populations, all diseases and other disorders related to radiation exposure, or a full range of the synergies between and among low-level radiation and the host of other environmental contaminants to which people and other living things are exposed. The Health Physics Society's assurance contains a potent proviso in the use of the term "discernable health effect" -- if one does not look, one will not find.

The NRC states that the 1995 National Technology Transfer and Advancement Act "requires Federal agencies to consider this type of technical standard" – not that it must adopt it. (Often in rejecting public-interest petitions, the NRC has been known to claim that it "has considered" them.) To our best understanding, none of the entities cited is engaged in the kinds of research we are calling for, or has as its primary *raison d'etre* assuring the protection of the public's health and safety as does the NRC. Their views should therefore not unduly influence the NRC in this matter. "Clearance," while it is part of the NRC's effort for massive deregulation of radioactive materials and wastes, is a somewhat different issue, and one that is also not sufficiently protective of public health and safety at decommissioned nuclear sites that may then be given status of brownfield, wildlife refuge, or unrestricted uses.

III. 2. B. Alternative 2. (2): Summary of information received in public comments: The public comments also dealt with protection of the environment, as well as public health. This should be noted by NRC.

III. 2. B. Alternative 2. (2)(a): Issues related to public health and safety: The staff should identify the interests of those whose comments favor unrestricted use. The initial position given to those who do support reuses in this comment may be misleading of the bulk of the health-related comments received, a biasing of the actual nature of the majority of comments received by identification of the commenters who favor relase with the scientific entities approvingly cited by NRC. Issues of synergies and of impacts on non-human organisms, flora and fauna, should be added, as should comments on the competing legitimate reasons for an individual to choose to receive additive exposures, among many others.

III. 2. B. Alternative 2. (2)(b): Issues related to regulator burden: In this section, it should be noted that there is no mention of the failure of the agency (or the proponents of unrestricted reuses) to incorporate the economic or health costs to recipients of additive doses in comparison with the complaint of generators of the costs of regulated LLRW disposal. Nor, we would note, has there been any reference throughout the FRN of surface vs. volumetrically contaminated materials and wastes, the latter having not, to our knowledge, been approved for unrestricted release.

III. 2. B. Alternative 2. (3): Summary: The Commission has, thus far in this FRN, also neglected to mention the issue of implementation of its proposed rule. See also comments above. For members of the public who have not had an opportunity to examine the affiliations of members of the scientific organizations cited by the NRC, it is useful, and appropriate, to note that some members of those committees do have or have had associations with and/or financial support from the nuclear industry, its regulators, or its proponents. It may be suggested that the NRC therefore must not ethically rely heavily upon their recommendations that will primarily benefit the nuclear industry.

III. 2. C. Alternative 3. Conditional Use: Although some initially considered this to be an attractive option, we caution that it is highly improbable that conditional – semi-restricted – release can accomplish the societal goal of continuing control over these low-activity materials and wastes for their full hazardous life. The bulk of additive doses would go to workers. See previous comments.

III. 2. C. Alternative 3. (1)(a): Summary of information received in public comments: Staff notes that a major objection to this option lies in the significant uncertainties of how long the permitted but restricted reuse would continue to remain under regulatory control. With eventual termination of license and site decommissioning and decontamination, or sale, or brownfield designation, or outright abandonment, the fate of reused materials and wastes that remain at such sites can't be predicted or continued control assured. Release from the restricted site would cause them to join other unrestricted materials and wastes in giving additive small doses to members of the public without positive benefit to the recipients. The proposed reuses of concrete for roadbed or other public-use construction, for example, would not prevent the release of contaminated rubble in ways that may affect human health. For example, the continual wear and tear from highway traffic and of severe weather may result in release of particulates which then become airborne, becoming an inhalation dose. The full adverse health impacts of internal emitters is still unknown. What is known suggests that these doses may be substantially more harmful than has been accounted for in existing standards. The application of contaminated soils and sewage sludge to agricultural lands requires much more research to learn about the extent of uptake into food stuffs and also as inhalation doses. Litigation has already occurred in this commenter's state concerning illness and death of a child from illness attributed to sewage sludge.

III. 2. C. Alternative 3. (1)(b): Issues related to regulatory burden: Money is not the only consideration. A greater regulatory burden might relate to worker complaints.

III. 2. C. Alternative 3. (1)(b)(c): Concerns about feasibility of conditional use: The conclusion of the comment that a solid material ending up in unrestricted use should be reversed is illogical. The logic is to therefore not release it for unrestricted reuse in the first place. It is for the staff to devote its efforts to methods of better assuring the isolation of the material, not release. We concur with the other comments, especially the final one in this section.

III. 2. C. Alternative 3. (2): Summary: Based on the comments, the reasonable conclusion, then, is that the NRC should not adopt this option.

III. 2. D. Alternatives 4 and 5: Disposal of Solid Materials in Either EPA-Regulated Landfills or NRC/AS-Licensed LLW Disposal Sites: We support prohibition of radioactive solid materials and wastes from release into general commerce, however "low" the activity is found to be. There are, however, concerns about the alternatives of "disposal" in either EPA-regulated RCRA Subtitle C or D landfills, or NRC/AS LLRW landfills, whether in Compact Host State or other sites, under existing NRC Part 61 regulations. Since RCRA does not address radioactive material (or waste) that is under NRC (or under Agreement State) jurisdiction, it seems evident that RCRA sites should not -- and perhaps would not -- receive such materials and wastes. See applicable comments above.

III. 2. D. Alternatives 4 and 5 (1): Summary of information on this alternative from scientific organizations: The cost of management and "disposal " of radioactive materials and wastes is a necessary and legitimate cost of doing business. It should be borne in whole by generators only. To our knowledge, no valid cost/benefit analysis has been done that incorporates all externalities that are borne by members of the public. Moreover, the general public derives no benefits from the existence of the "slightly radioactive" materials and wastes in question. Wastes have no intrinsic value; they are a burden upon some party, and that party would properly be the one that gains the benefits of their production: the generators. If other sites provide greater protection from release, they would be preferable to an EPA RCRA landfill. RCRA sites have a shorter period of institutional control than NRC- and AS-regulated disposal facilities. It appears that they are not suitable. They ought not be used.

III. 2. D. Alternatives 4 and 5 (2): Summary of information received in public comments: To this we would add duration of assured regulatory control, financial uncertainty, and ability to contain the materials and wastes for the full length of their hazardous lifetimes, which range upward from the usual assumption of ten half-lives, with twenty or more half-lives for alpha emitters.

III. 2. D. Alternatives 4 and 5 (2)(a): Issues related to public health and safety: See prior related comments, above. A position of no entry into general commerce is supported. Adequacy of a dose-based limit of 1 mrem/yr dose to be adequately protective of public health is not acceptable. The dose recipient is unable to calculate total additive doses that may be received from recycled products and other uses of released materials and wastes.

III. 2. D. Alternatives 4 and 5 (2)(b): Issues related to regulatory burden: The argument of lower costs for disposal at a RCRA facility may fail if the period of institutional control is markedly shorter than for NRC/AS LLRW facilities. The argument offered for hospitals appears to assume that both benefits and costs will accrue to the hospital or other facility. This is false. It will be the affected members of the public who incur the costs in the event of ill health consequent upon the release and recycle, not the institution (hospital). The hospital may have costs normally associated with the use of a hazardous material that requires sequestration from the biosystem.

III. 2. D. Alternatives 4 and 5 (2)(c): Issues related to concerns over feasibility of landfill disposal: The comments noted appear to be supportable if the rulemaking goes forward. In addition, the difficulties of siting an NRC/AS-regulated LLRW facility have been amply demonstrated in LLRW Compact Host States with concerted opposition that resulted in no new such sites during the 1980s and 1990s. So long as a Host Community must accept a low-level waste disposal facility that allows a stream of radioactive wastes and materials without end, it is reasonable to conclude that LLRW siting approval will remain extremely difficult if not impossible.

III. 2. D. Alternatives 4 and 5 (3): Summary: The NRC arguments offered here seem implausible. Community acceptance, longevity of the materials and wastes hazardous life, changes in future federal law and regulations that may alter the requirements for NRC/AS-regulated disposal, all may be the primary influences on acceptability of an LLRW option. The Host States vary greatly in their requirements that may transcend those of 10 CFR Part 61. If this option is ever to have merit, it will require tightening the Part 61 regulations to forbid shallow land burial, to assure above grade facilities, adequate monitoring and leachate collection systems, retrievability, institutional control over the entire period of hazardous life, and a finite limitation on the total quantity and radioactivity that a site is required to accept. There is no evidence that the health impacts of best achievable technology and siting would be minimal, nor that costs would be exorbitant. Risks and benefits appear to have not been assessed properly or completely. Adequacy of these landfill options are highly questionable; they cannot be supported.

IV. Current Status of Efforts and Request for Additional Information:

We note that NRC does not claim that it has collected "substantial and substantive information" on the environmental impacts of release, recycle, and reuse of the subject radioactive materials and wastes. Still lacking and essential is much more detailed information on the proposed action's environmental impacts, plus far more in-depth information on low-level radiation health effects and on the many other impacts (personal and societal, economic for the dose recipients in addition to the generators, etc.). These latter are now dismissed as merely peripheral externalities. There is no suggestion of any other potential waste control and management options, nor evidence of any fresh ways of viewing the long-term problems of isolation of contaminated materials and the wastes that NRC wants to deregulate.

Having only NRC's five options before us, it is difficult for commenters to know what other options NRC has examined or what additional ones exist. We are troubled by NRC's use of the undefined term "no significant health consequences." What is significant to us may not matter to NRC.

We find little or no evidence that the variabilities of locations, physical conditions, or societal differences have received adequate attention in the analyses thus far. Essentially only an outdated review of health effects and much attention to licensees' costs appear to have been considered. So much additional information would be required that the most sensible alternative remains withdrawal of the rulemaking. The Sierra Club is recommending that option.

The Commission suggests that some issues may "not warrant additional workshop discussion." These are not clarified. And what exactly does NRC mean by the term "substantial new input"? The staff seeks our input on: (a) modified NRC opinions; (b) additional scientific information; any new or additive economic comparative data to determine if its options are (1) effective, (2) reasonably possible to implement, and (3) will increase public confidence in the process. All this for each of the five (plus our sixth) options. It should be noted that, by stating that the NRC is "building on prior information and comments," the staff is attempting to place the onus on commenters to obtain and thoroughly review the entire NRC files on this topic. Those would take us back into the 1970s, or earlier, and are not all available on the internet or anywhere else other than NRC's PDR or in its archival storage. Public interest commenters cannot therefore be held accountable to have exhausted all sources of information that is not reasonably readily accessible. In the following section of these comments we try to comply with NRC's requests.

Questions and Responses on the Conditional, or Restricted, Use Alternative:

II. 1. (1): (a) There has been no showing by NRC or affected licensees that there can be any assurance that recycled materials will be put to – and kept to -- their authorized use or uses. See comments above on this matter. Diversion may occur to other uses that may be inappropriate. The NRC's relaxations of regulatory control in recent years add markedly to the likelihood that diversions from authorized uses will occur and go unnoticed by NRC inspectors and unreported by licensees. (b) There is no evidence that the conditional/restricted release/use alternative can or will be established and implemented in a manner either practical or economical. In fact, the additional burdens associated with attempting to track the uses and control of recycled materials and wastes would constitute an added heavy financial burden for both regulator and licensee. For example, there would be substantial costs associated with manifests, tracking, reporting, and maintaining control over such recycled materials in use at a licensed facility – plus the added burdens associated with retaining control and/or passing it on to another licensee in the event of the closure and decommissioning of an NRC-licensed facility.

II. 1. (1)(a): A scrap/manufacturing/distribution process not licensed by the NRC would have no statutory or legal requirement to abide by NRC regulations once the material had been released by NRC from its regulatory control for other uses, even if NRC conditioned its release to specific purposes. The costs of attempting to retain any control might be challenged on legal grounds, and it would doubtless be costly for the Commission to try to maintain any authority over secondary and tertiary reuses. Moreover, once NRC had relinquished its control, but discovered that the process was not working to protect the public, it would be exorbitantly expensive to try to re-establish NRC control.

II. 1. (1)(b): See previous answer. It is not the statutory responsibility of other federal agencies to regulate these radioactive materials and wastes. It is highly improbable that any of them would willingly take on that role. Note, for example, that EPA has for some years been trying to relieve itself of its role in dual regulation of Mixed Wastes – a good reason for NRC to drop its EPA-regulated RCRA landfill Option. Especially in times of budget shortages and increasing national debt, such as we have now entered, agencies would not willingly assume additional regulatory responsibilities for which they may not have specialized staff or regulations in place. The NRC would not have the authority to impose its regulations on its brother agencies without legislative mandate. *Quis custodiet ipsos custodies?* The relationship of NRC with its Agreement States may be slightly different in terms of NRC's compatibility requirements. But in this instance, the Commission will have relinquished its regulatory authority over these materials when they have passed from their primary use under NRC license. Even if the control can be exercised during the first reuse, there remains the loss of control subsequently for secondary and other reuses after license termination of the initial facility. The scheme is unworkable in the real world.

II. 1. (1)(c): As had been clearly stated by panel representatives of the smelting industry during NRC's one and only public meeting May 21-22, they cannot afford to dedicate a smelter for the purpose of melting slightly contaminated materials. They stated plainly that there would not be sufficient annual amounts to dedicate a smelter full-time, and, once even slightly contaminated, it would be unusable for other purposes. Therefore, this alternative is not feasible.

II. 1. (1)(d): The proposed "end use products" suggested by the NRC (roadbeds, bridges, sewer piping, etc.) would all be within the public realm, adding slightly to the doses of construction workers (who are members of the general public and are not monitored nuclear industry workers), and to all who come into contact with these "end uses." Although the wear and tear may release only small particles, there will be some scatter into the environment, potentially in respirable form, which then becomes an internal emitter.

Whether the effluent flowing through a slightly contaminated sewer pipe would offer an appreciable dose to individuals when it emerges from a sewage treatment plant is unclear, but NRC needs to bear in mind that we can't all live upstream. These kinds of impacts, though apparently considered negligible by the NRC, must nonetheless be incorporated into its environmental analyses for both individual and collective doses to the general population, including ultimate arrival into the beleaguered oceans..

II. 1. (1)(e): This is a highly speculative question, and responses to it must be considered within the context of the Precautionary Principle that requires the equivalent of *primum non nocere.* The conditional uses could have very long lives, if, for example, they consist of well-made tools, often passed down through generations, or bridges that may last for a hundred years or much longer, or if they contain long-lived isotopes. By the time these reuse lifetime options have passed, the NRC and its regulations and the supposedly restricted site to which the restricted use materials have been assigned may all well be forgotten history. In the absence of NRC's ability to fulfill its promises of no access to the general population, the NRC must abandon this option.

II. 1. (2): Neither dose- or risk-based or concentration-based criteria should be adopted as a bright line cut-off for control. While it may be useful to have knowledge of the isotopes and concentrations within a given solid material, NRC must describe better what it means by this term – A single object? A full truckload? Or an entire building? An entire facility? A whole site? Under no circumstances should NRC attempt to apply a dose-based standard. Such standards rely on generalizations, estimates, averages, and modeling that does not represent reality of the material or of the one exposed, plus unstated assumptions, any or all of which will contribute to inaccuracy. See also previous related comments. Zero release will result in zero dose to the public; that should in all instances be the NRC's goal, especially as more becomes understood about the nature and dangers of low dose radiation. For these reasons, *inter alia,* we urge that NRC not adopt the Conditional Release and Reuse Option.

With regard to landfill disposal:

II. 1. (1): We commend the NRC for this statement of the intent of the landfill disposal alternative – to isolate wastes from the public without diversion either in transit or post-disposal. However, the same problems remain with landfill disposal as have plagued the NRC and industry – and the public– for many years. Prime among these are (a) landfills leak; (b) the record of LLRW landfills is that they have leaked and do leak; (c) the waste stream appears to be endless; (d) the period of institutional control is uncertain and insufficient; and (e) it is unknown what entity will bear responsibility for long-term oversight and for remediation in the event of failure to control. Long-term funding is problematic.

II. 1. (1)(a): No; a RCRA Subtitle C (hazardous waste) landfill would not protect from release or contact with members of the public for the full hazardous life of these varied materials, depending in part on the length of the many half-lives that comprise their hazardous lives. Regulatory control for these sites is, we are told, as short as 30 years. If this is the case, it is clear that many radioactively contaminated solid materials will continue to pose a hazard for far longer periods of time. Moreover, the presence of other hazardous materials (chemicals, pesticides, herbicides, heavy metals, solvents, chelating agents, etc.) would allow intermingling, thereby creating Mixed Wastes that may constitute an even greater health and safety hazard for people and the environment. See also prior comments on this issue.

II. 1. (1)(b): A RCRA Subtitle D landfill would likely be even less retentive of radioactive materials and wastes placed there. It should not be considered a viable option by the NRC for the disposal of the radioactive materials that NRC's licenses have allowed licensees to generate.

II. 1. (1)(c): Because research into the mechanisms of biologic damage from low-level radiation exposures is still in its infancy, and because the results thus far from radio-microbiology research are indicating that radiation impacts at low doses or at protracted low doses are indeed more harmful than earlier research had found, it has become all the more important for the NRC and other regulatory agencies to exercise greater, not less, conservatism in allowing either occupational or public exposures.

We suggest that existing standards are far from sufficiently restrictive to provide adequate protection of public health and safety or of other forms of life with whom (which) we share the earth's natural and anthropogenic environments. Unless the NRC's and Agreement States' regulations governing land disposal are revised to be made far more stringent, we cannot support the landfill options. It is recognized that the regulatory dilemma is real, and very difficult for the agency. Health and safety must now come first. See discussions of these and related issues above.

II. 1. (1)(d): For reasons already stated herein, yes: it is necessary for the NRC maintain (and to exercise fully) its regulatory control in order to achieve isolation from the public – and prevent uncontrollable releases into the biosphere where it will be out of control. It will be far more costly for all parties (all stakeholders including future human generations) to sequester as best we can now than to try to retrieve and bring back under control in the future. It is not appropriate for NRC to license and regulate a RCRA landfill. To the best of our knowledge, that is not even within NRC's statutory authority. Also to our knowledge, NRC's general licenses are extremely lax and would be entirely unsuitable for the exercise of control over either an EPA-, NRC-, or AS- regulated facility. NRC must rule out any consideration of issuing a general license for waste disposal. No exemptions should be considered or permitted.

As for the costs of management, storage, and "disposal": These are the responsibility of the licensee. The NRC should, but never has to our understanding, required as a pre-condition of license issuance that the full long-term costs of waste disposition must be in the hands of a licensee with absolute financial liability for the total short- and long-term costs of waste control and disposition as a license condition for producing their radioactive materials and wastes.

II. 1. (2): Based on previous long disputes on dose standards and mixed wastes between these two agencies, the NRC should not anticipate or depend on EPA's acceptance of materials that have been released from an NRC-licensed facility, even if they have supposedly been surveyed. It is always uncertain if the U.S. Congress may decide to abolish the agency, toward which it and some administrations have in the past shown substantial hostility. If the NRC has issued a license for production of contaminated materials, or has failed its inspection duties such that materials have unnecessarily become contaminated, this agency is still responsible for them, and foremost for protecting public health and safety and the environment. It cannot shirk that responsibility.

For either Conditional Use or Landfill Disposal, NRC is asking if it is all right just to place a backup "cap" to limit the dose to the public "if the restrictions for the conditional use became no longer effective." The obvious answer is no! The scenario described is, to be blunt, precisely the reason that our position is that all even supposedly "slightly contaminated" materials and wastes generated from NRC-licensed activities must be retained under regulatory control. The experiences of some of our members, as well as of many others, have confirmed that in the past the NRC has not performed its regulatory responsibilities as rigorously as we believe the law intends, and certainly not so stringently as the potential consequences of failure of strict regulation demand.

V: Request for Comment and Announcement of Workshop:

The only comment to be made here is that, with the exception of a very small handful of individuals at the NRC's May 21-22 workshop, there has been zero opportunity for members of the public to attend any meetings on this FRN, to ask any questions in the presence of any NRC staff members, or to enter into any discussion with the staff concerning these extremely important issues affecting the American people. The Sierra Club is grateful for having had the opportunity to have been represented in the NRC staff-selected panel discussions, but that workshop was not an acceptable substitute for the public involvement and participation that the NRC claimed it desired. It is for this reason that we are requesting that the NRC schedule true public meetings nationwide to hear what the public has to say -- not about "how" to proceed with scoping and rulemaking -- but rather to explain "why" the Commission should instead immediately withdraw this proposed rulemaking endeavor that has failed repeatedly, and get on, instead, with seeking more effective ways of preventing releases of its radioactive materials and wastes, of preventing radiation injury to the public and to workers, and of preventing the generation of additional quantities of wastes for which the NRC and other agencies obviously have no assured safe means of disposal.

VI. Scoping Process for Environmental Impact Statement:

Because the Sierra Club is, respectfully, requesting that the Commission withdraw and abandon this rulemaking process, comments on EIS scoping should not be needed. However, in order to assure that our recommendations are on the record, we do offer these comments.

1. First, we urge that all records relating to NRC's efforts prior to1999 to adopt a rule that would allow the release, recycle, and reuses of solid materials and wastes that are said to be only "slightly contaminated" must be made public and be added to the internet record and ADAMS for this proceeding and for a programmatic and/or generic EIS if one is to be done. However, we also note again that the staff must not assume that all who wish to comment meaningfully should be expected to have researched the entire colleciton of related documents and NRC must not discount a comment on the grounds that the matter had already been dealt with to the satisfaction of the staff at an earlier stage of this process.

2. Given that the five options proposed by NRC all contain fatal flaws making them unacceptable, we urge the staff to engage in what is known as divergent thinking. The staff must try to envision other approaches and methods for improving the control of radioactively contaminated materials and wastes, in order to better assure that they will not escape into the biosystem or add their multiple small but additive doses to unsuspecting members of the public. For instance, NRC could consider improvements in methods of storage-to-decay, or recognition and adoption of more than one disposition method, depending upon conditions specific to a given licensee, facility, site and situation.

3. We recommend that NRC adopt the expectation that they do not know yet enough about the long-range adverse impacts of low-level radiation on the earth's biota, which includes but is not limited to human beings. We have had only two or three generations in the previous century to begin to learn about the genetic impacts. It is therefore wise to adopt the most prudent, conservative courses of protective action with a hope that human (if not necessarily engineering ingenuity may devise more effective methods of safe isolation and exposure minimization.

4. We suggest, further, that NRC take into account the judicial blockage that presently prevents those who have been adversely affected from radiation exposures from receiving fair judgments in the courts.

The burden of proof of damage should be shifted from the affected individual -- the victim – to a burden of proof by the generator of radioactive materials and wastes that those materials and wastes are in fact not radioactive, are harmless, and are irrefutably incapable of causing damage to the health or to the progeny of those exposed.

5. Since 1990, the National Academy of Science and National Research Council, on whom the NRC chooses to rely in other matters, have concluded that "...the new data do not contradict the hypothesis, at least with respect to cancer induction and hereditary genetic effects, that the frequency of such effects increases with low-level radiation as a linear, nonthreshold function of the dose." (BEIR V) It is long overdue for the NRC to take this advisement into account and abide by its implications.

6. It is also time for NRC to recognize the right of individuals to choose or reject to receive any radiation exposure that is additive and cumulative (and in this instance unmeasurable) but from which the recipient receives no benefit or a benefit less than the added risk he or she incurs. The Environmental Impact Statement must no longer ignore the risk (injury or damage) to the single individual from an unwanted radiation exposure in favor of an alleged but unproven benefit to "society." All of the costs, economic, social, and personal, that accrue to individuals must be incorporated into the GEIS cost/benefit analysis.

7. A GEIS must not prevent later citizen challenges to licensee and/or NRC actions at specific sites or to collective societal impacts of regulatory actions and those of specific licensees.

The Sierra Club is well aware that environmental issues resultant from technological actions may defy technological solution and create ongoing hazards for both individuals and the society as a whole. We should not expect that the best, most protective solutions (that reflect what we might call our species responsibility for those in the future) will be found quickly. The total quantities of radioactive materials and wastes has grown in the past half-century in a manner similar to exponential, exacerbating the difficulties of isolation, and have also tremendously increased the costs of waste control. The law should recognize that there are no benefits to society from wastes; there are only costs. These facts should not be used by the Commission as an excuse of "just letting go." Protection of the environment and all who inhabit it is too important for the haste and lack of imaginative exploration of possible alternatives that the Commission exhibits in pursuing this "solution" cheapest for those that NRC regulates.

It is important to reiterate that it appears NRC is not being fully straightforward in use of the terms: "controlling" when the purpose is not to control but rather to release; the term "solid materials" when the materials and wastes are radioactive, if low in activity (and are they allowed to contain liquids, and how much, and are they surficially or volumetrically contaminated, or both?). By using the term "controlling" is NRC retaining a semblance of regulation in order to preserve its federal preemption and thereby prevent the States from adopting more restrictive regulations?

The data that the staff receives from licensees on the total volume, activities, and concentrations of these materials and wastes must be made available to the public immediately as it is received, and later in final total amounts. The staff must not use an individual that the staff "thinks" might be the most vulnerable to highest exposures as a surrogate for all others who are members of the public but who may receive the multiple small doses previously discussed. Staff must consider the most sensitive members (not just an embryo or an elder) of the populations, not Standard Man. The staff must include review of all environmental pathways, all potential reconcentration mechanisms, and all potential interactions with other contaminants in the environment, plus consideration of the impacts of released radioactive materials, including the biological effects of all radioisotopes, upon other forms of life on earth.

There must be no exclusion of issues relating to the environmental impacts of this proposal. NRC must review issues even if it is staff members' "judgment" that an issue is "insignificant, or peripheral, or covered in prior review." All are relevant for a GEIS. This is not a task to be left to engineers. Furthermore, in the past, the NRC has refused to allow later consideration in site-specific cases of issues that had been covered in a Generic EIS. This denial of the right of citizens to challenge in full a prior agency decision must be abolished. The comment ending topic (3) in this section does not appear to do so. The staff must incorporate into their analyses all of the other agency proposals to exempt and deregulate and release from control their contaminated materials and wastes, or to abandon them onsite. But the staff must also consider all refutations of those proposals.

The Commission absolutely must not again hire consultants with preconceived conclusions, or with conflicts of interest due to prior contracts with either any entities involved with the production or utilization of nuclear or hazardous materials and wastes or with the agencies that regulate them. From the FRN, at VI.(6), it is evident that NRC has already violated these recommended restrictions on contracts and contractors. We strongly urge the Commission to ask staff to bring in consultants from the public-interest realm; and medical, genetics, and biological scientists whose findings may contradict the conventional radiation beliefs; and environmentalists and ecologists. This issue is too important for NRC conduct of business as usual.

If the Commission elects to try to continue with this inadvisable rulemaking – and we once more advise not to do so -- this GEIS should be utterly unlike any previous NRC undertaking. But we must ask, is this really the best use of the NRC staff's time and abilities? Can it be justified as enhancing the safety and security of the nation and its people even to consider releasing radioactive materials and wastes – at these, of all times?

We recommend that the NRC continue and expand its efforts to develop more protective standards, methods of materials and waste management, and far more stringent regulations to prevent the release, recycle, and reuses of these materials that it has permitted to be produced.

The Sierra Club is appreciative of the opportunity to submit comments on NRC's proposed rulemaking on "Controlling the Disposition of Solid Materials." We hope they will be of positive use to the NRC, Commissioners and staff.

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DOCKET NUMBER
PROPOSED RULE PR 20
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From: Judith Johnsrud <johnsrud@uplink.net>
To: Secretary <secy@nrc.gov>
Date: Sat, Jun 28, 2003 3:36 PM
Subject: "Controlling the Disposition of Solid Materials" 68 FR 40,pp.9595-9602; Comments for the Sierra Club

(2451)

Subject: "Controlling the Disposition of Solid Materials" 68 FR 40, pp.9595-9602
Comments for the Sierra Club
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TO: The Secretary of the Commission
Please acknowledge receipt of this posting. Thank you.

c/o 433
Orlando Avenue
State
College, PA 16803

June 18, 2003

DOCKETED
USNRC

June 30, 2003 (2:01PM)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

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<secy@nrc.gov>
and
Ms. Phyllis
Sobel
February 28,2003
Office of Nuclear Material Safety and Safeguards
(RE: Environmental Scoping Process)
<pas@nrc.gov>
and
NRC 10 CFR 20
Ms. Trisha Holahan, NRC staff (please forward)

RE:
68 Federal Register 40, Proposed Rule
pp.9595-9602,
Rulemaking on
Controlling the
Disposition
of Solid Materials:
Scoping and Notice of Workshop

The following comments on the NRC Proposed Rulemaking on "Controlling the Disposition of Solid Materials" are submitted on behalf of the Sierra Club. They are supplemental to, and they incorporate by reference, comments of the Sierra Club representative on NRC's panel at the sole public meeting on this issue, held at NRC Headquarters, Rockville, MD, May 21-22. Sierra Club appreciates the invitation and opportunity to participate with the panel and to submit comments.

First, the Sierra Club respectfully requests that the Commission reopen the public comment period for a minimum of 90 additional days following announcement and the conduct of additional public meetings throughout the nation. This request, per staff recommendation, is here directed to Ms. Trisha Holahan, for whom this commenter has no e-mail or other address.