



# **Meeting Summary: National Advisory Council on Environmental Policy and Technology**

Subcommittee on Radiation  
Cleanup Regulation  
October 18-19, 1993

## **MEETING SUMMARY**

### **National Advisory Council on Environmental Policy and Technology (NACEPT) Subcommittee on Radiation Cleanup Regulations**

**October 18-19, 1993  
Hall of the States, 444 No. Capitol St., Suite 283\285  
Washington, DC**

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The National Advisory Council for Environmental Policy and Technology (NACEPT) Subcommittee on Radiation Cleanup Regulations held its first meeting on October 18 (9 am to 5 pm) and October 19 (9 am to 2:30 pm). NACEPT is a committee chartered under the Federal Advisory Committee Act to provide advice and counsel to the Administrator of the Environmental Protection Agency (EPA) on issues associated with the management of environmental problems. NACEPT initiated this Subcommittee to advise EPA on the development of a Radiation Cleanup Regulation.

The purpose of the meeting was to convene the NACEPT Subcommittee, discuss the radiation cleanup regulation rule making and the Subcommittee's work, provide background briefings on key issues, and discuss and offer comment to EPA on those issues. The three key issues EPA is currently exploring as they begin the development of a draft rule on radiation cleanup regulations are: questions about cleanup levels/ risk levels; future land use/state and local statutes; and site-specific public involvement.

Members of the Subcommittee represented professional associations, tribal governments, state and local governments, academia, environmental groups, industry, and cleanup contractors.

This summary is organized chronologically under major headings drawn directly from the meeting agenda. It is meant to serve as an overview of major discussion topics and items; not as minutes per se. Attached to this summary are three appendices: the agenda for the two-day meeting (Appendix A) the list of attendees (Appendix B), and EPA overheads used at the meeting (Appendix C).

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"MEETING SUMMARY: NATIONAL ADVISORY COUNCIL ON  
ENVIRONMENTAL POLICY & TECHNOLOGY"

SUBCOMMITTEE ON RADIATION CLEANUP REGULATION OCT 18-19

USEPA/RIA

US ~~ENVIRONMENTAL~~ ENVIRONMENTAL PROTECTION AGENCY  
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ABSTRACT

THIS PUBLICATION CONTAINS THE MEETING MINUTES FOR THE FIRST MEETING  
OF THE NATIONAL ADVISORY COUNCIL FOR ENVIRONMENTAL POLICY  
AND TECHNOLOGY HELD ON OCTOBER 18 AND 19, 1993. TO PROVIDE  
ADVICE AND COUNCIL TO THE ADMINISTRATOR OF THE EPA ON  
ISSUES ASSOCIATED WITH THE MANAGEMENT OF ENVIRONMENTAL  
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**DAY 1**

**October 18, 1993**

**WELCOME & INTRODUCTIONS**

*Margo Oge*, Director of EPA's Office of Radiation and Indoor Air (ORIA), welcomed NACEPT Subcommittee members, other participants and observers. She offered a few words about NACEPT, describing how each EPA office has the option to establish a NACEPT Subcommittee. This Subcommittee of NACEPT will provide EPA with advice on radiation cleanup regulations. Oge, on behalf of senior EPA management, committed to listening and responding to the advice of the Subcommittee as EPA moves forward over the next several years to set policies in the area of radiation cleanup regulations and waste management regulations.

***Legislative Background to the Rule Development***

Oge described the legislative background to the current effort and indicated that EPA, the Nuclear Regulatory Commission (NRC), US Department of Energy (USDOE), and the Department of Defense (DOD) had been asked to cooperate in setting radiation cleanup regulations and waste management regulations.

She indicated that the rule will deal with a large number of both government owned and privately licensed sites, including all those:

- Contaminated with naturally occurring radioactive materials,
- Contaminated as a result of the weapon complex activities,
- Coming up for decommission -- such as aging nuclear power reactors.

***Regulations to be developed for Radiation Cleanup, later for Waste Management***

Oge indicated that EPA is developing two sets of regulations. This Subcommittee has been asked to help with the first set on cleanup regulations. In a separate but parallel process, EPA will develop waste management regulations. Disposal of low level waste and waste classification are two issues EPA will take up as part of the waste management rule making.

***Many Players***

Oge reported that an Interagency Steering Committee is at work with EPA to help develop the cleanup regulations. Participants include the Department of Energy, Department of Defense, and Nuclear Regulatory Commission. Office directors from within EPA who are responsible for related programs - the Resource Conservation and Recovery Act (RCRA) program, and the CERCLA program, and the federal enforcement program - also attend these meetings. The Steering Committee has met twice.

EPA is attempting to receive and refine existing data on contamination levels at sites so as to do the risk assessment that will support the cleanup regulation.

EPA understands state and local governments to be co-implementers of the cleanup regulation. Although this NACEPT Subcommittee has some state and local representatives, she said that EPA will do additional work to coordinate with state and local governments.

Oge noted that the NACEPT Subcommittee members bring diverse expertise and perspectives to the table. EPA welcomes that diversity and looks forward to learning the opinions of all members.

#### *Coordination with NRC*

Oge noted that EPA and the Nuclear Regulatory Commission are collaborating closely. This is because for the past year, the Nuclear Regulatory Commission has been developing decommissioning regulations. If EPA finds the Nuclear Regulatory Commission regulations will provide equivalent protection to the public, EPA will propose that the Nuclear Regulatory Commission be allowed to use its own regulations, rather than being subject to EPA's rule. This is outlined in a Memorandum of Understanding (MOU) between the two agencies.

#### *Schedule*

Oge said that EPA will begin writing the cleanup regulation within the next 6 to 8 weeks. The first step in that process was to complete of the Issues Paper on Radiation Site Cleanup Regulations. EPA is now developing a risk assessment and cost benefit analysis for each regulatory option under consideration. In addition, EPA will propose a risk assessment methodology to the Science Advisory Board. Oge offered that any of this information will be available upon request.

Oge said she expected to have a draft regulation package to show the Subcommittee early in 1994. At the same time, EPA plans to take this package to the public and to state and local government representatives. EPA is looking at summer or fall 1994 for a Proposed Rule, assuming Office and Management and Budget review is expeditious.

*Bill Dornsife*, Chair of the Subcommittee and Director of the Pennsylvania Bureau of Radiation Protection, was introduced. He said that the Subcommittee would be an extremely important part of EPA's process to develop the rule. Given EPA's aggressive schedule, he said that this Subcommittee's ability to have clear, early input would be critical. The Subcommittee should therefore clearly articulate various opinions on the three key issues in the agenda and thoroughly discuss each. He noted there was no need to get full consensus on resolutions to these issues, however, if a

consensus emerged, it would be pursued.

*Dornsife* noted that there were many parallel efforts to develop some sorts of cleanup regulations. An early sense of what EPA is going to come out with is key to all of these other efforts since EPA's responsibility is to set the framework for other rules.

*Dornsife* said he planned to take an active role in the discussion and described his role. He then introduced Pamela Russell, the Designated Federal Official for this NACEPT Subcommittee.

### ***NACEPT Background***

*Pamela Russell* Office of Radiation and Indoor Air, described how this Subcommittee fits into the broader NACEPT framework. She noted that NACEPT:

- is an EPA advisory body first chartered in 1988 in compliance with the Federal Advisory Committee Act (FACA);
- provides recommendations and advice to the EPA Administrator and to other officials of the Agency;
- includes senior-level persons representing diverse backgrounds and viewpoints;
- is currently chaired by Dr. John Sawhill, President and CEO of the Nature Conservancy.

Further she noted that the major work of NACEPT is currently carried out by six committees. A plenary session of NACEPT meets once a year. At this meeting Subcommittee Chairs make summary reports to the EPA Administrator.

*Russell* reviewed the Federal Advisory Committee Act procedures. These procedures are designed to maximize public access to committee deliberations and to improve overall management of advisory committee activities.

### **SUBCOMMITTEE INTRODUCTIONS/AGENDA REVIEW**

*Dornsife* introduced the facilitation team from Triangle Associates including the lead facilitator, *Martha Bean*.

*Margo Oge*, along with Gene Durman, Deputy Director of ORIA and Acting Division Director of the Radiation Studies Division; and Barbara Hostage, Branch Chief; introduced members of the ORIA rule writing team (see ORIA list in Appendix B).

### ***Summary of Expertise/Interests and Message to Writers of the Rule***

*Dornsife* then asked each member of the subcommittee to introduce themselves, identifying the expertise and interests they bring to the table and noting most important messages they wanted to convey to the EPA staff about what ought to be addressed in the rule. *Dornsife* began the introductions with himself.

**Bill Dornsife**

*Expertise and Interests*

- Director of the Pennsylvania Bureau of Radiation Protection.
- Chairperson of Conference of Radiation Control Program Directors Committee on Decontamination and Decommissioning.
- Represents the Conference of Radiation Control Program Directors on a federal interagency task force that is looking at developing a cleanup regulation.
- Responsible for all the radiation issues in Pennsylvania, a state with about 14 sites that are on the Nuclear Regulatory Commission's target list for immediate cleanup, including the Three Mile Island reactor.
- Has a state perspective that is squarely in the middle of this effort.

*Messages to Writers of the Rule*

- State concurrence up front with regulations and state review during the process are extremely important.
- Notes that states are primarily responsible for implementing many of the waste disposal options that will support this effort.
- Regulation needs to be measurable and verifiable in order to make sure it's being implemented.
- Regulation has to take into consideration what it will do to the waste management infrastructure. Need to ask where the waste that is produced is going to go.
- Regulation needs to be looked at in the context of other radiation risks that are faced. We can not afford to spend all of our resources on cleaning up some of these facilities and not address some of the other problems states face such as naturally occurring radiological health and safety problems - many of these are not yet regulated.
- Regulation must be adoptable by the states so that they can carry out the state role.

**Mike Veiluva**

*Expertise and Interests*

- Foundation Counsel to the Western States Legal Foundation, a non-profit environmental and peace organization based in San Francisco, in existence about 10 years. A primary focus is to monitor the Department of Energy's nuclear weapons program, including the Lawrence Livermore National Laboratory.
- Represents the Physicians for Social Responsibility as administrative / legal counsel.
- In past they have represented a number of related issues including disarmament.
- Have represented Sierra Club, Greenpeace, and currently involved in a law suit against Atomic Vapor Laser Isotope Separator Facility at Livermore - this gives you a score card of his perspective.
- The interest that Western States represent has to do with the public's perception of risk from radioactive materials and wastes generated by the arms race and nuclear power.

*Messages to Writers of the Rule*

- Notes the need to distinguish radioactive waste from other types of hazardous waste. The public is aware of, and interested in, the differences between the two.
- Need to maximize public involvement, to avoid the cycle of "lawsuits, hearings; more lawsuits, more hearings," etc.
- Emphasizes the enormous uncertainty in three areas: scientific, social, economic. Given these uncertainties, there are enormous risks involved in setting regulations.
- Would like to see the most conservative approach possible, in assessing the risks and setting regulations, given the vast unknowns involved.

*Dr. Kim Kearfott*

*Expertise and Interests*

- Professor of Nuclear Engineering at the University of Michigan.
- Serves on the Board of Directors of Health Physics Society, a 6400 member scientific organization involved with radioactive protection for the public, workers, and environment.
- Member of the NCRP Subcommittee # 57 - an umbrella committee for the development of methodologies for Internal Dosimetry.
- Ph.D. from MIT in Nuclear Engineering, minor in Physiology from Harvard, MS in Reactor Safety from University of Virginia.
- Currently working on design of novel radiation detectors for mixed field dosimetry.
- Developing a curriculum at University for leaders of the teams that will be involved in the cleanup activities.
- Broad research interests, over the last 15 years. Worked on radon in Arizona, models for use in internal dosimetry particularly for radio tracers in medicine, with some work on quality control and dose reduction techniques for mammography.
- Primary field is Radiological Engineering - concerned with solution of problems, medical and radiation protection aspects of nuclear technology.

*Messages to Writers of the Rule*

- Hopes EPA will proceed quickly on this complex issue.
- Would like to see regulations that are consistent and reasonable; they must be measurable, achievable, quantifiable goals, above the lower limit of detectability for a given sample type and background).
- Limited resources must be deployed in an ethical way which considers all risk (including risk to workers involved in cleanup) and costs to society balanced with potential benefits.
- Regulation must be able to be verified.
- Regulation should be achievable, so that work can proceed.



**Susan Wiltshire**

*Expertise and Interests*

- Vice president of JK Research Associates; a consulting firm specializing in public policy formulation, strategic planning, and public involvement planning, mostly in radioactive waste management issues.
- Chair the NACEPT Subcommittee on Waste Isolation Pilot Plant.
- Serves on National Academy of Science Committee on the technical basis for the Yucca Mountain Regulations.
- Wrote the new edition of the League of Women Voters Nuclear Waste Primer.
- Served on NAS Board on Radioactive Waste Management's Uranium Mill Tailings panel, and panel on Risk Communication.
- Brings a new way of looking, because of lack of past regulation development involvement.

*Messages to Writers of the Rule*

- Regulation needs to be clear technically well-funded and pass the test of reason when it becomes part of the public discussion.
- Regulation needs to give sense of confidence, consistency, and clarity.

**Dave Jansen**

*Expertise and Interests*

- Works for the Washington State Department of Ecology Nuclear and Mixed Waste Program, Director of Hanford project.
- Civil and environmental engineer.

*Messages to Writers of the Rule*

- Determining where the waste is going to go will make or break the regulations in the long term.
- Consider the perspective of ground level implementor, who turns regulatory expectations into bulldozer work, and completed projects.
- Regulations must be crafted so they allow ground level implementers to proceed with physical cleanup at these sites.
- Encourage consistency among the agencies.
- Discuss the possibility of geographically focused cleanup such as that being considered at Hanford - outgrowth of Future Site Uses project.
- Regulation should not derail existing cleanup plans and commitments.

**Linda Capano Dolan**

*Expertise and Interests*

- Member of Executive Committee of the Board of Directors of the American Nuclear Society for more than 17 years. ANS is a not-for-profit technical and educational society comprised of about 17 thousand members, which includes environmental, waste management, and cleanup professions, medicine, health care, and power plant operations professionals.
- Chair, ANS's Special Committee on Cleanup Regulations; member Environmental Sciences and Fuel Cycle, and Waste Management Professional Divisions.
- Professional experience includes DOE contractor manager, Manager of State Compliance, and Operable Unit Project Manager at CERCLA sites.
- Certified Hazardous Materials Manager.

*Messages to Writers of the Rule*

- ANS favors a dose based approach, used in conjunction with land use restrictions, to give flexibility to different types of groups affected by this regulation. Regulations should be tailored to the amount of risk the type of facility involved presents to public. Gave example showing that ANS would not believe a medical facility should necessarily be under the same regulations as a CERCLA site.
- Supports the idea of a graded approach, perhaps with land use restrictions in the future.
- Calculation methods used are just as important as the basis of the regulation itself.
- Depending on the methodology selected to calculate risk, i.e. slope factors, dose ICRP / NCRP method, etc., the method can affect the risk number calculated and thus the cost of cleanup by a factor of 10 or more.
- Always keep in mind that when DOE sites are cleaned up it is a public expense.
- Regulation should be compatible with other regulations, i.e. RCRA and CERCLA.

**Arjun Makijhani**

*Expertise and Interests*

- President, Institute for Energy and Environmental Research.
- Member, EPA Radiation Advisory Committee.
- Co-authored book, "High Level Dollars, Low Level Sense" on nuclear waste.
- Doctorate in Electrical Engineering, specializing in Nuclear Fusion from University of California at Berkeley.
- Worked on environmental issues for more than 20 years and been co-author of many studies, and participated in many studies on nuclear weapons plants, with some done in the context of lawsuits.
- Expert to studies for Fernald against DOE contractors; suit settled in 1989 for \$78 million dollars. It was the first time anyone independent had assessed

source term from a nuclear weapons facility and said official source term was not correct, putting some other preliminary numbers on table.

*Messages to Writers of the Rule*

- Risk has already been created - focus is really about risk reduction and radiation relocation.
- Can not and should not consider cleanup regulations without dealing with both waste management and risk.
- Although waste disposal processes are separate institutional questions, risk and waste management issues must be considered as part of this process, otherwise there cannot be a risk minimization approach from a societal point of view.
- Past radioactive management practices have become today's cleanup problems. A lot of these risks were involuntary, without informed public consent.
- Difference between voluntary and involuntary risks- the public has no tolerance for involuntary risks, such as exposure to radioactive contaminants.
- Synergistic risks must be considered; factor in for our lack of knowledge.
- Non-cancer effects must be considered.
- Regulation setting should factor in vulnerable populations such as children and pregnant women.
- Land use shouldn't be considered a onetime decision, but should be seen as an on-going process.
- Public information and consent should be an on-going process.
- Contamination for future generations to deal with is a given. Therefore, something for community monitoring and education at these sites is essential.
- Evaluate what cleanup to background means. What does that mean?
- Argues for clarity and transparency about what we're doing.

*Phillip A. Niedzielski-Eichner*

*Expertise and Interests*

- President, consulting firm called Governmental Dynamics. Mission is focused on local communities impacted by federal facilities, regulations, etc.
- Director of Energy Community Alliance, which is focusing on a number of cities and counties that have DOE sites in their jurisdictions and are having to confront cleanup and downsizing.
- Trained in Public Administration and Pre-Medical Biology, which gives him a science and public policy background.
- Consults heavily in Nye County, Nevada the location of NTS (a candidate site for a high level nuclear waste storage facility at Yucca mountain) as a policy advisor; helped them set up their technical and socioeconomic oversight program.
- Worked in Richland to help design an environmental quality program, that will demonstrate a commitment to balancing it's dual role of protecting public health / safety and helping to maintain a viable economy.
- Worked in Oak Ridge as an economic development administrator, working to

sustain the local economy when many of the environmental problems first come to public attention.

- Has perspective of a local government professional.

*Messages to Writers of the Rule*

- Regulation should incorporate a new role for local governments. To build local and public confidence in cleanup we need to build in local capacity to help monitor cleanup.
- Regulation should bear in mind role local governments in arbitrating local community values as they are applied to the assumptions used in risk assessment models.
- Need public input on the value side. With a lot of expert's personal judgment built into risk assessment models, public judgment should be brought in as well.
- Massive cleanup requires massive dollars. Federal commitments can be expected to diminish as they sense this is an untenable conundrum.
- Hopes for regulation that will protect public health and safety, while sustaining the political support for the cost.

**Adam Babich**

*Expertise and Interests*

- Editor, Environmental Law Reporter from the Environmental Law Institute, a non-profit, non-partisan organization dedicated to advancing environmental protection through improvement of law and fostering dialogue and shared information. ELI does not lobby or litigate.
- On behalf of Sierra Club, Environmental Defense Fund and Natural Resources Defense Council, litigated at Rocky Flats and at Waste Isolation Pilot Project in Carlsbad New Mexico.
- Participated in Keystone dialogue on regulatory negotiation about Radium Mill Tailings.
- Juris Doctor from Yale.
- Private practice attorney until February.
- On NRDC Panel on Prioritization of DOE Sites which is on hold.
- Involved in CERCLA enforcement for the State of Colorado's Uranium Mill Sites from 1984-1987.
- Views are not necessarily the same as former clients.

*Messages to Writers of the Rule*

- Regulation should be consistent, and act as a model for other environmental contaminants, such as CERCLA program.
- It is just as important who implements the regulation as what the regulation is.
- Thought should be given to what extent public processes can be implemented.

**Ann Hurley**

*Expertise and Interests*

- Environment Project Director and Chief Counsel of the National Attorneys General. NAAG's members, the Attorneys General of the 50 states, the chief legal officer of the District of Columbia, the Northern Mariana Islands, Puerto Rico, American Samoa, Guam and the Virgin Islands, have a particular interest in the cleanup of federal facilities. NAAG recommended individuals who served on the Keystone Dialogue Committee.
- Ph.D. in Oceanography, gives a quantitative, scientific background.
- Background as lawyer, in both private practice and as an attorney for the federal government.
- Trial attorney with the Department of Justice section which represented the DOE at some of the CERCLA sites.
- Understands private parties perspective, because she was a private practice, attorney.

*Messages to Writers of the Rule*

- Here in an individual capacity, giving personal viewpoints.
- Regulation should be verifiable in order to enforce it.
- Should involve local, state, and the public in cleanup decisions - on a site-by-site basis.
- Method for involvement needs to be considered. Perhaps a fund to empower communities is a good model.
- Environmental justice movement has taught us to start talking about land use decisions, and who will bear the burdens. It should not just be low income communities that are stuck with what is left at the site.
- It would be a big mistake to divorce radiation from other programs. Regulation needs to work within the whole package of hazardous substance cleanup regulations.
- Recognize and be willing to admit limitations on our ability to come out with a nice easily definable number.

**Doug Sarno**

*Expertise and Interests*

- Manager of federal and technical programs for Clean Sites, a not-for-profit organization that has been around for about 10 years focusing on CERCLA issues.
- Career in CERCLA, but has focused on DOE issues in the last few years.
- Have seen our cleanup programs from a number of different perspectives, cleanup contractor for EPA and DOD, then working for EPA, and now non-profit capacity.

*Messages to Writers of the Rule*

- Believes that programs for cleanup in this county have let "the perfect be the enemy of the good."
- Should not idealize, and theorize what sites could be if we could make everything go away, when we can't make it all go away. This has lead to unrealistic expectations and to spending our time not meeting them. Limited resources, limited technologies.
- Hears encouraging voices around the table saying that there are limits to what can be done.
- The perception that land use which is less than residential/ pristine is creating more risk, or is less desirable, is wrong. Cleanup will make it better than what we have today. Perhaps less than perfect, but perfect was never realistic in the first place.
- Should not be myopic about cleanup focusing exclusively on threat to human health which is often theoretical; need to balance societal resources.

*Roland Fletcher*

*Expertise and Interests*

- Administrator of Maryland Radiological Health Program.
- Chairman-Elect of the Conference of Radiation Control Program Directors.
- Worked in Radiation Safety / Protection for last 29 years. The first 21 as a member of the U.S. Army.
- MS in Organic Chemistry.

*Messages to Writers of the Rule*

- The Army studied dealing with worst case scenarios with the goal to survive on radioactively contaminated battlefields. Brings this up because we might have to consider closing some heavily contaminated areas off for availability. Not only clean to the best level, but if it not ready, then close it off altogether - restricted use or no use.
- Need to ensure that there is communication with state officials, county and local governments, and the public.
- Consider the process as well as the goal. States do not have a consistent answer on how to implement many federal regulations. Wants this regulation to be clear.
- Concerned with the coordination between federal agencies. As an agreement state, we need to be a part of any agreement that's being made, so that our particular needs will be met.
- Agrees with consistency, and achievability.

**Robert Holden**

*Expertise and Interests*

- Program Director of the Nuclear Radiation Project of the National Congress of American Indians, a Tribal Government Advocacy Organization since 1944. Tribal governments pass resolutions within their governing bodies to join NCAI.

*Messages to Writers of the Rule*

- Many of the sites are located on or near Indian reservation sites.
- In exchange for giving up all of our land, we were given reserved areas which would not be encroached upon by anyone. Much of these lands have been encroached upon and used, and are now polluted.
- The Federal Government has power, and it also has responsibility.
- The Federal government and EPA agreed to recognize the tribes as governments and agreed to deal with them on a government to government basis. This action gave the tribes access to the protections of the regulations developed, yet funds were not made available.
- Must look back at what some of this land was originally used for. Many sites have cultural significance (e.g., Gable Mountain at Hanford is a Visionquest site). Native American people want access to these sites, and want them cleaned up.
- Look at cost implications: it will require quite a lot of money to restore these lands to natural background. In the minds of Indian people we have already paid for these lands up front.
- Native Americans have given up a lot for national defense, and they are still giving up a lot. Many have suffered in Nevada and not been dealt with fairly. Many have suffered from exposure, monitoring stopped at reservation borders.
- Pay attention to what Indian people say, as members of the public, and as sovereign peoples. Because of their relationship to the land, they have the power to heal much that nuclear medicine can not.

*Dornsife* then asked all observers in the room to introduce themselves (see list of attendees, Appendix B).

*Bean* reviewed the agenda for the two days, describing how each issue outlined in the agenda includes a short presentation on ORIA's approach, followed by free discussion.

## THEMES

After a 10-minute break the group reconvened and Dornsife noted that there seemed to be several common themes that cut across the points people raised this morning:

- The cleanup regulation needs to be measurable and verifiable so people implementing and providing oversight can determine the regulations are met.
- The regulation needs to take into consideration local and cultural needs and make sure that state, local, and tribal governments are involved early, and throughout the process; including some provisions that the public is somehow empowered to get involved in the process.
- There's a need for recognition of the impacts on the waste management infrastructure -- how cleanup is likely to affect where the waste is going and how that's going to be managed.
- There's a need to consider this regulation in the context of other regulation-setting processes.

An additional theme appeared to be the recognition of limits; that resources, technology and even "whole system" risks may limit the ability to get to pristine cleanups. These limits are not fixed, and may change overtime, especially as new technologies are developed.

It was acknowledged that members of the Subcommittee may have minority opinions. These may be the "uncommon themes" which never the less should be kept in mind with the "common themes" and should be reflected in any document of the Subcommittee.

A short discussion followed on the nature and importance of voluntary risks and involuntary risks. Much radiation exposure has been involuntary. This makes people fundamentally skeptical of cleanups regulations which leave residual (e.g. additional involuntary) risks.

## GOALS/CONTEXT

### *Goals of this Meeting/Goals of Rulemaking Effort*

Durman noted that ORIA's goals in convening this Subcommittee are to:

- Describe key issues.
- Get comments and deal with them systematically.
- Provide a summary of this meeting.
- Report back to this Subcommittee.

The overall goals of the rule are to:

- Protect human health and environment.
- Streamline radiation cleanup process.
- Be acceptable to the public
- Be cost effective/affordable
- Be implementable



*Durman* described the schedule:

ANPR (Advanced Notice Of Proposed Rulemaking)	Late October - Early November 1993
Draft Proposed Rule	December 1993
Second NACEPT Subcommittee meeting	February 1994
OMB review of Draft Rule	Summer 1994
Publication of final Proposed Rule	Fall 1994
Final Rule promulgated	Fall 1995

### **PARALLEL PROCESSES**

*Durman* reiterated the distinctions between EPA's rule and NRC's rule. EPA's rule *does* apply to all sites, including NRC sites. But if EPA finds NRC's rule sufficiently protective of human health and environment, then EPA would propose that NRC sites be exempt from the EPA rule.

*Durman* said that there were 18 major categories of nuclear facilities that would be covered by the EPA cleanup rule, they are as follows:

- |  |   |
|--|---|
| 1. Mines and Mills                     | 10. Accelerators                          |
| 2. Enrichment                          | 11. Fusion Facilities                     |
| 3. Fuel/Target Fabrication             | 12. Nuclear Test Sites                    |
| 4. Reprocessing Facilities             | 13. Weapons Accidents and Safety Tests    |
| 5. Reactors                            | 14. Depleted Uranium                      |
| 6. Research/Biomedical/Analytical labs | 15. Waste Management                      |
| 7. Industrial/Commercial               | 16. Waste Disposal                        |
| 8. Sealed Source Users                 | 17. Naturally Occurring Radioactive Waste |
| 9. Nuclear Medicine Departments        | 18. Entire Facility                       |

### ***Other Activities Within EPA***

*Durman* noted that EPA is coordinating work within the Agency. For example:

- Waste Management Rule. There is an obvious link between the cleanup regulation and the waste management rule. The waste management rulemaking will follow closely after the cleanup regulations.
- Overall Radiation Exposure Guidance. The Atomic Energy Act gives EPA responsibility to create guidance on overall radiation exposure to the general public. This guidance is being revised by a group working with Allan Richardson at EPA. This overall radiation exposure guidance will provide an "umbrella" for other regulations.
- CERCLA. Superfund will be streamlined; and ORIA is tracking and participating in the process by participating in an interagency task force. An example of Superfund streamlining is the concept of soil "trigger" levels. These will help determine when additional site characterization is needed. These are not regulations, however, and do not currently include radionuclides.

### ***Work With NRC and DOE***

*Durman* invited Jill Lytle, Deputy Assistant Secretary for Waste Management at DOE and Chip Cameron, Special Counsel for Public Liaison and Waste Management of NRC, to provide their perspectives on coordinating efforts.

*Jill Lytle* summarized the change in DOE's mission from defense production to cleanup. There are more than 5000 identified contaminated sites, and more than 1400 waste streams. Lytle said she agreed with what many people said earlier in the meeting, especially relative to time and resources. Surely with sufficient time and resources (both human and monetary), full cleanup to a pristine level might be possible. But the question is how long, and at what cost?

She noted that DOE sees five specific issues relative to the regulation:

- Finding risk based regulations is a worthy effort.
- DOE is looking at EPA as the lead and is working with NRC.
- Ultimately the rule must make sense, and be understood by people.
- Fiscal constraints are real.
- Future land use is going to be a critical consideration.

Finally, taxpayers and the Congress need to know their money is well spent. Congress is requiring DOE to give a "baseline" cost for their operations. The cleanup regulation from EPA should help them with this.

Chip Cameron, NRC, said that by working closely with EPA, NRC hopes EPA will find NRC's own regulations protective and EPA will exclude NRC sites from EPA's generally applicable cleanup regulation. He noted:

- NRC had resources to begin their rulemaking effort earlier than EPA.
- Objective of NRC's "Enhanced Participatory Rulemaking" effort (January to May 1993) was to, 1) get comment early before the staff sat down to develop a draft proposed rule, and 2) have a dialogue about how to accomplish the objectives of the rulemaking effort.
- NRC is using the results of their regional workshops to get early input on their regulation.
- NRC hopes to have a draft rule and draft "Generic Environmental Impact Statement" available for comment early next year. They expect to send the rule to the Commission in April 1994, and hope to have a final rule in May, 1995.

Durman noted again that EPA learned a great deal from the NRC Enhanced Participatory Rulemaking process, and will build on this work as ORIA writes the cleanup rule.

#### **SUBCOMMITTEE DISCUSSION ON CONTEXT FOR RULE AND NRC/DOE**

Dornsife invited Subcommittee members to ask questions of Oge, Durman, Cameron and Lytle.

**Question:** *What is the merit of having NRC's rule process separate from EPA's rule process?*

**Response:** In an ideal world maybe it wouldn't have worked out this way but it may now turn out even better because of the cooperation this has produced. NRC had the resources to get to work on the problem and then enlist EPA's help after they got the resources to go ahead themselves.

**Question:** *Recognizing EPA and NRC both have rules underway, what key things do you need, Chip (NRC), and what key things did you take away from the NRC process, Gene (EPA)?*

**Response** (Cameron, NRC): The Subcommittee can most help us by saying what should the regulation be? How can it be verified and measured? How do practical considerations fit into this regulation? Also, NRC would like to know what should the role of land use be? When can land be released?

**Response** (Durman, EPA): EPA's current work builds on the NRC process. Some lessons learned from the workshops:

- First, unrestricted use was originally seen by us as the ultimate target. However, we learned this was not the direction of choice of people across the country.
- Second, cleanup of these sites is of intense interest to local communities; and they don't want a process that supplies all the answers from Washington, DC.
- Third, costs are staggering, especially when considering costs of transport once you are moving dirt.

**Comment** (Dornsife): As a point of clarification, he wanted people to remember that in a related project, EPA's Allan Richardson is asking at what level will the public be protected from all sources of radiation. The cleanup rule has a great deal more specificity on a particular topic. Draft guidance from Allan Richardson's Task Force is expected in February 1994.

**Question:** *Is the NRC work available to the EPA framers of this cleanup regulation?*

**Response:** Yes. Drafts will be made available to this Subcommittee and to EPA. Our work will be available in January, 1994. NRC would welcome the perusal of the NRC rule by this Subcommittee.

**Question:** *I am still confused about jurisdictions. Two regulations is not better than one, not even better than none. How will decision makers in the field know to choose the NRC rule or the EPA rule?*

**Response** (Cameron): Whole idea is that a decision maker at a site will not be faced with two regulations. We have a great interest in setting a consistent regulation.

**Response** (Oge): Ideally, we'll come up with the same regulation. The two agencies have signed a Memorandum of Understanding (see Appendix C of the Issues Paper on Radiation Site Cleanup Regulations) and EPA is committed to evaluating the NRC proposal. If NRC comes up with something different they will have to work hard to make sure that we can make the finding that it is protective of human health and the environment.

**Comment:** Want to remind both agencies that 60 percent of the states are Agreement States and any directive that comes down must be coordinated with states.

**Question:** *What's available from the NRC process?*

**Response:** Summaries, transcripts, draft regulatory summary of comments. Contractors are still finalizing the comments. Expect these in about a month. NRC will send it to those on the Subcommittee roster as a matter of course.

## **PUBLIC COMMENT/DISCUSSION WITH THE SUBCOMMITTEE**

*Dornsife* invited members of the public to ask questions of Oge, Cameron and Lytle and the Subcommittee.

### *Comment:*

- Take cost into account, take it seriously - think about the effect on industry and jobs.
- Make public participation real. Don't just offer soap boxes to people who don't care about spending other people's money.
- Educate people, speak of risk in terms people understand.
- Recognize there are sites that beg for land use restrictions as opposed to cleanup to unrestricted use; this can be extremely cost-effective way to protect public health.
- Communication must be developed at site level.
- Be sure to consider and analyze the impacts on states developing new low level radioactive waste sites.
- Perhaps do environmental impact statement on volumes of low level waste, for which states and compacts will be responsible for.
- There is a possibility that wastes resulting from a new cleanup regulation would overshadow current low level radioactive waste disposal requirements.
- It may be inappropriate for some of the wastes generated from this rule to go into low level waste sites.
- Until we take on radioactive waste classification we'll get bad answers;
- The public should not have to show harm; please use an ethic of protection, not risk assessment.
- Issues of BRC (Below Regulatory Concern) policies apply here -- basis for rejecting it is that industry does self-reporting, it is dose based, no limit and exemptions, and because it was generic there was no role for local control;
- This cleanup regulation has to be acceptable.
- Rulemaking has to look at current and future facilities; we don't want to make more messes.
- People understand risk numbers; remember 1:1,000,000 is barely acceptable.
- A person at a site may have four regulations/rules to go by.
- We need a consistent set of rules.
- Federal Register notice didn't have deadline for comment.

*Response (Durman, EPA):* You can comment in written form until 60 days after the date of publication of the ANPR, which is expected in late October or November.

**Question:** *What is the relationship between this rule and the DOE sites not licensed by AEA?*

**Response** (Jill Lytle, DOE): Yes, the rule will pertain to all our sites, it is a generally

applicable rule. High level repositories are a special case and would be licensed by NRC and therefore under NRC rule.

**Response** (Chip Cameron, NRC): There are a few DOE facilities we deal with in our regulation.

### **FIRST ISSUE: CLEAN UP LEVELS AND RISK LEVELS**

*Durman* said ORIA needs help of the Subcommittee on questions related to the actual cleanup levels and/or risk levels that will ultimately become part of the regulation. These are key questions ORIA is grappling with right now as they begin to write the draft rule:

- Considering existing regulations and current practices, what is an acceptable cleanup level?
- What level of risk, as an incremental increase over background, should be achieved in site cleanup to protect human health and the environment?
- What is the role of technological feasibility and cost of cleanup in the selection of cleanup levels?

*Durman* noted that EPA is not working in a policy vacuum, there are precedents. He displayed a chart showing the relationship between dose and risk and different exposure assumptions. He then presented a chart displaying the hypothetical relationship between volumes of soil removed relative to risk reduction. This chart was meant to illustrate the diminishing returns in risk reduction per unit volume of material moved. See appendix C for each of these.

*Bean* then invited the Subcommittee to ask questions of *Durman* and ORIA staff, and then to offer EPA ideas for how to set cleanup levels and risk levels. She asked people to keep in mind their themes from the morning discussion regarding the rule:

- Measurable and verifiable.
- Meet local and cultural needs.
- Link with waste management infrastructure.
- Be consistent.
- Recognize the limits of cost; and human and time resources.
- Keep in mind the "uncommon" themes.

**Question:** *How is EPA staff leaning? Are there any biases in terms of what is acceptable?*

**Response:** EPA is leaning toward a dose or risk-based regulation as opposed to imposing a technology -- (unless that technology can be shown to achieve a particular risk or dose level in a predictable way). ORIA is less sure about whether the regulation should set a range or a single number regulation, but the ORIA team is currently leaning toward a single number. ORIA is looking at the possibility of different numbers for different land uses. In addition, he noted that although ORIA doesn't have a leaning as to what the number actually is, they are paying attention to precedents such as CERCLA (which incorporates a risk range of 10<sup>-4</sup> to 10<sup>-6</sup>). WIPP analysis includes a number, and other work offers numbers also. However, those precedents are quite varied, so EPA is looking for advice.

There was agreement that it is useful to hear the leanings of the staff, and that these did not constrain the discussion, but helped it to be more substantive.

One member commented that any supporting analysis must be made apparent to the people whose livelihoods will be affected.

### ***Minimizing Total Risk***

A lengthy discussion followed on the dilemmas associated with minimizing risk at a site. One member noted that the ultimate test of a regulation will always be "has the number of people who might have died been lessened?". But this requires a look at the entire system: exposure before cleanup, residual exposure after cleanup, risks to workers, and risks associated with the remediation itself. For example, some sites may have high volumes of material with relatively low levels of radiation. At these sites, there may be more risk associated with trucking accidents and worker health and safety than if the material remained unremediated. On the other hand, some sites will have lower volumes of materials at higher concentrations. The risk benefits of remediating the material may be very clear.

One member volunteered personal experience with a site that would have posed more risk if it had been traditionally remediated through a soil removal and/or incineration program. The "cleanup" ultimately chosen involved institutional controls, a choice that was supported in the risk assessment. The point was made that it is very hard - perhaps impossible - to assume that there will always be a predictable relationship between risk reduction and volume of material remediated that holds true across all sites. Risk reduction must be optimized site by site, and must consider the whole system.

A member made the final point that there is no single "magic number" that can or should always be reached at every site.

### ***Suggested Regulations***

One member offered  $10^{-4}$  as the appropriate risk level for the regulation. Advantages are that  $10^{-4}$  falls within the CERCLA risk range, it translates to 3 mrem/year dose (which is measurable), and it is above the measurable variations in dose.

Disadvantages are that it is at the "high" end of the CERCLA risk range, and that its best selling point may be the fact that it is measurable and verifiable -- *not* that it is protective.

One caution is that  $10^{-4}$  may not even be possible to reach at naturally occurring radiation sites (NORM).

Several members then supported the notion that  $10^{-6}$  should be the risk level set for the regulation. Advantages are that it is at the "low" or most protective end of the CERCLA risk range, and is a figure much of the public understands. Any variation from this risk level will have to be explained and that won't be easy. Disadvantages include that it is probably not verifiable at many sites. Plus, in some areas  $10^{-6}$  may be below background. One member's concern was that  $10^{-6}$  was below background, and that the minimum would be background.

A question was asked of *Durman* if his earlier chart translating risk levels into doses (see appendix C) assumed incremental risks, above background. The answer was yes, they assume incremental risk above background. A caution was offered that calculating this would be very difficult, and harder to describe. Ultimately, it may not be possible to sum radio toxicity and chemical toxicity.

A reminder was given that in many cases the NRC works with a  $10^{-2}$  risk level. Another participant reminded the group that the assumptions in the supporting risk assessment drive the risk level. For instance, with a different set of assumptions, a risk level of  $10^{-2}$  could become a risk level of  $10^{-3}$ .

A member noted that the set of risk assumptions from which you start, will bring you to different level, i.e.  $10^{-2}$  might become  $10^{-3}$ , or vice versa.

Finally, a member offered background level as the regulation, noting that it had the distinct advantage of not being a "moving goal post" as do risk or dose based regulations, which are likely to change as technology changes and as we learn more about risk. Another member noted that a background regulation, or even "background - plus," would set an international example. A background regulation would formally acknowledge that the EPA recognizes that the radiation exposure resulting from sites that need to be cleaned up has been involuntary. Both members said that they believed background as a regulation may, in the near term, serve primarily as a goal until new technologies were developed. Both expressed a concern, however, that unless background was the regulation there would be little incentive for the development of new technologies.



There was no consensus on an appropriate risk level, or whether or not the regulation should be a single number or a range. There was consensus that the regulation should be protective, verifiable, and measurable, but there appeared to be divergence on which of these was most important (see discussion below).

#### *Approaches to Setting a Cleanup Level/Risk Level*

One member offered the concept that there are two approaches to setting a regulation, regardless of the actual number:

- Choose the regulation that represents what we are *willing* to achieve now (given constraints of technology, costs, measurability, etc.). To this member, a regulation of  $10^{-4}$  would represent this approach.
- Choose the regulation that represents what we think is an *acceptable* risk, and work hard to attain this wherever possible. To this member, a regulation of  $10^{-6}$  would represent this approach. Where "acceptable" risk cannot be attained, a clear and defensible procedure for determining the best course of action should be outlined in the rule.

To this member, the regulation itself was less important than honesty and clarity on the part of EPA regarding *why* a particular regulation is ultimately chosen. For instance, if the regulation chosen is  $10^{-4}$  it should be clearly stated that this is what is most *practical*. If  $10^{-6}$  is chosen, it should be stated that is the most *protective* but it may frequently be unattainable.

This suggestion became the basis for a full discussion on various "tiered" approaches to implementing a regulation. A "tiered" approach allows a site to "aim" for a particular level of cleanup, but if this cannot be attained, a rational approach is used to determine what level of cleanup *can* be attained.

Most Subcommittee participants agreed that cleanup would nearly always be an iterative process, and even if a particular site cannot be completely "cleaned up" now, technology might be available in the future.

Therefore, periodic re-visiting of sites should probably be a provision of the rule. One member noted industry's has concern about this. While the industry recognized this might be necessary in the worst cases, it also asked that EPA recognize the need to consider a cleanup complete at some point, and not allow liability to exist in perpetuity.

On a similar vein, many members of the Subcommittee supported the notion of providing ongoing resources (funds, expertise) to local communities to monitor sites, and perhaps re-evaluate sites as years progress, as technology improves, and as the need for, and use of, the land changes.

Although there was general agreement that a "tiered" approach would be useful, there was no consensus on exactly how the tiers could be structured. Opinions diverged most regarding the initial "tier": the regulation itself. In addition to the discussion cataloged above, the following points were made:

- Some members wanted to use a single point risk, some a risk range.
- Include a "not to exceed" number in addition to the regulation itself. This "not to exceed" number would be the upperbound level of acceptable risks, regardless of the circumstances.
- Use a regulation that calls for cleanup to background at each site; this is the only regulation that will be acceptable to the public.
- Set sights high in order to "push the technology envelope", but assume that this risk level is more likely to function as a goal, as MCLG's in the Clean Water Act.
- Incorporate the concept of ALARAs (As Low As Reasonably Achievable) into the risk number. This would allow some sites to achieve different levels, for instance, a  $10^{-6}$  cleanup when it was a relatively minor expense to go from  $10^{-4}$  to  $10^{-6}$ .
- EPA should have discretion to enforce as an ALARA standard a "goal" if the characteristics of the site allowed it (i.e. single sources capable of inexpensive cleanup).
- Regulation should 'sever' the achievable limit for existing sites from any standard applied to future operators.
- Operating standards should be independent of cleanup regulations, at sites with future or on-going activities: otherwise standard could "creep" towards more leniency.
- Dose may be more stable to measure than risk, and might therefore be a better basis for the regulation.

The group agreed to disagree on just what the regulation should be, and moved on to discussing the "tiers" themselves. Most believed that if a cleanup level could not be met (be it a regulation or a goal) the procedure for determining what can be done should include:

- A focus on local involvement and perhaps even local control.
- Attentiveness to providing "local empowerment structures" where communities may not have the resources to be active participants in determining what should be done.
- Recognition of special populations in risk assessment work.
- Funds or resources to help local communities "in perpetuity" monitor, etc..
- Specific options for re-visiting the site in case new technologies develop.
- Exploration of land uses which might minimize exposures but still allow productive use of the land.
- Use of institutional controls which might lessen exposures.

### ***Cleanup from the Perspective of Native People***

The unwavering position of Native sovereign nations is that all contaminated sites should be cleaned up to background. This was the land's original state, and the state in which it was offered by Native Peoples to the United States government. Therefore, full cleanup should always be the endpoint. However, many Native American nations understand this may not be technologically feasible at this point in time. Given this reality, whatever is possible to do now should be done. When the Tribes agreed to transfer many of the uses of their land to the United States government, they reserved areas and the rights to those areas for themselves - for fishing, hunting, gathering of plants, animals, and sacred sites. These agreements are still in place and they will continue in perpetuity. Therefore we should assume that cleanup would continue into perpetuity. There is a cultural difference in how uncertainty is understood. Native people think ahead to seven generations and this involves a level of uncertainty and faith in the fortune that Native Americans are comfortable with. They are guided by the knowledge that whatever befalls mother earth will befall man, we are all one environment.

### ***Other Discussion***

A member asked how ARARs (Applicable or Relevant and Appropriate Regulations) would be considered. *Durman* noted that states can always be more stringent; this is almost certain to continue to be the case for the radiation cleanup regulation. It is possible that the Atomic Energy Act (AEA) may contradict this, but it is not likely the rule is likely to be promulgated under the AEA in any case.

Other points made included:

- Recognize that the science of risk assessment and analysis is brand new. What we think we know now about a particular risk may completely change later on.
- Don't let the iterative nature of science and technology create "decision paralysis". There will always be better ways of doing things in the future; that knowledge should not keep us from doing the best we know how to do now.
- Don't forget it took us 50 years to get into this mess, going to take us a lot longer to get out of it. This is perfectly fine.
- We have to create a process that looks at cleanup as a long-term situation where we have some intermediate steps.
- Cleanup regulation gets you in the door, starts the negotiations. Site-specific technology is what ultimately sets the cleanup. From a practical perspective, the numbers you're trying to achieve initiate the process of getting the cleanup started. Completion of the cleanup driven primarily by technology and community acceptance.

*Summary of Discussion on Cleanup Levels and Risk Levels*

- *Number or Range* - Some said "set a number"; some said "set a range". Variations on the theme of ranges included the concept of "As Low as is Reasonably Achievable" and "not to exceed" upperbound limits.
- *Basis of Regulation* - Within both of these options -- number or range -- there were several ideas discussed and championed for the basis of the regulation itself: These ideas included: 1) risk based, 2) dose based 3) risk or dose based, but with a recognition of what is achievable, measurable and verifiable, 4) background, 5) "background - plus".
- *Goal or Regulation* - And within each of the ideas for the basis of the regulation were further opinions on whether the regulation should be a goal or a number that cleanups are expected to achieve.
- *Tiered Approach* - All agreed that some sort of "tiered approach" should be used. The first tier would be the regulation itself. If the regulation cannot be met, a rational process would be followed on a site specific basis to determine the appropriate level of cleanup for that site under current conditions.
- *Local Involvement/Control* - All agreed that for a tiered approach to work there had to be significant local involvement. Some discussed the importance of local control; a step beyond involvement.
- *Local Capacity* - Some communities may not have the local capacity to actively participate, and/or may not be as powerful as other communities in terms of garnering resources. Most people agreed that capacity-building for communities should be a part of the rule.

Participants agreed that the following issues would also affect the regulation:

- Uncertainty and how much is *not* known about the nature of risk; but this uncertainty should not keep us from taking action.
- Different types of sites may need different regulations because of the nature of the material being cleaned up. Examples include coal ash and other NORM sites.

## **PUBLIC COMMENT/DISCUSSION WITH SUBCOMMITTEE**

**Question:** *The current effort that 's going on here, the radionuclide major source definition, will it be applied through the Clean Air Act and the radionuclide NESHAPs (National Emission Regulations for Hazardous Air Pollutants)? If not, the regulated industry will be dealing with the problem of dual regulations?*

**Response** (Durman): Those regulations are also the responsibility of this office so there shouldn't be a problem of incompatibility between this regulation and the Clean Air Act as it deals with radionuclides.

**Question:** *Management of mixed waste is going to be a problem before you deal with site cleanup and future land use. A technology-based debris rule was passed last year dealing with treatment and disposal of hazardous debris. If EPA comes up with a risk based rule now, how can you avoid thoroughly confusing the regulated community and interested stakeholders?*

**Response** (Durman): We are concerned with the problem of mixed waste, but it's not an issue we think we'll be able to make major progress on in the course of this cleanup rule. We are in discussions with RCRA and CERCLA people, we are going to be able to disentangle some of these mixed waste issues in the waste management rule.

### **Comment:**

- Maybe a different set of regulations could be promulgated to deal with different types of waste problems since some of them are so unique.
- Want to bring into this room what was brought to all of the NRC workshops: concept of adopting returning to background as a regulation. The way this is talked about seriously is that local entities would be involved in establishing what the range of natural variability of the key radionuclides in that area are, and then going for a number that's within that range. Clearly there are some sites at which we can't do this, so there is an acknowledgment of a two-tier, of a non-release situation, but we're very far from knowing what that looks like;
- Look to the drinking water regulation in which the EPA does acknowledge that there is no safe level for radionuclides in drinking water. Radiation regulation should acknowledge there is no safe level;
- A stringent regulation would save money -- pollution prevention;
- License termination is by definition deregulation; last year the National Environmental Policy Act put some language in that says if waste is deregulated after the date of that act, states can set a more stringent regulation;
- A suggestion on the issue of risk that pertains to non radiological risk: industrial work hazards should be treated like background. Consider those risks as a background level that exist in any industrial operation. Should not be allowed to be factored into the considering a radiological criteria that will affect the public.

- This issue of measurability is going to be critical and needs to be dealt with up front. Concern about EPA using existing data. Challenge the Agency to do a full scale site characterization at something they think might be measurable. We would then have real data on what these impacts would be.

## **SECOND ISSUE: FUTURE LAND USE AND STATE AND LOCAL STATUTES**

*Durman* introduced this issue for discussion. He said that the movement toward looking at future use as an indicator of cleanup is an exciting one within all the affected agencies, but noted it is still quite controversial. The notion that a site might *not* be cleaned up to residential use regulations is a fairly strong diversion from past philosophy, and needs careful review. *Durman* listed different categories of land use adding that there may be mixed uses at any site in the future. He then posed the following questions to the Subcommittee:

- How should the Agency look at reasonable future land uses at radiation sites?
- What is the relationship between cleanup levels and possible future land uses?
- How should the Agency develop reasonable future use scenarios for a site?
- What institutional controls, including state and local statutes should accompany future land uses?

With less than an hour left in the first day of the meeting, the Subcommittee agreed to freely discuss all the topics above, and try to get closure the next day.

### ***Importance of Local Involvement/Control***

Several members emphasized the importance of local involvement and control in determining future use. Some had experience with release of land, and with looking at future uses. All agreed that a process to garner clear, local input and buy-in about future use possibilities was essential.

Some members provided a reminder that land use planning is the purview of local governments, and they frequently have excellent resources to help manage the exchange between the agencies and the community about future use options.

There was a reprise of the theme that local communities may not have the capacity to take care of sites (monitoring, community education, enforcement of institutional controls, health studies) that are not cleaned up to levels which would allow "unrestricted" use. Solutions to this potential problem were repeated: there could be grants to local communities, and other methods of capacity building. The advances in local control of waste water treatment was offered as a reminder that in just a few short decades local communities have been able to build and maintain the capacity to handle complex site and resource management tasks.

### ***Future Use: Concerns and Supports***

There was no consensus within the group that future use as an indicator of cleanup levels was a good policy to pursue. Concerns included:

- Difficulties in controlling groundwater with surface use restrictions; groundwater frequently "goes it's own way".
- Concern that future use may be a panacea, and become too large a safety valve for the agencies; perhaps *de facto*, absolving those responsible from cleaning up further, even if it becomes possible to do further clean up.
- Future use may be a useful concept to "get us moving", but does it think ahead to seven generations?
- Future use discussions always seem focused on the notion that industrial uses may not require the same level of cleanup as residential uses. This may be short sighted; some of the industrial uses were created with no regard to historic uses, especially by Native Americans.
- Liability for cleanup remains a huge issue. If land is "released" for an alternate use, but risk regulations change overtime, all previous technical and policy decisions may have to be thrown out and the wisdom of "releasing" the land will be questioned. One member of the Subcommittee had experience with this happening in his state.
- Continued federal involvement over the long term with released sites will require sophisticated interaction with local government and understanding of how local planning decision are made. This will make the release of partially cleaned sites, premised upon some level of federal oversight, difficult to manage.
- Governments fail and nations change. Any institutional controls or use restrictions may be forgotten in future eras. One member offered that no future use should be allowed if it would pose a "clear and present danger" to future generations if the institutional controls were not in place.
- Fears institutional memory will be lost in the context of an agency or local government retaining a partially remediated site, forgets, and turns it into a residential redevelopment area.
- Problems of institutional memory can be alleviated through recorded restrictions in deeds, amendments to local general plans, indemnities, etc.

### ***Future Use Considerations***

One member offered five criteria to be considered as potential future uses are being discussed for any particular site:

- Extent of hazard.
- Cost of cleanup.
- Concern of local community.
- Technical feasibility, and
- Environmental impacts.

### ***Support for Considering Future Use***

Several members offered their thoughts on why it is important to begin looking to future use as a vehicle for both targeting and expediting cleanup:

- The model of CERCLA doesn't work anymore; it just doesn't make sense to spend millions capping and fencing sites, and not allowing other uses of the site, even though the site might be "cleaner" than surrounding industrial sites.
- If we can be clear about future use, it allows resources to be maximized. For instance, a cap can be a parking lot if there is advance planning. But local coordination and involvement is a must, as well as helping the Agency think of it's role a little more broadly than simply cleanup.
- There is a reason why industrial land has developed overtime, and that many of these sites are in industrial areas. Under the "do no harm" concept, it makes sense to release lands, even if they are not cleaned up to pristine levels, for industrial use.
- Looking to future use gets us away from CERCLA's "all or nothing" approach.

### ***Shaping How Future Use Can Work***

Subcommittee members had a variety of ideas for practical considerations for how to make future use processes successful. Some of these ideas were borne of actual experience with such processes:

- Again, the theme of local involvement and perhaps even local control.
- Assume that institutional controls *will* eventually break down, but don't let this fear of future change cause undue paralysis. One member illustrated this point by taking the concern about the failure of institutions in the future to its extreme: If our government fails, we may have bigger problems than risks at former radiation cleanup sites. Fear of the future shouldn't prevent rational decisions now.
- It will be important to distinguish between waste management sites and sites where cleanup has occurred. The nature of institutional controls for each will be very different, and require different levels of vigilance to make sure they stay in place.
- Build in allowances for future technological advances; perhaps by suggesting periodic revisiting of sites. But don't let the promise of future technological advances keep progress from being made now.

### **PUBLIC COMMENT/DISCUSSION WITH SUBCOMMITTEE**

*Bean* invited public comment on the issue of land use.

#### ***Comment:***

- If there is residual radioactivity left at the site, and the site is being restricted for what will probably be other hazardous facilities, this local community now not only has to deal with impacts from the operations we are now terminating, but also they now will have to deal with the same for the ongoing future. The



regulation has to look at that.

- We have to start talking about endowing these sites. Spend the money today or endow the same amount of money into an investment for that site.

The meeting adjourned at 4:35 p.m. with the promise that future use considerations would be continued the next morning.

## DAY 2

October 19, 1993

### RECONVENE

*Bill Dornsife* welcomed Subcommittee members back and asked if there were new observers who were not in attendance at the previous day's meeting. *Martha Bean* reviewed the agenda for the day, and the Subcommittee discussed how the results of this meeting would be prepared and used by EPA. Several members said they might send in additional thoughts or technical details not captured in the summary of this NACEPT meeting. This was encouraged by ORIA staff.

### CONTINUED DISCUSSION OF FUTURE LAND USE

*Bean* gave an overview of the discussion from the day before on future use. Themes that emerged were:

- A *process* is necessary if future use is to figure into site cleanups.
- *Local communities* should have a strong role in any future use process, internal controls to support monitoring, etc., of sites should be actively built.
- There was no agreement about *federal role*, but Subcommittee members agreed that a federal role would help bring national interests to the table in local future use discussions.

Cautionary tales were also told about potential problems. Most of these focused on issues of *liability* if risk standards change, and on concerns that institutions might "*lose the memory*" over time that contamination exists at a site. Finally, there was concern that the "*will to clean up*" might be lost if people or governments become complacent with less than pristine land uses on a contaminated site.

*Durman* noted that the Agency will, in some way, incorporate the consideration of future use in the rule. He said he believed he heard general support for this during Monday's discussion. The big question that remains is how to do this. *Durman* said he also heard the theme of a "process" with local participation, and would like to see such a process fleshed out. He also wanted to hear more about the relationship between cleanup levels and future land uses. Finally, he was interested in learning what institutional controls might be best? Do we have more confidence in certain kinds of controls over others?

***Basic Philosophy Behind Future Use***

A member said that the group should not "skate over" basic questions of philosophy before giving advice on the details of future use processes and mechanisms for instituting them. The basic question is "Do we really believe that doing something (e.g., cleaning up to a level that allows some form of restricted use) is better than doing nothing?"

Most people, through the course of the morning, agreed that yes, "doing something is better than nothing." There were many cautions and caveats to this, which are cataloged later in this summary.

One member felt strongly that the issue is miscast if we think in terms of "doing something is better than nothing". Maybe we should change our perspective; we should not assume we are "settling for something less than desirable" if we can't or don't clean up to pre-contamination levels. We shouldn't assume that the only reason for looking at future use is because we don't have a complete technical solution today. In many cases, it may actually be unnecessary to spend the money to get all the way back to a pristine state, and it is therefore *preferable* to cleanup to a standard that allows only restricted use.

One participant said that the movement toward future use is really a way of saying "we are going to set some priorities here by coupling cleanup to land use." This is going to be hard for regulators, because it is a whole different way of regulating. But the fact that it represents a means of priority-setting should be done explicitly, not implicitly. Another person said that it should not be the Agency's job to set priorities; Congress should give direction and guidance.

In a supporting response, another participant noted that the Agency must acknowledge that radioactive cleanup and waste disposal is a long term issue that will take much time, resources and technology to address. And not all of these resources exist today. By looking long term, we can take useful actions today without precluding other possibilities in the future. A systems approach is required.

Discussion of this basic question of philosophy surfaced in conversation throughout the morning. In sum:

- All members of the Subcommittee agreed that future use considerations should be used to help target cleanup, and that a process for considering future use should be incorporated into the draft rule.

It is important to note that two very different perspectives ultimately both lead to the consensus statement above. One perspective is that the consideration of future use is a practical but somewhat regrettable response to the fact that right now we can't always completely clean up a site. Another perspective is that of, future use having merit of its own accord, and is a very positive step toward making remediation more responsive to larger societal needs and values.

**Concerns Regarding Future Use**

Many concerns were raised about future use considerations, and how they might be written into the rule. Oge reiterated that ORIA is looking for a framework to offer, but would not proscribe site uses. Concerns mentioned by the Subcommittee included those listed below:

*(Some people repeated concerns listed in the summary from Monday's meeting).*

- Who has liability for revisiting sites that are not cleaned up to pristine standards? The nuclear industry is clear that if a private site can be released for industrial use, it should not have to be revisited by the original owner as notions of "what is risky" change.
- Restricted use categories should apply only to former sites; new sites should not be allowed to contaminate water or land beyond unrestricted use levels.
- Additional contamination on past sites should be confined to restricted uses should not be permitted beyond what would be normally allowed for the new uses just because a site was contaminated already.
- Future use considerations may not be germane to all sites; especially not sealed source sites, etc. Process should be clear when and where a future use exercise should be used.
- Off-site uses can be affected, also. This is especially true for groundwater. If groundwater is left at "restricted use" standards, institutional controls may need to extend off-site.
- Indigenous peoples do not necessarily look only to risk numbers as the arbiters of whether or not a site should be cleaned up. For Native Americans, some sites may have cultural or religious significance, and this in and of itself may be grounds for remediating a site back to background. Another way to approach this is to say that "historic" use could be a consideration in determining which sites get cleaned up. If a site has had a historic use for Native Americans, perhaps it should be cleaned up to background. But this should be a decision made in concert with the local Indian Nations.
- Future use may become a crutch for not cleaning up a site at all. The analogy was made that if you tell a person you'd like them to work for 60 hours, but it is okay if they only work 40, they will only work 40.
- Thinking about future use is fine, but industry will always have a negative incentive to clean up to the most "clean" standard for unrestricted use unless there is some specific release from liability. Is this what the Agency wants to encourage?
- Land use restrictions as a substitute for limits should be the last cleanup resort.

### ***Reasons for Supporting Future Use***

Several people brought up reasons for supporting the consideration of future use. Some of these reasons were different from those discussed on the first day. They included:

- Remediation can create greater risks than those it is designed to ameliorate. An example is the excavation and movement of contaminated silt in a habitat area. Allowing a restricted use in that area until a better technology develops to clean up the silt is the best choice.
- Limits just flat out don't work when you are dealing with complex sites. A process must be established for dealing with complex sites on a site-by-site basis.

### ***Semantics/Definitions/Meanings***

Throughout the morning, there was a great deal of discussion on the words that are used both in the Subcommittee discussions and in the rule itself. The language that is used was recognized by the group as very important; for different words have different implications. The following suggestions were made, although the group did not take the time to come to general agreement on any of these:

- Use the term "remediation" rather than "cleanup," especially since the rule may not require that the site go back to its original, or pristine state. "Cleanup" implies *all the way* cleaned up; not just *adequate* cleanup.
- Use the term "unrestricted" rather than "residential," this is more inclusive.
- Use the term "restricted" rather than "industrial," this is more inclusive. An example was given that a park with few visitor days may not require cleanup to "unrestricted" levels; there is simply not the opportunity for that much exposure to occur.
- Clarify the use of the terms "goals" and "limits."

### ***Institutional Controls***

The Subcommittee recognized that if future use is used at any given site to help determine cleanup levels, institutional controls would have to be put into place to prevent unsafe exposures. The following points were made through the course of the morning about institutional controls:

- Passive institutional controls (e.g. signs that say "don't dig here") may not be as effective as "positive" institutional controls. An example of positive institutional controls might be environmental monitoring done by the local community, and funded nationally. The local community would be responsible for reporting annually both locally and nationally. National responsibility for such monitoring might lead to complacency or loss of memory.
- Institutional controls for waste management will be very different than for cleanup, and the two should not be confused.

- It must be remembered that we can never *guarantee* that a certain use or a particular set of institutional controls will be respected by future generations.
- Federal ownership may be the best choice for "institutional controls" when it is critical that a site remain in a particular use for several generations. This, of course, pre-supposes that the federal government remains intact.
- Institutional controls should recognize that in many cases radionuclides are easier to stabilize than other toxics.
- Zoning is a local decision, but can locals be counted on to keep a site in a particular use? (There was much discussion, pro and con, about this point).
- Deed restrictions are extremely useful and can also be inserted when land transfers from public to private.
- Institutional controls are useless if they can't be enforced.

### ***Lifecycle Costing and Ecobalance Calculations***

There was some discussion about the importance of looking at all costs and impacts and ramifications of cleanup at any particular site. Some were more familiar with "lifecycle" costing, others with "ecobalance" calculations. Comments on this topic included:

- If we really did look at Ecobalance calculations, we might find surprising results. It might point to leaving some contamination in place where we didn't expect to, moving it away or treating it where we didn't expect to. Ecobalance work is common in Europe.
- A concern about these types of calculations is that they tend to be even "softer science" than risk assessment, and therefore subject to more controversy and manipulation. They can hide policy choices.

### ***Risk Remain the Same***

The group spent several minutes talking about risk and rates of exposure under different land use. The group agreed that:

- Risk standards, and the maximum level of risk these imply, should be the same for all remediated sites.
- For any given site, the actual risk to individuals depends upon the land use. For instance, if the future use is to be a day care center, cleanup must occur to the level that will allow children to eat dirt. If industrial uses are anticipated, and the entire site is to be paved and only trained workers are to be on the site, the risk level may be achieved even if contamination remains on site.

One Subcommittee member said that the public would accept different levels of risk for workers than for the general public. There was a great deal of discussion on this point. Some members disagreed, stating that workers at industrial sites located on or near remediated sites should not have higher risks levels than those accepted for the general public. One member reminded the group that radiation workers are in fact allowed to receive greater doses of radiation on a yearly basis than the general public. Nothing in the upcoming regulation should change this.

***"Tiered" Models for Incorporating Future Use into Site Cleanup Standards***

The Subcommittee discussed, though did not come to agreement upon, a set of steps for incorporating future use into the rule. Below is a description of some of the models put forward, as well as the discussion that ensued from each.

***First "Tiered" Model offered:***

- Step 1:* "No risk" standard: Treated as a goal for all sites. Acknowledges that there is no "safe" threshold. If this cannot be reached, go to:
- Step 2:* "Design" standard: Allows for unrestricted use, and may even be more stringent than is necessary for unrestricted use. It is based on risk; but may also incorporate technology. Acknowledges that cleanup can occur to a level that may not result in "no risk" but none-the-less provides adequate protection. If this standard cannot be reached, go to:
- Step 3:* "Unrestricted Use" standard: Allows for unrestricted uses, and is derived from the doses acknowledged to be at or below an acceptable level of risk. If this standard cannot be reached, or if meeting this standard is not necessary given future use considerations, go to:
- Step 4:* "Never to Exceed" standard. Allows for certain types of restricted uses (e.g. industrial) with specific (perhaps even site-specific) institutional controls. Some felt that sites meeting the Step 4 standard should be revisited periodically to see if technology might allow more complete cleanup, and/or if additional cleanup was necessary given the uses of the site.

***Second "Tiered" Model Offered***

The Washington State Model Toxics Control Act allows for different approaches to cleaning up sites. These approaches, called methods, present a variety of options for handling sites with different characteristics.

- Method A:* Provides specific risk-based cleanup levels (numbers), risk based, that allow residential use.
- Method B:* Provides specific risk-based cleanup levels (numbers), risk based, that allow industrial use.
- Method C:* Provides specific risk-based cleanup process steps to follow at complex sites with multiple contaminants.
- Method D:* Provides specific risk-based cleanup Institutional Control standards where you have to leave material behind. These may incorporate A, B and C above.

Result of this law is that many sites are done independently, with private initiative. The Act allows for a site to be considered "out" of the system if and when it is cleaned up to the appropriate "method" step above.

### ***Acceptable Versus Achievable Risks***

The group spent a great deal of time discussing whether the "first step" of the tiered portion of rule/standard should be acceptable risk or achievable risk. One member noted that we can nearly always get to acceptable risk by restricting land uses and imposing institutional controls. A member noted that the 'goal' of unrestricted use should be kept firmly in mind. Another member noted that the only "acceptable risk" is that which we do to ourselves, and of our own volition.

Similarly, some Subcommittee members expressed concern that the Agency not "quote itself" by referencing precedents in other laws. Acceptable risk should be from a health standpoint, not based on what has been written into other laws.

Finally, there was considerable discussion, with no resolution, on whether the standard should be risk based, dose based, or technology based.

### ***Local Control***

Throughout the day there was continued discussion of and support for strong local roles in determining future use options for sites. Additional ideas included:

- It is essential to consult early and thoroughly with Indian Nations who have environmental, religious, economic and cultural interests in sites. In some cases, there may need to be a treaty search to make sure all parties are identified.
- Local communities have the resources and the mandate to do land use planning; it is essential that they be consulted early.
- Future uses for a large, complex area may be best done by pulling together a group of stakeholders, like the Hanford Future Site Uses Working Group or the Site Specific Advisory Boards (SSABs).
- EPA should have a "meet and confer" requirement with local planners; planners and elected officials should have binding agreements with appropriate federal agencies to put restrictions into local plans.

### ***Different Standards for Different Types of Sites***

Many people brought up the fact that what works for a Hanford or a Savannah River might be completely unacceptable for "smaller" sites. In fact, the same standards could be totally unworkable for places like labs, universities and medical facilities. EPA should explore more than one standard to accommodate these differences.

## **PUBLIC COMMENT/DISCUSSION WITH SUBCOMMITTEE**

### ***Comment:***

- Cleanup levels and risk relating to contamination in the soil. You are basically asking for a gridlock for cleanup because there will be no place to put it. Institutional controls should be the first order. Not removal, because there is no place to put it.
- Regarding institutional memory: Deed restrictions are enforceable - one member noted it as the best mechanism to restrict land .
- Regarding industrial land use and risk. Institutional controls maintain the risk.
- Institutional controls should be commensurate with an accurate and responsible characterization of source term at the site - this is a reflection of one members belief that new numbers have to be generated from studies before institutional controls are put into place. Sites which have a hazardous life in the range of a generation, should be separated from those that do not.
- Money helps people remember. Consider quality and what that means in terms of the level of dialogue when you empower a community and people are given the understanding and knowledge.
- What are the implications to the local community of saying we'll come back in 10 years when in fact there is no immediate containment of radionuclides.
- Is EPA planning other outreach on this rulemaking? In terms of reaching the general public who will be affected by this rule, there needs to be more notice.

***Response*** (Oge, EPA): We plan to have a couple of public meetings in the early winter.

***Question*** (Bean): *What is the best way to get to your constituency?*

***Comment:*** Newsletters, phone trees, etc. are a good way to get the word out. FACA committees are not the same thing as public outreach.

***Question: Time line: This is a very major agency decision. Frankly not possible for our infrastructure to work within this time frame. Why are we going so fast?***

***Response*** (Oge, EPA): We have been working on this for a year, there is a lot of need to get something out at least in a proposal form which we plan to do in the form of a proposed rule, which will then take a year to 18 months to finalize. We appreciate your comments and agree that public comment is important, and we would like to work with you so that your constituency knows of the activities we are undertaking. We will be working with the state agencies in a separate forum. We do agree with you.

***Response*** (Durman, EPA): Information is available by accessing the computerized bulletin board. We do have the information on-line and available, we have an extensive mailing list.



**Question:** Does EPA have to do a Generic Environmental Impact Statement like NRC?

**Response (Oge, EPA):** We'll do a regulatory impact analysis and a cost-benefit analysis. We will look at risk, cost and benefits of each one of the regulatory options that the agency is considering.

**Comment:**

- Regarding land use: RCRA and CERCLA already utilize land use. The precedent is to clean up to industrial standards and you're done. That precedent is important in not letting perfect become the obstacle of good in getting people motivated to do these cleanups and not have this liability forever holding over people's heads.
- Regarding comparisons being a soft science. I disagree because if you compare the impact of industrial accidents in transporting the soil, the data, if anything is harder; statistics have been kept for years. It is easy to say that if we remove soil we reduce activity, i.e. - lessen the number of employees injured. Along the same lines, this issue of ecological decimation is somewhat qualitative. These comparisons must be made in developing the rule and setting the standard, and they can and will be made on a site specific-basis.
- Regarding the waste management infrastructure: Pennsylvania fought over the decommissioning issue. Put future permittees on notice that we probably will not accept all of the decommissioning waste that is going to be generated at the low level waste facilities. There will have to be another part of waste management infrastructure to take some of this contaminated soil like what is currently being done with Envirocare.

## **PUBLIC INVOLVEMENT**

*Durman* recapped the public involvement questions EPA is considering in the rulemaking:

- What role should the public play in site-specific decision making?
- What issues can be resolved in a generic national rule-making, and which issues need to be resolved on a site-specific basis?
- Are the existing public involvement processes used by EPA adequate for use at radiation sites?
- What we need to know is, what are the appropriate decisions and what works.

There was some discussion among subcommittee members as to whether or not public involvement was/should be within the scope of this rulemaking. Oge responded by saying that EPA is very interested in how the public can be utilized both in setting criteria and monitoring the success of current and future activities at a site.

### ***Ideas for Public Involvement***

- Not orchestrated by liable parties.
- Early, continuous and meaningful.
- Notice and comment is not the same as ongoing involvement process.
- EPA helps by officially encouraging a structure.
- Involvement and ratification by the local government.
- If restricted uses implemented need to have increased public involvement.
- Be creative and thorough in identification of stakeholders.
- Involvement from tribes essential - government to government effort.
- Provision for a local inspector to shut down operations.
- Role for independent scientific investigation.
- Risk acceptable in light of a tradeoff on disruption.
- Set up local education programs.
- Institutional memory as part of the monitoring.
- Role for public in negotiating tradeoffs - not just identifying them.
- Early involvement of local groups including technical assistance grants, and ways of making information available.
- Public involvement regarding transportation issues and planning the cleanup itself.

### ***Concerns Regarding Public Involvement***

- How do you resolve the tension between local control and a NIMBY impulse?
- How do you get the national interests expressed in the local decisions?

## PUBLIC COMMENT/DISCUSSION WITH SUBCOMMITTEE

### *Comment:*

- How are you going to talk to the public? We need to train ourselves to deliver messages in ways that can be understood - and this has not been addressed.
- Identification of stakeholders: Unfortunately, we tend to omit that as the most difficult part of the job. One of the issues we are running into is the environmental justice groups.
- Site Specific Advisory Boards can help once they are established. They have limited membership - need to have subcommittees and still bring in even more people if you were to use them as your basis of public involvement.
- I like the idea of a multi-tiered system perhaps with some restricted use at the end. It seems a lot of public participation is geared toward how that particular site will be managed, which I think is beyond the scope of this regulation.

## WRAP-UP

As a conclusion to the two days, Bean then invited each of the Subcommittee members to revisit their goals expressed at the outset of the meeting and assess whether or not their expectations had been met.

*Fletcher:* In order to ensure rules are implementable, states that are doing their own regulations need to be involved in the rulemaking process. How do we actually get the public involved in cleanup efforts to the level we want and that we can handle. We can't get away from the questions, "What can we actually accomplish? How will this affect our credibility with the public?"

*Sarno:* Unfortunately we are only meeting twice, we will miss a step. Next time think of this involvement earlier in the process.

*Hurley:* Most important to leave EPA with the message that state and public participation is essential in rulemaking. Keep the CERCLA program in mind: it is important to have consistency across these programs.

*Babich:* Two main messages are, first consistency and second, who implements the standard. The level of discussion exceeded my expectations - and stimulated my own thought.

*Niedelski-Eichner:* Don't forget about local government in this, and public involvement in issues of hazardous waste management and public confidence. Think in terms of federal, state, local and public.

*Makhijani:* Mixed wastes must be factored into this rulemaking. Underlying focus on cancer risk is not adequate, also non-cancerous effects need to be considered.

*Dolan:* Would like to reiterate that we are going to be regulating different types of facilities. Need a context or tiered approach to handle some of the smaller facilities. Needs to be addressed in rulemaking, not in other guidance.

*Jansen:* Intra- and inter-agency consistency. At the next meeting, would like to hear more about waste management issues.

*Wiltshire:* Clarity, Consistency and Confidence. We need to be clear about the differences between and among the different sites you're regulating.

*Kearfott:* Optimistic that EPA can quickly get a rule in place. I think EPA needs to establish itself as the center of a broad limits system with local involvement in land use decisions for specific sites.

*Veiluva:* 1) We have to bridge the gap between public perception and the administrative nature of the problem and the cost/benefits and explain the assumptions and uncertainties you are facing. 2) think about priorities and process, and implementation. 3) discussion of public participation in implementation process.

*Dornsife:* I don't think state issues were well covered. The issue of verifiability was well discussed. The waste management infrastructure and other waste (like NORM) need to be discussed at next meeting. Also "can states be more stringent," needs to be discussed.

As chair I can truly say this is probably the most productive committee I've been involved with. Your input is valuable. The radiation standard is probably the most important standard being developed. Stay involved in the issue.

*Oge:* I am delighted. My expectations were realized. A committee is only as good as it's members. When we come back in February we will be able to use the input you have given us. I hope that we will be able to bring forward at the same time the NRC proposal. We'll talk with Martha and Bill about waste management issues.

*Durman:* We built on the NRC process, got helpful suggestions, you gave us some useful guidance on difficult questions.

The meeting was adjourned at 2:30 PM.

## **AGENDA**

National Advisory Council on Environmental Policy and Technology (NACEPT)  
Subcommittee on Radiation Cleanup Standards

Hall of the States  
444 North Capitol Street  
Rooms 283/285

### **FIRST DAY**

Monday October 18, 1993

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**Purpose of the meeting:** to convene the NACEPT Subcommittee, to discuss the radiation cleanup standard rule making and the Subcommittee's work, to provide background on key issues, and to discuss and offer comment to EPA on those issues.

9:00 am	<b>WELCOME &amp; INTRODUCTIONS</b>	<i>Margo Oge, Office Director</i>
9:15 am	<b>SUBCOMMITTEE INTRODUCTIONS</b>	<i>Oge, ORLA Staff, Members of Subcommittee</i>
10:20 am	<b>AGENDA REVIEW</b> Section by section review of the two days.	<i>Bill Dornsife, Subcommittee Dornsife, and Martha Bean, Facilitator</i>
10:30 am	<b>BREAK</b>	
10:45 am	<b>GOALS/CONTEXT</b>	<i>Gene Durman Deputy Office Director</i>

*NACEPT Subcommittee on Radiation Cleanup Regulations*

11:00 am	<b>PARALLEL PROCESSES</b>	<i>Durman, representatives of DOE and NRC, Bean</i>
11:30 am	<b>OVERVIEW OF KEY ISSUES</b> ORIA will give an overview presentation on the three key issues they would like to discuss with the NACEPT Subcommittee.	<i>Durman</i>
11:45 am	<b>DISCUSSION</b>	<i>Durman, Bean, Dornsife</i>
Noon	<b>PUBLIC COMMENT</b>	
12:30 pm	<b>LUNCH</b>	
1:30 pm	<b>ISSUE: CLEAN UP LEVELS AND RISK LEVELS</b> EPA is interested in learning from the NACEPT Subcommittee: <ul style="list-style-type: none"><li>● Considering existing regulations and current practices, what is an acceptable cleanup level?</li><li>● What level of risk, as an incremental increase over background, should be achieved in site cleanup to protect human health and the environment?</li><li>● What is the role of technological feasibility and cost of cleanup in the selection of cleanup levels?</li></ul> <i>Please review Section 2.2 of the Issues Paper, Table 1 on page 7, and "Cancer Risk Management" by Travis et al.</i>	<i>Durman, Bean, Dornsife</i>
3:00 pm	<b>BREAK</b>	

*NACEPT Subcommittee on Radiation Cleanup Regulations*

3:15 pm	<b>ISSUE: FUTURE LAND USE AND STATE AND LOCAL STATUTES</b> EPA is interested in learning from the NACEPT Subcommittee: <ul style="list-style-type: none"><li>● How should the Agency look at reasonable future land uses at a radiation site?</li><li>● What is the appropriate relationship between cleanup levels and possible future land uses?</li><li>● How should the Agency define the reasonable future land use scenarios for a site?</li><li>● What institutional controls, including State and local statutes, should accompany alternative future land uses?</li><li>● What is the Federal role?</li></ul> <p><i>Please review Section 2.3 of the Issues Paper, "Institutional Controls at Superfund Sites," and the Hanford Future Site Uses Report.</i></p>	<i>Durman, Bean, Dornsife</i>
4:45 pm	<b>WRAP-UP</b> Summarize discussion and review accomplishments of the day.	<i>Dornsife with Bean</i>
5:00 pm	<b>ADJOURN</b>	<i>Dornsife</i>
Evening	<b>SOCIAL HOUR</b>	

## AGENDA

National Advisory Council on Policy and Technology (NACEPT)  
Subcommittee on Radiation Cleanup Standards

### SECOND DAY

Tuesday, October 19, 1993

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- 9:00 am     **WELCOME & INTRODUCTIONS**     *Dornsife, Bean*
- 9:15 am     **ISSUE: SITE-SPECIFIC PUBLIC INVOLVEMENT**     *Durman, Bean,*  
EPA is interested in learning from the NACEPT     *and Dornsife*  
Subcommittee:  
    • What role should the public play in site-specific decision making?  
    • What issues can be resolved in a generic national rule making, and which issues need to be resolved on a site-specific basis?  
    • Are the existing public involvement processes used by EPA, as well as evolving public involvement processes, adequate for use at radiation sites?
- Please review chapter 3 of the Interim Report of the Federal Facilities Environmental Restoration Dialogue Committee (February 1993), and the two Superfund Fact Sheets entitled, "Public Involvement" and "Superfund Technical Assistance Grants."*
- 10:45 am     **BREAK**
- 11:00 am     **PUBLIC COMMENT**
- 11:30 am     **REVIEW OUTSTANDING ISSUES**     *Bean, Chandler,*  
We will identify issues that still require discussion, and     *Dornsife*  
identify issues where we might be able to achieve consensus with more work. We will agree to a process for discussing these.



*NACEPT Subcommittee on Radiation Cleanup Regulations*

Noon	<b>LUNCH</b>	
1:00 pm	<b>CONTINUED DISCUSSION OF OUTSTANDING ISSUES</b>	<i>Bean, Chandler, Dornsife</i>
2:00 pm	<b>SUMMARY/NEXT STEPS</b> We will review what will go into the summary; confirm the next steps for the NACEPT Subcommittee and their product.	<i>Bean, Chandler, Durman, Dornsife</i>
2:30 pm	<b>ADJOURN</b>	<i>Dornsife</i>

## LIST OF ATTENDEES

National Advisory Council on Environmental Policy and Technology (NACEPT)  
Subcommittee on Radiation Cleanup Regulations

Hall of the States  
444 North Capitol Street  
Rooms 283/285  
Washington, DC

October 18-19, 1993

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**Status of Funds (ORIA)**

**Status of Funds (RSD)**

**Superfund Memo's**

**Supply Store Receipts**

**Telecommunications Info.**

**Telephone Service Requests**

**Temp. Promotion**

**Training Announcements**

**Training/Course Registration**

**Training & TQM Calendar**

**Transmittal**

**Travel**

**Travel Vouchers**

**TRB Study Econ. Regulation**

**TRG Work Assignments**

**Union Move Documents**

**RSD Budget 91**

**RSD Budget 92**

**RSD Budget 93**

**RSD Budget 94**

**RSD Program Info.**

**RSD Training**

**Seperation or Trans. checklist**

**Significant Activities**

**SF 171's**

**SF Budget 91**

**SF Budget 92**

**SF Budget 93**

**SF Budget 94**

**SF Travel**

**Space**

**Staff Meetings**



## **RSD FILES**

**AARP**

**Account #'s**

**Activities Report**

**Auth. to Work Overtime**

**Bankcard Logs**

**Bankcard Receipts**

**Bankcard Statements**

**Claim for Reimbursement**

**Clean-up Training**

**Clean-up Travel**

**Communications**

**Computer Equipment Bills**

**Computer Inventory List**

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# EPA Radiation Site Cleanup Regulations

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# Goals of Rulemaking

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- **Six goals of the radiation site cleanup rule:**
  - **Protective of human health and the environment**
  - **Streamline radiation cleanup process**
  - **Acceptable to the public**
  - **Cost effective/affordable**
  - **Implementable**

## **Schedule of Rulemaking**

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- |   |                      |
|---|----------------------|
| <b>1. Draft of Proposed Rule Making</b> | <b>December 1993</b> |
| <b>2. Second NACEPT meeting</b>         | <b>February 1994</b> |
| <b>3. OMB Review</b>                    | <b>Summer 1994</b>   |
| <b>4. Publication of Proposed Rule</b>  | <b>Fall 1994</b>     |
| <b>5. Final Rule Promulgated</b>        | <b>Fall 1995</b>     |

## **Goals of Meeting**

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- **Describe issues**
- **Get your comments**
- **Provide a summary of your comments**
- **At a second meeting:**
  - **Report back to you**

## **Other Activities in EPA**

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- **Waste Management Rule**
- **Draft Federal Radiation Protection Guidance**
- **Superfund Program**
  - **Draft Soil Screening Levels**

# Site Characterization Scheme

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- |  |   |
|--|---|
| 1. Mines and Mills                         | 10. Accelerators                          |
| 2. Enrichment                              | 11. Fusion Facilities                     |
| 3. Fuel/Target Fabrication                 | 12. Nuclear Test Sites                    |
| 4. Reprocessing Facilities                 | 13. Weapons Accidents and Safety Tests    |
| 5. Reactors                                | 14. Depleted Uranium                      |
| 6. Research/Biomedical/<br>Analytical Labs | 15. Waste Management                      |
| 7. Industrial/Commercial                   | 16. Waste Disposal                        |
| 8. Sealed Source Users                     | 17. Naturally Occurring Radioactive Waste |
| 9. Nuclear Medicine<br>Departments         | 18. Entire Facility                       |

**Intentionally Left Blank**



## **Building on the NRC Process**

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- **Unrestricted use -- Not always best goal**
- **Involve:**
  - **Tribes**
  - **States**
  - **Local Governments**
- **Costs are staggering**

# **Key Issues**

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- I. Cleanup Levels and Risk Levels**
- II. Future land use**
- III. Site specific public involvement**

## **Issue I: Cleanup Levels and Risk Levels**

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- **What is an acceptable cleanup level?**
- **What level of risk, above background, should be achieved in site cleanup?**
- **What role should technological feasibility and cost play in the selection of a cleanup level?**

## Dose vs. Risk

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Dose/year		70 year exposure	30 year Exposure
1	mrem =	$4.4 \times 10^{-5}$	$1.9 \times 10^{-5}$
2	mrem =	$8.8 \times 10^{-5}$	$3.8 \times 10^{-5}$
3	mrem =	$1.3 \times 10^{-4}$	$5.6 \times 10^{-5}$
4	mrem =	$1.7 \times 10^{-4}$	$7.3 \times 10^{-5}$
5	mrem =	$2.2 \times 10^{-4}$	$9.4 \times 10^{-5}$
10	mrem =	$4.4 \times 10^{-4}$	$1.9 \times 10^{-4}$
15	mrem =	$6.6 \times 10^{-4}$	$2.8 \times 10^{-4}$
25	mrem =	$1.1 \times 10^{-3}$	$4.7 \times 10^{-4}$
100	mrem =	$4.4 \times 10^{-3}$	$1.9 \times 10^{-3}$

## **Future Land Use**

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- **Residential/Agricultural**
- **Industrial/Commercial**
- **Disposal**
- **Recreational**
- **Reserve/Natural**

**Remember: Any site, in the future, may have mixed uses.**

# **Future Land Use**

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**Consider:**

- **Current land use**
- **Local agreements (zoning/plans)**
- **Historic**
- **Most intensive use**
- **Highest exposure**

# **Potential Restrictions on Future Land Use**

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**Physical barriers**

**Zoning restrictions**

**Deed restrictions**

**Building permit requirements**

**Well drilling prohibitions**

**Easement**

**Irrevocable trust**

**Permanent government ownership**

## **Issue II:**

# **Future Land Use: State and Local Statutes**

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- **How should the Agency look at reasonable future land uses at radiation sites?**
- **What is the relationship between cleanup levels and possible future land uses?**
- **How should the Agency develop reasonable future use scenarios for a site?**
- **What institutional controls, including state and local statutes, should accompany alternative future land uses?**



## **Issue III: Site-Specific Public Involvement:**

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- **What role should the public play in site specific decision making?**
- **What issues can be resolved in a generic national rule making, and which issues need to be resolved on a site-specific basis?**
- **Are the existing public involvement processes used by EPA adequate for use at radiation sites?**

# **How People at Sites Can be Involved in Superfund**

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- **Citizen petitions**
- **TAG grants**
- **Public Comment Periods on:**
  - **Administrative record**
  - **RI/FS**
  - **Remediation Plan**
- **Information exchange**
- **Fact Sheets**
- **Public Meetings**
- **RCRA/CERCLA Hotline 1-800-424-9346**

# **Public Involvement Process**

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## **Formation of site-specific advisory boards (SSABs):**

- **Regular, early, and effective public participation in decision-making process**
- **Public forum for information exchange**
- **Review and evaluation of cleanup plans**
- **Acceptability Mechanism: Federal agencies respond to SSAB members and SSAB members respond to Federal agencies**