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ACNW-0014
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14TH ACNW MEETING
OCTOBER 11-13, 1989

DESIGNATED ORIGINAL

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statement for the proposed license amendment.

Based upon the foregoing environmental assessment, we conclude that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the request for amendments dated March 9, 1989, which is available for public inspection at the Commission's Public Document Room, 2120 L Street, NW., Washington, DC 20555, and at the State Library of Pennsylvania, Education Building, Walnut Street and Commonwealth Avenue, Box 1601, Harrisburg, Pennsylvania 17105.

Dated at Rockville, Maryland, this 19th day of September 1989.

For the Nuclear Regulatory Commission.

Walter Butler,

Director, Project Directorate I-2, Division of Reactor Projects I/II, Office of Nuclear Reactor Regulation.

[FR Doc. 89-22725 Filed 9-25-89; 8:45 am]

BILLING CODE 7590-01-M

Nuclear Waste Advisory Committee; Meeting

The Advisory Committee on Nuclear Waste (ACNW) will hold a working group meeting on October 10, 1989, 1:00 p.m.—5:30 p.m., room P-110, 7920 Norfolk Avenue, Bethesda, MD. The following topics will be discussed:

(1) Draft Technical Positions on Tectonic Models, Seismic Hazards and Volcanism

(2) State of Nevada and DOE Responses on Tectonic Model Technical Position

(3) Related technical topics.

Procedures for the conduct of and participation in ACNW meetings were published in the Federal Register on June 6, 1988 (53 FR 20699). In accordance with these procedures, oral or written statements may be presented by members of the public, recordings will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Committee, its consultants, and Staff. The Office of the ACRS is providing Staff support for the ACNW. Persons desiring to make oral statements should notify the Executive Director of the Office of the ACRS as far in advance as practicable so that appropriate arrangement can be made to allow the necessary time during the meeting for such statements. Use of still, motion picture and television cameras during this meeting may be limited to selected portions of the meeting as determined by the ACNW Working Group Chairman. Information regarding the time to be set aside for this purpose may be obtained by a prepaid telephone call to the Executive Director of the Office of the ACRS, Mr. Raymond F. Fraley (telephone 301/492-4516), prior to the meeting. In view of the possibility that the schedule for ACNW meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the ACRS Executive Director if such rescheduling would result in major inconvenience.

Dated: Dated: September 19, 1989.

Richard Major,

Chief, Review Group No. 1.

[FR Doc. 89-22647 Filed 9-25-89; 8:45 am]

BILLING CODE 7590-01-M

Advisory Committee on Nuclear Waste; Meeting

The Advisory Committee on Nuclear Waste (ACNW) will hold its 14th meeting on October 11-13, 1989, 8:30 a.m.—5:00 p.m. each day, Room P-110, 7920 Norfolk Avenue, Bethesda, MD. The purpose of this meeting includes:

(1) Review the rule being prepared by the NRC staff concerning the considerations of anticipated and unanticipated processes and events for the proposed high-level waste repository.

(2) A review of "IAEA Safety Principles and Technical Criterion for the Underground Disposal of High-Level Radioactive Wastes," and the NRC staff position paper on this standard.

(3) A discussion of EPRI views with respect to the high-level waste repository program.

(4) A status report of recent developments regarding EPA's standard, 40 CFR 191, "Environmental Radiation Protection Standards For Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes."

(5) Progress Report by the NRC staff on LLW Performance Assessment Methodology for information and comments.

(6) NRC staff position and draft proposed rule for LLW manifest for information and comments.

(7) Review of the Technical Position on Earthquake Hazards.

(8) A status report of EPA criteria for the treatment, storage and disposal of mixed radioactive and hazardous waste.

(9) A status report by the NRC staff and an opportunity to offer preliminary comments on the Substantially Complete Containment Definition.

(10) A status report on the waste acceptance process for defense and West Valley wastes.

(11) Review the Technical Position on the "Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites."

(12) Report and consideration of topics considered during the October 10, 1989 ACNW Working Group session. Possible topics include: completion of review of the Technical Position on Tectonic Models, exploration of issues involving volcanism, and DOE's geophysical program.

(13) An administrative session to discuss anticipated proposed Committee activities, future meeting agendas, and organizational matters, as appropriate.

Procedures for the conduct of and participation in ACNW meetings were published in the Federal Register on June 6, 1988 (53 FR 20699). In accordance with these procedures, oral or written statements may be presented by members of the public, recordings will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Committee, its consultants, and Staff. The Office of the ACRS is providing Staff support for the ACNW. Persons desiring to make oral statements should notify the Executive Director of the Office of the ACRS as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements. Use of still, motion picture and television cameras during this meeting may be limited to selected portions of the meeting as determined by the ACNW Chairman. Information regarding the time to be set aside for this purpose may be obtained by a prepaid telephone call to the Executive Director of the Office of the ACRS, Mr. Raymond F. Fraley (telephone 301/492-4516), prior to the meeting. In view of the possibility that the schedule for ACNW meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the ACRS Executive Director if such rescheduling would result in major inconvenience.

Dated: September 20, 1989.

John C. Hoyle,

Advisory Committee Management Officer.

[FR Doc. 22648 Filed 9-25-89; 8:45 am]

BILLING CODE 7590-01-M

Wednesday
October 11, 1989, Room P-110, 7920 Norfolk Avenue
Bethesda, Maryland

8:30 a.m.	1.0 Chairman's Comments 1.1 Opening Remarks 1.2 Items of Current Interest
8:~~45~~ 35 a.m.	2.0 Technical Position on Tectonic Models 2.1 Working Group Chairman's Report-(WJH) 2.2 Presentation by NRC Staff 2.3 Discussion
10:~~30~~ 45 a.m.	B R E A K
~~10:45~~ 11:05 a.m.	3.0 Technical Position on the "Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites 3.1 Presentation by NRC Staff 3.2 Discussion
12:~~00 Noon~~ 20 p.m.	L U N C H
1:~~00~~ 20 p.m.	4.0 Progress Report by the NRC Staff on LLW Performance Assessment Methodology for information and comment. 4.1 Staff Presentation 4.2 Discussion
3:00	B R E A K
3:15 p.m.	5.0 A discussion of the Waste Acceptance process for defense and West Valley wastes. 5.1 Staff presentation 5.2 Discussion
4:25 p.m. Break	
4:40 p.m.	Executive Session
~~5:00~~ 6:20 p.m.	R E C E S S

Thursday
October 12, 1989, Room P-110, 7920 Norfolk Avenue
Bethesda, Maryland

8:30 a.m.	6.0	Review of the proposed rule related to considerations of anticipated and unanticipated processes and events for the proposed high level waste resporitory.
	6.1	Staff presentation
	6.2	Discussion
10:~~00~~ 10 a.m.	B R E A K	
11:00 a.m.	7.0	NRC Staff position and draft proposed rule for Low-Level Waste Manifest for information and comment.
	7.1	Staff presentation
	7.2	Discussion
12:~~30~~ 50 noon	L U N C H	
~~1~~:30 p.m.	8.0	Administrative Session to Discuss Anticipated and proposed Committee activities, future meeting agendas, and organizational matters, as appropriate.
	8.1	Future Agenda
	8.2	Field Trips West Valley & Center
~~2:30~~ 3:45 p.m.	B R E A K	
~~2:45~~ 2:00 p.m.	9.0	Preparation of ACNW Reports. Discuss proposed ACNW reports to NRC regarding:
	9.1	APEs & UPEs rule
	9.2	LLW Manifest rule
	9.3	T.P. on Erosion Protection
	9.4	T.P. on Tectonic Models
	9.5	LLW Performance Assessment Methodology
5:00 p.m.	R E C E S S	

Friday
October 13, 1989, Room P-110, 7920 Norfolk Avenue
Bethesda, Maryland

8:30 a.m.	10.0	EPRI/EEI Perspective on the High-Level Waste Repository Program.
	10.1	Presentation by EPRI - Robert Shaw
	10.2	Presentation by EEI - S. Kraft
	10.3	Discussion
10:~~00~~ 15 a.m.		B R E A K
10:~~15~~ 30 a.m.	11:0	Status Report of Recent Developments regarding EPA's Standard 40 CFR 191, "Environmental Radiation Protection Standards For Management and Dsiposal of Spent Nuclear Fuel, High-Level and Transuramic Radiation Wastes."
11:45 a.m. Break		
	11.1	EPA Presentation - D. Egan
12:00 Noon		L U N C H
1:00 p.m.	12.0	Preparation of ACNW Reports Complete reports for 14th ACNW Meeting
3:00 p.m.		A D J O U R N

Issued: 12/20/89

MINUTES OF THE 14TH MEETING OF THE
ADVISORY COMMITTEE ON NUCLEAR WASTE
OCTOBER 11-13, 1989
BETHESDA, MD

The 14th meeting of the Advisory Committee on Nuclear Waste was convened by Chairman Dade W. Moeller at 8:30 a.m., Wednesday, October 11, 1989, at 7920 Norfolk Avenue, Bethesda, Maryland.

[Note: For a list of attendees, see Appendix I. ACNW members, Drs. William J. Hinze, Dade W. Moeller, and Martin J. Steindler were present. ACNW consultants, Drs. Melvin W. Carter, Paul W. Pomeroy, Mr. Eugene E. Voiland, and David Okrent were also present.]

The Chairman said that the agenda for the meeting had been published. He also identified the items to be discussed. He stated that the meeting was being held in conformance with the Federal Advisory Committee Act and the Government in the Sunshine Act, Public Laws 92-463 and 94-409, respectively. He also noted that a transcript of some of the public portions of the meeting was being made, and would be available in the NRC Public Document Room at the Gelman Building, 2120 L Street, N.W., Washington, D.C.

[Note: Copies of the transcript taken at this meeting are also available for purchase from the Heritage Reporting Corporation, 1220 L Street, N.W., Washington, D.C. 20005.]

I. CHAIRMAN'S REPORT (Open)

[Note: Dr. S. J. S. Parry was the Designated Federal Officer for this portion of the meeting.]

Dr. Moeller announced that Dr. Parry will be leaving the ACNW staff to take a new staff position with the Nuclear Waste Technical Review Board. Dr. Moeller thanked him for his help and hoped that his new position will be both challenging and enjoyable. Dr. Moeller introduced and welcomed Ms. Charlotte Abrams, who is joining the ACNW staff.

Dr. Moeller noted that the newspapers are reporting that the U.S. Department of Energy (DOE) is seriously considering deferral of the sinking of the Yucca Mountain exploratory shaft for up to two years. This will permit more detailed surface-based geophysical studies to be performed.

Dr. Moeller stated that the proposed revision of the waste confidence decision has been issued by the Commission for public comment. In addition, he noted that the NRC staff is developing a Commission paper that will identify alternative approaches for evaluating the ability of the NRC to determine compliance with the EPA standard.

II. DRAFT TECHNICAL POSITION ON TECTONIC MODELS (Open)

[Note: Dr. S. J. S. Parry was the Designated Federal Officer for this portion of the meeting. This session is a follow-up of the Working Group meeting held on October 10, 1989.]

A. Volcanogenesis

Dr. William J. Hinze, Working Group Chairman, summarized the presentation made by Professor Bruce Marsh of Johns Hopkins University to an ACNW Working Group on October 10th. He noted the possibility that volcanism may be considered as a potential "fatal flaw" in the Yucca Mountain site. He mentioned the hypothesis of Dr. John Trapp, NMSS, on the potential of a volcanic incident at the site.

Dr. Hinze summarized the principal points made by Dr. Marsh. Dr. Marsh reviewed the state-of-the-art in magmagenesis and volcanic processes. He pointed out the variations in volcanic rocks and volcanoes, and how these variations can be used to predict future events. Dr. Hinze was particularly interested in Dr. Marsh's comments that there is a tendency to emphasize the relatively recent, and often more viable aspects of volcanism rather than balancing one's investigations by examining early indications that may be obscured by erosion or burial. Dr. Marsh also discussed the causation of volcanism in the basin, but did not go into detail.

As a result of his experience and the review of documents provided to him, Dr. Marsh believed that the work already reported was of a very good quality. Particularly, he complimented Dr. Trapp on his proposed hypothesis. Dr. Marsh stated that he believed that a greater effort should be made to approach the question of possible volcanic activity at Yucca Mountain on an integrated multidisciplinary basis. He expressed the opinion that considerable progress has been made and that he expects that more progress will be forthcoming. Based upon these factors, Dr. Marsh suggested that a small working group should be assembled to develop a white paper on the status of knowledge of the entire realm of problems associated with volcanogenesis.

Dr. Martin J. Steindler asked Dr. Hinze if it could be inferred from this suggestion that DOE is not currently taking this action. Dr. Hinze concurred. At this point, the focus of the comments shifted to the technical position (TP) on tectonic models.

B. Draft Technical Position (TP) on Tectonic Models

Dr. Melvin W. Carter initiated the discussion by identifying three points that raised questions in his mind. These were: (1) the lack of agreement on TP definitions, (2) the degree and/or lack of conservatism, and (3) the handling of uncertainty. Dr. Hinze illustrated the use of deterministic data to estimate the probabilities

of events occurring. This was related to the Electric Power Research Institute (EPRI) study on the siting of nuclear power plants. Both Drs. Hinze and Pomeroy agreed that the EPRI study was a successful example of resolving questions of this nature. The general consensus of the members and consultants was that the TP was seriously deficient.

Dr. Hinze enumerated three choices for the Committee to consider. They were: (1) accept the TP as is, (2) recommend substantial revisions, or (3) downgrade the TP to the status of a guidance letter. He noted that some of the problems may be a result of deficiencies in 10 CFR 60. It was also pointed out that the TP drew on Appendix A of Part 100, which is considered to be out-dated. Dr. Steindler asked if the questions raised might not be a function of the limited knowledge of the science of tectonics, rather than limits caused by the draft TP. Dr. Hinze believed that generally, the major problem is with the regulations. He stated, however, that he saw no factual errors in the TP, merely a confused presentation.

Dr. Hinze recalled that the Working Group believed that the situation might be eased if changes to Part 60 were completed before TPs were issued. Also, the Working Group saw no compelling reason for a hastily issued TP. The question of further review by the ACNW after revision was touched on. The general consensus was that the document, if revised, should be thoroughly reviewed by not only the Committee but also by the public and interested agencies. It was also generally agreed that Part 60 should be revised as a whole, rather than on a piecemeal basis.

Dr. Philip Justus, NMSS, responded that the NRC staff presentation before the ACNW on the seismic hazard TP, scheduled for January 1990, might be an appropriate opportunity to discuss the logic supporting the development of sequential TPs. He stated that application of Appendix A of Part 100 was not required, just deemed acceptable. A general discussion on TPs and their alternative ensued. Also included was a commentary on the use of Appendix A, or its partial application.

Dr. Paul Pomeroy questioned Dr. Justus on his use of the term, "unilateral" in describing the staff's position in reaching definitions an/or positions. He reminded Dr. Justus that Appendix A was developed by a cooperative effort between the NRC and the U. S. Geological Survey (USGS), in part. Mr. Steindler carried Dr. Pomeroy's point on by noting that the NRC staff appeared to be ready to proceed with the formalization of the TP, in spite of general opposition from peer reviewers. This point, and the general development of TPs, were discussed without resolution.

After the general discussion, the Committee and consultants again touched on the point of further commenting on the revised TP and

indicated their willingness to meet on a special basis to review the revision and help the staff meet a required publication date, if necessary. Dr. Steindler clarified the Committee's position by indicating that it was the Committee's plan to conduct a detailed review of the TP. Mr. Ronald Ballard, NMSS, spoke about the staff's overall program of regulatory development. In closing, Dr. Moeller referred to a draft letter on this topic which was prepared and finalized during two subsequent executive sessions.

III. DRAFT TECHNICAL POSITION ON THE "DESIGN OF EROSION PROTECTION COVERS FOR STABILITY OF URANIUM MILL TAILINGS SITES" (Open)

[Note: Dr. S. J. S. Parry was the Designated Federal Officer for this portion of the meeting. Ms. C. E. Abrams was the Cognizant Staff Scientist.]

In the absence of the principal author, Dr. Myron Fliegel, Section Leader for the Uranium Recovery Section, NMSS, presented the main points of the draft TP on erosion protection covers . He was assisted by Mr. Georgio Gnugnoli. Mr. Fliegel gave a brief review of the background legislative and regulatory framework for the TP.

Legislation and regulatory standards applicable to this TP include the Uranium Mill Tailings Radiation Control Act (UMTRCA), 40 CFR Part 192, and 10 CFR Part 40 Appendix A. Part 192 of 40 CFR, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings, applies to Title I sites which are inactive sites that were out of operation when UMTRCA legislation was passed. Title 10 CFR Part 40, Appendix A, which incorporates the U.S. Environmental Protection Agency (EPA) standards, applies to active sites. The TP, as written, is narrowly focused and is only concerned with the erosion protection aspects of 10 CFR Part 40, Appendix A and 40 CFR Part 192.

The Committee expressed concern with the lack of a systems approach with respect to guidance provided by the TP. For example, in some cases, measures to prevent erosion may increase infiltration and thereby, contaminate groundwater; or, different erosion protection designs may not provide sufficient protection against radon releases. The staff stated that the TP was not to be "blindly" followed, but the licensee should endeavor to design a site which will meet the erosion protection standard along with the other standards pertaining to groundwater protection and radon emissions.

Dr. Fliegel described the main concepts with which the erosion protection standard has to deal. The time period for which erosion control is required is 1000 years (to the extent reasonably achievable), with a minimum goal of at least 200 years. Two types of events impact the ability to achieve this; these are slow degradation and severe events. He also explained that the standards do not assume any credit for maintenance of covers.

In discussions on the TP's content and intent, it was stated that, although the TP does not go deeply into groundwater standards, it does point out potential conflicts with erosion protection measures. The TP also explains methods for several different types of cover designs such as soil covers, rock covers, or a combination of the two. In addition, the TP discusses sacrificial slopes. These were explained by Mr. Fliegel as a concept used by the licensee which applies to a situation where there is a lack of good rock or it is impracticable to build soil cover. In these cases, a site cover can be constructed that is assumed to degrade over the time of containment (at least 200 years). Finally, he explained that, if all else fails, flexibility exists to allow an exemption if the licensee can make a good case.

Mr. Fliegel closed his presentation by explaining the current status of the TP. Since the draft was announced in the Federal register in August 1989, there has been some public interest and 50 copies have been requested. To date, only one comment has been received, however, comments from DOE are forthcoming. After his presentation, Mr. Fliegel answered questions from the Committee.

Dr. Moeller was concerned with the time periods selected (1000 and 200 years) when compared with the time period for control of high-level waste (HLW). The staff explained that the time period of "1000 years to the extent reasonable achievable or at least 200 years" was determined by EPA. NRC had proposed a period of thousands of years in October 1980, however, EPA later concluded that reliance on construction for that long a period was unrealistic, assuming no or minimal maintenance. Also, uranium mill tailings are not concentrated and the only difference between the tailings and what come out of the ground (ore) is the solubility, thus making the waste different from HLW.

Dr. Hinze questioned the staff on how waste rock was to be handled and was this problem to be covered in another TP. Mr. Gnugnoli explained that NRC's authority begins only at the uranium mill and NRC has no authority over waste rock.

Dr. Moeller expressed concern with the degree of flexibility in the TP with respect to flood design or cost of stabilizing materials. Dr. Fliegel stated that the flexibility was mandated by both NRC and EPA rules and that for Title II licensees the staff can grant exemptions if it can be shown that protection can be achieved.

In the area of exemptions, Dr. Steindler was concerned with whether the NRC was in agreement with the EPA rules. Mr. Gnugnoli stated that the NRC rules conformed to EPA standards and this had been confirmed by the Office of the General Counsel.

Dr. Carter asked about site sampling for radon and questioned the staff about the number of site samples taken. Dr. Moeller asked when does sampling take place, in the first or the 999th year? Mr. Gnugnoli replied that the rule implies an average radon value over space and time. It was pointed out that

radon releases are also peripheral to the TP, but that such releases should be considered when designing for wind and water erosion. It was agreed that although concern with gamma exposures is not specified in the EPA standard, such exposures will be ameliorated due to the cover, and the TP should take credit for that aspect.

Dr. Steindler stated that the design criteria presented in the TP would be better if given in performance terms. For example, the staff should add comments to the TP that state, if certain measures are taken the cover will be able to perform in a tested or predicted way. Dr. Steindler also expressed the concern that given the number of references in the TP that appear to cover all aspects of the TP, why is the TP needed. Mr. Gnugnoli stated that the TP was justified as a single source document that pulls together numerous sources of information.

IV. LOW-LEVEL WASTE PERFORMANCE ASSESSMENT METHODOLOGY (Open)

[Note: Mr. R. K. Major was the Designated Federal Officer for this portion of the meeting.]

This NRC staff presentation on LLW performance assessment methodology was a status report of an ongoing activity. The goal of LLW performance assessment is to perform certain analyses to demonstrate compliance with the regulations. Analyses performed to demonstrate compliance are deterministic in nature. Applicable regulations are 10 CFR 61.13(a) for pathways analyzed in demonstrating protection of the general population, and 10 CFR 61.41 and 42 for dose limits for protection of the general population and protection of individuals from inadvertent intrusion. Emphasis is placed on the groundwater pathway. A number of computer models for analyzing this pathway are available. Existing codes are adapted for analyzing the air pathway or intruder dose.

In January 1988, NRC contracted with Sandia National Laboratories to develop an integrated performance assessment methodology code. The effort was designed to do exposure pathway analyses and to study all pathways. Sandia was to use existing codes to develop a performance assessment methodology; they were not to develop new codes.

Sandia was also contracted to define pathways (in the postclosure phase) by which radionuclides could escape from a low-level waste site, as well as to prioritize the pathways. Different models were to be defined and integrated so that a rational basis is developed for choosing a particular model. Various models are linked or integrated into one code, where, for example, groundwater and irrigation models are linked to agricultural uptake scenarios and finally to a dose to people.

Sandia is also tasked to develop a self-teaching curriculum, so that the NRC staff can learn to use the performance assessment codes.

In response to questions from Dr. Steindler, Dr. Starmer explained that the models produced by NRC would also be useful to state regulators and others concerned with low-level waste performance assessment. The NRC staff said they are keeping this expanded use in mind.

Dr. Robert Starmer, NMSS, outlined future and ongoing work. This included evaluations of possible exposure pathways for operational and accidental releases in the preclosure phase of a disposal site, and a study to determine how reasonable various postulated scenarios are. Source term models for disposal sites are being constructed. There are also programs under way on barrier performance and concrete degradation. Finally, additional work by Pacific Northwest Laboratories (PNL) on groundwater transport, based on evaluations of existing sites, will be completed this fall or early winter.

In looking at LLW performance assessment strategy, pathway analysis is considered first. Initially scenarios and pathways are identified. They are then ranked; and a selection is made of a defensible set of relevant exposure modes. After pathway analysis, a quantitative analysis of facility performance is made. Relevant pathways (including the intruder) are considered and uncertainty analysis is conducted. Finally, the results of the analyses are compared to performance objectives.

The NRC staff is aiming to create integrated methodology characteristics in LLW performance assessment, i.e., the methodology should be able to treat all pathways. The codes and models used should be modular so intermediate results can be examined. It is hoped that single models can be used, so a greater number of scenarios can be explored. The models used are deterministic in nature and should use conservative, yet realistic variables.

When licensing a particular applicant, the end point of the strategy is a comparison between the results of the performance assessment and the regulatory limits. The limits include both Part 61 and EPA's standards when they are promulgated. The NRC staff, in reviewing an application, studies the definition of the physical system involved and examines the natural setting and the barriers. The analytical methods, the model and code used are reviewed for adequacy.

The NRC staff will also review the integration of system and subsystem models for accuracy. The output from one submodel serves as input to another, and the Staff reviews these for consistency. The Staff will review the selection of a particular model to ensure it is compatible with the real physical site and release pathway. Analyses are made of the treatment of uncertainties and sensitivities and how certain variables affect predictions from the model. Results from the performance assessment are then used to support a license application.

The NRC staff noted that it was their intent that this briefing be for information purposes only. Dr. Moeller suggested that the background document received by the ACNW, which was a paper presented at a DOE Low-Level Waste Management Conference several years ago, be considered for adoption as

formal NRC guidance. The paper was entitled, "Performance Assessment Strategy for Low-Level Waste Disposal Sites," by Starmer, Deering, and Weber. It was also suggested that dose limits used in the report be expressed in both SI and English units.

(The Committee subsequently wrote a letter report to the acting EDO on this subject. The report is dated October 18, 1989.)

V. WASTE ACCEPTANCE CRITERIA FOR THE WEST VALLEY AND SAVANNAH RIVER HIGH-LEVEL WASTE (Open)

[Note: Dr. S. J. S. Parry was the Designated Federal Officer for this portion of the meeting.]

The briefing was opened by Dr. Parry who described the long-term nature of this topic. The basic point is the extent of sampling of the vitrified glass product and the techniques used to ensure its uniformity and performance. Past comments on this matter made to the Committee by representatives from Savannah River and the West Valley Project were noted as was a recent letter from Mr. Stein of DOE describing DOE's plans.

Mr. Richard Weller, NMSS, began his presentation by noting that the NRC staff intended to cover more than the question of process sampling. He described the Waste Acceptance Process (WAP) developed by DOE starting in 1985. Its purpose is to formalize the waste activities within DOE and to ensure the acceptability of the vitrified waste. Originally the WAP was to be suitable for any of three possible repository sites, however, the WAP is now focused on the Yucca Mountain site.

Mr. Weller described several documents that constitute the WAP. These include the Waste Acceptance Preliminary Specification (WAPS), the Waste Form Compliance Plan (WCP), the Waste Qualification Report (WQR), the Process Control Program (PCP) and a preliminary performance assessment. Dr. Moeller asked if these DOE generated documents have been approved by the NRC staff. Mr. Weller said that they had not and that continuing correspondence was expected. He detailed the recent chronology of correspondence between the DOE and NRC staffs, and identified future meetings and deliverable documents.

Mr. Weller noted certain staff concerns. These concerns include possible adverse interactions between the waste container and the overpack, and the actual corrosion properties of the waste form (glass) itself. Upon questioning, Mr. Weller clarified his point by noting that the initial container of the glass may be altered by the pouring and casting of the glass. Further, he noted the NRC staff's position that DOE should have the capability for sampling the glass as it is being cast. Dr. Steindler questioned this position. Mr. Weller compared the problems noted in the cementation of LLW with the processing of glass. Dr. Steindler took exception to that position. Dr. Carter supported Dr. Steindler's point and asked if the staff had

reviewed production experience from foreign operations. Mr. Weller indicated that the staff was not familiar with any such data.

Mr. Joseph Bunting, NMSS, explained that the NRC staff had originally taken this position because the plants would be operational before the repository was ready and that it was believed to be necessary to sample the product to confirm the product's quality and uniformity. Dr. Steindler again noted the absence of an underlying rationale supporting the NRC staff's position. Mr. Joe Youngblood, NMSS, asked if Dr. Steindler would recommend that the system be built without hot sampling capability. Dr. Steindler stated it was not his responsibility to tell DOE what to do, but to review the NRC staff's actions and/or position.

Mr. Voiland noted the existence, for a number of years, of a waste solidification program in France and a waste solidification demonstration program at Hanford for a number years. He questioned if data were not available from those programs. Mr. Weller again noted his unfamiliarity with any data from those programs, but referred to experiences in the LLW cementation program. Dr. Parry noted that one original reason for sampling was to maintain awareness of the condition of the processing equipment, particularly the furnaces.

Mr. Weller noted that not having a specific waste form performance criteria gives greater flexibility in waste package design.

Dr. Steindler observed that no resources had been allocated to this matter in the NRC budget for either FY 1989 or proposed for FY 1990. Mr. Bunting indicated that resources of up to $150,000 and approximately ½ person-year had been estimated, but not requested.

Dr. Moeller asked what the staff needed from the ACNW. Dr. Parry noted that the staff was responding to a request from the ACNW and that no response was required.

Dr. Steindler asked if the staff thought that they should give explicit approval to DOE before the processes at West Valley and Savannah River were started up. Mr. Weller said that it was his understanding that the NRC staff had no such authority. He went on to suggest that there should be some formal response to DOE's submission. Mr. Youngblood stated that the NRC staff deals with the Office of Civilian Radioactive Waste Management (OCRWM), DOE, not the individual projects. Mr. Bunting indicated that the configuration of the waste package was not deferred, and that little progress had been made in that area, including performance allocation and assessment.

In closing there was discussion of the limited resources proposed, but no specific position was taken by the Committee.

VI. DRAFT RULEMAKING ON ANTICIPATED PROCESSES AND EVENTS AND UNANTICIPATED PROCESSES AND EVENTS (Open)

[Note: Dr. S. J. S. Parry was the Designated Federal Officer for this portion of the meeting.]

In the absence of the scheduled presenter, Mr. Clark Pritchard, Office of Nuclear Regulatory Research (RES), Robert Browning, Director, Division of High-Level Waste Management, offered to have Dr. John Trapp of his staff explain to the Committee the reasons for the rulemaking and its place in the schedule of proposed rulemakings. Prior to Dr. Trapp's presentation, Mr. Browning pointed out that the staff is still making changes to the document, but would like formal comments on the current version from the Committee.

The Committee reviewed and commented upon an earlier draft of the rulemaking, prepared in October 1988. That version was categorized as a Technical Position (TP). Since that time, the staff has received comments from the U.S. Geological Survey (USGS), the Department of Energy (DOE), and the Environmental Protection Agency (EPA), and the TP has been upgraded to a rulemaking. Committee comments of October 1988, on the TP version of "Anticipated Processes and Events and Unanticipated Processes and Events" (APEs and UPEs) expressed concern over definitions of "anticipated" and "unanticipated" and how those terms, as defined, coincided with terms used in the EPA Standard. Dr. David Okrent opened with a question on the definitions of "anticipated," and how it correlates with the EPA rule. He had a problem with understanding why the NRC staff thinks their definition of "anticipated" is equivalent to "likely" and how a process can be driving the whole system and still not be likely in 1000 years. Members of the Committee were also confused about the definitions of "process," "event," and "undisturbed" and requested clarification of the term "adequate quaternary record" and an explanation of what is a "credible" event.

Dr. Trapp related "anticipated" to the "mean value" and "unanticipated" would be the range of expected values. Dr. Okrent disagreed with the rationale for making "mean value" equivalent to "likely value" and pointed out that the mean value of a process can be unlikely. He was concerned that it appeared that APEs and UPEs, as written, may be adding more conservatism into the already "stringent" EPA Standard.

Dr. Moeller asked who, based on comments already received, had problems with the TP and why the rulemaking was needed. Dr. Trapp explained that the rulemaking is needed because there is disagreement between DOE and NRC on what the terms "anticipated," "unanticipated," and "undisturbed" meant, and also because it appeared that DOE was using a straight probabilistic definition of the terms. Dr. Trapp went on to say that the rulemaking is an attempt for the NRC to be more prescriptive and to provide a starting point for gathering information on processes and events for input into a probabilistic analysis. It places the burden of proof on the DOE to understand the mechanisms behind the process which will produce an event, and forces DOE to understand the process, develop a model, and factor all information into a

deterministic analysis. Dr. Trapp further elaborated that the rulemaking is an effort by NRC to provide guidance to DOE as to what is expected of their site characterization program and the design of the engineered barrier system, regardless of how or when the EPA Standard is revised.

Mr. Ballard, NMSS, interjected that NRC is informally working with DOE to resolve differences in definitions. The two agencies are hoping to develop identical terminology, and NRC hopes to have conforming regulations with the reissuance of the Standard.

When asked by Dr. Hinze to provide an example of an anticipated and unanticipated event derived from an example of an extensional tectonic model, Dr. Trapp explained that an anticipated event would be movement in the area of the site along a fault that moved in the Quaternary Period. An unanticipated event would be transposition of movement on the Walker Lane fault zone out of the area of the site into the site area (e.g., a faulting event in the area of Cedar Mountain is an anticipated event; that same event at Yucca Mountain would be unanticipated).

Dr. Trapp pointed out that it is important to look at the Quaternary record and the processes and rates of processes that took place during that period. Then the processes outlined from the Quaternary record need to be tied to resultant events. He also emphasized that the geologic setting, not the engineered barrier system, is the area in which to define the processes and events and begin the analysis. Therefore, the starting point for the analysis is based on a deterministic assessment.

Dr. Justus, NMSS, pointed out that the Quaternary Period is cited in 10 CFR Part 60 as the period of consideration for favorable or adverse conditions which may affect the site. The NRC staff considers the Quaternary Period long enough in time to allow the processes to be assessed sufficiently. A problem with the choice of this time period was pointed out by Dr. Justus who explained that in the scientific community the time range for the Quaternary Period is from 1.6 to 2.0 million years ago.

Mr. Voiland mentioned the concern that the rulemaking in one place says anticipated processes are described by the "most reasonable projection." Due to the need for DOE to define tectonic models (plural, as suggested by the Tectonic models TP), Mr. Voiland suggested to the NRC staff that the word "projection" be made plural in the rulemaking to conform with the guidance presented in the Tectonic Models TP.

Dr. Trapp stated that DOE must meet requirements of 10 CFR Part 60.122(a) and that the starting point in the process is to get the sum of APEs and UPEs and use those processes and events identified to conduct site analysis to assure the data base is sufficient. After completing that step, DOE would conduct probabilistic analyses of processes and events that have to be analyzed to determine compliance with the EPA Standard.

At the end of Dr. Trapp's presentation, Mr. Jeff Kimball, DOE, offered to give DOE's perspective with respect to their concerns with the terms "anticipated" and "unanticipated" and where the performance objectives should fit into the process. In his presentation, DOE would define the processes to be considered and then subdivide those processes into NRC's categories of "anticipated" and "unanticipated." Processes and events are then screened to see what their probability is of occurrence, what is their consequence, and what is their significance, with the final outcome being a limited number of processes and events which have to be considered in designing the engineered barrier system. He agrees that some rulemaking is needed on the definitions of those terms, but sees difficulty in where in the process the DOE and the NRC fit the subdivision of processes into APEs and UPEs. His assessment is that while Part 60 needs clarification, it may not be inadequate.

During the discussion, individual members and consultants offered the following comments to the NRC staff:

a. A definitive statement of the problem is needed. This should include a summary for using the rulemaking approach in resolving these issues, as well as the impacts on this action of the wording of specific sections of 10 CFR 60.

b. There should be a clear delineation of the areas of disagreement between the NRC and DOE staffs. This should include a statement outlining each area of controversy and a summary of the positions of each agency. It is incumbent on the NRC staff to alert DOE of these concerns, and the APE/UPE rule may be a good mechanism for accomplishing this goal.

c. A proposed approach for resolving these issues, including an outline of the criteria for classifying processes and events, and the significance of errors in such classifications, needs to be developed. For example, what difference does it make whether the potential effects of human activities on the site are classified as APEs or UPEs?

d. The proposed rule is too long and frequently does not say what is intended. If the NRC staff believes that more guidance (including legal) is needed, the revision should clarify what is to be accomplished. In addition, criteria for classifying processes and events should be clearly identified in one section of the rule.

During their presentations, the NRC staff expressed concerns whether the current DOE site characterization program was sufficiently comprehensive to gather the data necessary to answer the key questions, and whether it provided for analyses of certain processes and events in sufficient detail and early enough in the program to identify potentially "fatal flaws." ACNW members share these concerns.

The Committee also concluded that, while the regulatory fundamentals used by the NRC staff in developing the proposed rule may be available in a coherent form, the explanatory envelope of concepts and approaches that are necessary to convert the proposed rule into practice has not been clearly developed and is inadequately described in the draft rulemaking document.

Mr. Browning agreed to revisit the APEs/UPEs issue, and the Committee agreed to meet with the NRC staff before its next regularly scheduled meeting in January, if the NRC staff desires to have an early Committee review of the next version of the proposed rule. A memorandum on this matter was sent to Mr. Robert Bernero, Director, NMSS, on October 19, 1989.

VII. LOW-LEVEL WASTE MANIFEST INFORMATION AND REPORTING (Open)

[Note: Mr. H. S. Schofer was the Designated Federal Officer for this portion of the meeting.]

Dr. Michael Bell, NMSS, recounted the history of the low-level waste manifest activities and introduced Mr. Gary Roles, NMSS, who is responsible for the preparation of a draft branch technical position. Dr. Bell also introduced Mr. Mark Haisfield, Office of Nuclear Regulatory Research (RES), who will take the lead for rulemaking.

On being questioned by Dr. Moeller, Mr. Roles observed that the manifest system for toxic chemical wastes is simple when compared to the much broader and more detailed manifest system for low-level waste disposal. Shipments of mixed waste must have low-level waste manifests and hazardous waste manifests.

Mr. Roles noted that low-level waste shipments are delivered directly to one of the three existing disposal sites and can go through one of approximately thirty waste collectors (brokers) or four large waste processors. As of this date, there are nine compacts and nine unaffiliated states. All low-level waste shipments are accompanied by shipping manifests that meet the regulatory requirements of 10 CFR 20 (NRC) and 49 CFR 172 (DOT). Some states impose additional manifest information requirements.

During 1988, there were 3,700 shipments (a shipment is defined as one truck load) of low-level waste, with an equal number of accompanying manifests, totaling over 40,000 sheets of paper (counting title pages and continuation sheets). In response to a question from Mr. Voiland, Mr. Roles stated that collectors and processors handled 25 percent of the radioactive material in 1988.

Mr. Roles described the information content of a low-level waste manifest, such as the waste class, solidification agent, and the chelating agent content. Dr. Moeller questioned the frequency of opening packages at the disposal site to itemize the contents. Mr. Roles noted that containers are

sampled by punching holes in the liners to measure the free liquid in the bottom.

When a low-level waste shipment arrives at the disposal facility, the operator and, usually, the state representative check the shipment against the manifest. A computer system can be used by the facility operator to assist in the inspection and verification process, such as determination of compliance with the NRC waste classification regulations. Dr. Carter observed that there is not much that can be verified without opening the packages. Mr. Voiland added that 98 percent of data errors occur during data entry from the written page.

Mr. Roles described how manifest information can be used by NRC in assessments for license renewal and control of closure. Computer systems containing manifest information may also be used for tracking inventory restrictions of certain radionuclides at particular disposal sites. The facility operators have found the computer system useful when complying with 61.80 (i) that states the operator must summarize the radionuclide volume by waste class. Finally, the computer system can be useful in assessing the significance of potential problems, such as providing a quick count on how many polyethylene HICs have been actually disposed.

Dr. Carter stated that NRC already has much of the necessary information, although it may not be in the most useful form. Mr. Roles added that the data are now scattered over so many thousands of pieces of paper that NRC finds it very resource intensive to collate the information.

Upon questioning, Mr. Roles stated that the U.S. Ecology has the only manifest that indicates what kind of process was used for the solidification transformation. He suggested that it is the intent of NRC to require this information, along with other new data, on all future manifests.

Mr. Roles informed the Committee that the operators are required to maintain manifest records for as long as the low-level waste disposal facility is in operation. After the facility is closed, the records are eventually turned over to a custodial agency for permanent retention.

Mr. Roles indicated that, although the states have the lead role in low-level waste disposal, it behooves NRC to maintain a national computer system containing manifest data from all disposal facilities to track low-level waste characteristics in as much detail as possible. A national database will assist NRC in oversight responsibility, accountability of radioactive material, and licensing of new disposal facilities.

Dr. Carter asked what has been the position of the Conference of Radiation Control Program Directors? Mr. Roles replied that the NRC staff has discussed the national computer system with the states and compacts through the low-level waste forums and that NRC has received support for the proposed rulemaking.

Mr. Roles noted that the computer systems maintained by the facility operators, when compared to each other, have varying capabilities, such as storage of different data elements, or the storage of the same data elements, but in different formats. The ability to perform technical analyses is very limited when there is a lack of uniformity among the facility data. Dr. Carter observed that these data variations are likely because there are inherent differences between the facilities and their methods of operations, for example, some sites will accept radium, and some will not.

Since Part 61 does not require the operators to report manifest data in a machine-readable format, NRC has limited access to the information and most of the time it is provided only under predetermined conditions. In addition, Part 20 does not require that low-level waste be tracked through the waste processors.

Mr. Voiland questioned the additional costs that a rule change might impose on the existing disposal operators to capture additional information and reprogram their computers. Mr. Roles replied that the additional costs would be negligible for U.S. Ecology, however, the cost to Chem Nuclear might be higher.

Mr. Roles indicated that the NRC staff expects to make a draft technical position publicly available well in advance of the rulemaking so that the states will have adequate time for planning their site operations.

Dr. Moeller suggested that NRC staff consider changing over to SI units for the quantities to be found in the draft technical position and rulemaking documents. Mr. Bell replied that this action would probably have a larger financial impact on the licensees than any other issue discussed today.

The NRC staff is considering the use of the updated DOE data system for storing the manifest data. A major issue will be the data reporting format, paper or machine readable? If electronic data input is required and DOE runs the data system, the cost to NRC would be negligible.

Dr. Hinze asked about the public availability of the proposed national database for manifest information. If the data are marketable by private enterprise, there may be a problem with direct competition between government and private organizations. Mr. Roles pointed out that, in the past, some operators have placed proprietary limitations on release of data purchased by NRC, so it might be likely that certain future data, such as the names of the waste generators, may not be publicly available. Dr. Hinze observed that NRC might have a problem on this issue. Dr. Carter agreed that there might be a problem, however, he noted that it is not known how much money is involved in the annual sale of the data by private organizations. Mr. Roles reported that NRC pays one company $18,000 a year and another company approximately $30,000 a year for the paper manifests and summary information. NRC also purchases microfiche copies of manifests.

Mr. Voiland asked if it would impair NRC activities if there were not a machine- readable data acquisition requirement? Dr. Bell replied that the present manifests do not include all the information that the staff believes is needed to assess generator performance or site performance. A request for additional information can be directly linked to public health and safety. Requiring information in an electronic format or a uniform format does not have a clear health and safety basis. The object of this rulemaking is to obtain the needed information with as little impact as possible on the generators and the site operators.

Dr. Bell disclosed that two of the three existing commercial sites are going to shut down in 1992, and, in the next five years, as many as twelve new sites will be opened. California is expected to be the first state to receive a license application within the next year, with site operation being scheduled for 1993. Dr. Bell observed that if NRC can make the rule changes before these new sites are started up, there should be little or no backfit costs. Dr. Carter reminded the staff that there has not been a site thus far licensed under Part 61, so NRC and the states should not be too surprised if there are delays in the licensing schedules. The Committee and staff continued a detailed discussion on the plans for replacing Barnwell in the Southeast Conference.

Dr. Carter listed several problems relating to the operation of disposal sites, including the offsite detection of certain radionuclides in low quantities and in groundwater. He asked, how will the new system impact or help solve these problems? In other words, what effect, if any, will this system have on the workers at the sites or on the public? Mr. Roles stated that NRC does not have a good handle on what has been buried in some disposal sites. Safety judgements have to be based on the source term. Further discussion continued on the relationships among source term, migration, monitoring, and recordkeeping.

Dr. Steindler suggested that the most important issue is to ensure that the uniform manifest content is reasonably complete. The ability to extract detailed information on a particular site, such as, how much chelating material has been stored in a particular trench, can be very important.

Mr. Roles posed two questions: Should the NRC describe the information wanted and leave it up to the operators and states to come up with the manifest format? Or, should NRC specify a uniform manifest form similar to the form used for hazardous waste? The advantages of a uniform manifest form are that there will be a smaller paper trail and new manifests will not be needed every time a shipment crosses a state line or compact boundary. The disadvantage is that joint rulemaking will be required with the Department of Transportation, taking considerable time and resources of both agencies. The compacts favor a uniform manifest form.

Dr. Steindler commented that the issue of whether NRC has a uniform manifest is trivial. Identification of the type of information, the breadth of the information, and the details needed for remediation in the event of trouble,

are the real issues that need more thought. Mr. Roles agreed that the technical information requirement is one of the larger issues needing resolution.

In summary, Dr. Bell stated that there will be an internal review of the branch technical position followed by its distribution to the states and other interested parties for comment. Dr. Moeller expressed interest in having another briefing to learn about the responses that may be provided by the states, site operators, compacts, the Conference of State Radiation Control Program Directors, and the Low-Level Waste Forum. The staff agreed to return in about six months with a status report.

VIII. EDISON ELECTRIC INSTITUTE (EEI) AND ELECTRIC POWER RESEARCH INSTITUTE (EPRI) PROGRAMS RELATED TO HLW DISPOSAL INDUSTRY (Open)

[Note: Dr. S. J. S. Parry was the Designated Federal Officer for this portion of the meeting.]

Mr. Steven Kraft, Edison Electric Institute (EEI), opened his presentation with a brief description of the interrelationship between EEI and other industry entities. He stated that EEI supported the reorganization of DOE with straight-line management structures in the area of HLW management, particularly. Dr. Okrent asked if EEI had any concern relative to total dollars expended. Mr. Kraft said yes they did and that the regulations affected expenditures directly. In response to a question by Dr. Carter, Mr. Kraft indicated that some 2 billion dollars has been expended on the total program. He noted that the effect of $1.5 billion has been eliminated by Congressional fiat. Dr. Carter went on to inquire as to scheduling of the site characterization program. Mr. Kraft agreed that rescheduling of the program is likely and that the State of Nevada is totally opposed to the program. He expects permanent confrontation by the State and indicated that the present Governor believes that the State's formal rejection of the site selection has been reinforced by recent legislation action.

Mr. Kraft expressed concern that the industry was presently unable to affect the expenditures or plans of DOE and that the industry felt unable to predict requirements on individual plants relative to on-site spent fuel storage.

Dr. Robert Shaw, EPRI, discussed what EPRI can do that would be really useful to the DOE program. He noted that EPRI believes that the DOE program is scientifically deep. However, DOE is much too accepting of regulatory positions and is not offering the kinds of challenge that EPRI believes need to be conducted. Further, there is a need for the identification and prioritization of critical issues. In connection with the concern about accepting regulatory positions, the expectation of modifications in the reformulated 40 CFR 191 (the EPA Standard or Performance of the HLW Repository) was discussed by Dr. Okrent.

The EPRI program expects to receive an increase in funding and to become more active in radioactive waste storage activities. The coordinating committee meets three times a year to monitor progress.

Dr. Carter asked about EPRI's expenditures. Dr. Shaw stated that the 1990 expenditures were hoped to be $600,000 and $900,000 in 1991.

Dr. Shaw briefly described the EPRI plan. They intend to stress areas in which they have particular expertise. Dr. Okrent suggested that they focus on reformulating 40 CFR 191. Mr. Shaw agree with that suggestion. He also noted that EPRI's prior success with the Seismicity Owner's Group (SOG) was a good indication of the impact that could be achieved, particularly in areas related to geologic phenomenon and the probabilities of specific events. He then described SOG activities and some of the results obtained.

Dr. Shaw indicated that EPRI plans to follow the same general procedure in assembling a team to determine which areas of the program are appropriate for close review. Dr. Steindler asked who might use the results of these proposed studies. Dr. Shaw compared DOE to the early group of utility licensees, and suggested that DOE might well adopt some of the positions that EPRI develops.

Dr. Hinze asked if EPRI plans to review the DOE Study Plans. Dr. Shaw indicated that EPRI might review the construction of or methodology contained in certain plans. Mr. Kraft stated that he had been informed that EPRI would not perform detailed reviews, but that EEI would likely look over all plans in moderate detail. Drs. Hinze and Shaw discussed SOG efforts in detail and compared that effort with the current industry program.

This session closed with a general discussion among Dr. Okrent, Mr. Voiland, and Dr. Shaw about the SOG study and a second one headed by the Lawrence Livermore National Laboratory directed at possible earthquakes in the Eastern United States.

IX. STATUS OF THE EPA STANDARD ON HLW REPOSITORY PERFORMANCE (Open)

[Dr. S. J. S. Parry was the Designated Federal Officer for this portion of the meeting.]

Mr. Dan Egan, EPA, presented a chronology of the EPA standard on releases from a HLW repository, 40 CFR 191. The chronology started with the initiation of the project in 1976, through its promulgation in 1985 and partial remand in 1987. He described the two subparts, A and B, and two appendices. It was noted that Subpart B and the appendices were remanded, but Subpart A, which covers the operational phase of the repository's life, was not remanded. He briefly described Subpart B, without specifying its detailed content.

He described the reasons cited by the First Circuit Court of Appeals in remanding the rule. They were: (1) the water quality standards were

inconsistent with the criteria contained in the Safe Drinking Water Act (SDWA), that is, a dose limit of 4 mrem/year, (2) the requirement for 1000 year protection of the drinking water was not supported, and (3) there was inadequate notice provided for the added limits on water quality and the water classification scheme.

Mr. Egan stated that because the Court's rulings did not strike at that portion of the Standard relating to the behavior of the repository, but mainly addressed procedural questions, that the EPA staff did not intend to alter the basic structure or criteria of the rule. EPA intends to accommodate the points made by the Court. Additionally, the EPA staff plans to take into account the recent experience with site evaluation, developments with related rules, and to use updated preliminary performance assessment data focused on a tuff site. He specifically noted that the EPA staff intends to compare these new, but still limited, scope assessments with those conducted on alternative sites in 1985.

Dr. Steindler asked if EPA had a methodology for performing these assessments. Mr. Egan responded that they did and a general discussion between Drs. Okrent and Egan ensued. Mr. Egan stated that he considered climatic changes as being in the category of an undisturbed condition. He noted, however, that the sensitivity of the assessments to climatic changes was unknown.

Mr. Egan then indicated that certain possible alterations in the coverage of Subpart A were also being considered. Basically the EPA in considering applying Subpart A, rather than the Clean Air Act standards, to all Federal waste handling facilities. In addition, the new EPA water classification strategy is being included in Subpart B, as is the option of considering times up to 100,000 years. Dr. Okrent noted that the EPA's Science Advisory Board had recommended that these longer times only be considered as comparisons between sites. Mr. Egan agreed with that point.

In a general statement, Dr. Okrent suggested that the EPA rethink the time of applicability of the standard because of the possibility of significant medical advances or comparable scientific achievements. Mr. Egan emphasized that the longer times being considered were only for undisturbed cases, and so the probabilities of a disturbing event did not enter the consideration.

Mr. Egan noted several points being considered for change, particularly inserting an ALARA provision as an assurance requirement. He further stated that the numerical limits on releases and the probabilities of releases are not expected to change.

In closing, he summarized the EPA's schedule for promulgating the standard. The key dates were June 1990 for proposing the standard for public comment and January 1992 for promulgation of the final rule.

X. EXECUTIVE SESSION (Open)

A. Reports, Letters and Memoranda

The Committee completed letters and memorandum on the following subject:

1. Recommendations Dealing with Investigation of Potential Volcanism at the Yucca Mountain High-Level Waste Repository Site (Letter to Chairman Carr dated October 18, 1989).

2. Draft Technical Position on Tectonic Models in the Assessment of Performance of High-Level Radioactive Waste Repositories (Letter to Chairman Carr dated October 18, 1989).

3. Draft Technical Position on the Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites (Letter to Chairman Carr dated October 18, 1989).

4. Low-Level Waste Performance Assessment Methodology (Letter to Mr. James M. Taylor dated October 18, 1989).

5. Proposed Rulemaking on Anticipated Processes and Events and Unanticipated Processes and Events (Letter to Mr. Robert M. Bernero dated October 19, 1989).

6. Pathfinder Atomic Power Plant Dismantlement (Letter to Chairman Carr dated October 18, 1989).

B. Other Actions, Agreements, Assignments and Requests

1. Pathfinder Atomic Power Plant Dismantlement Plan

The Committee concluded its discussion on the review of the Dismantlement Plan for the Northern States Power Company Pathfinder Facility. A report was sent to Chairman Carr on October 18, 1989. The Committee agreed that further review may be appropriate after issuance by the NRC of the Safety Evaluation Report (SER).

2. Site Visits

The Committee, consultants and staff will make a site visit to the West Valley Demonstration Project, West Valley, New York on Thursday, October 26, 1989. The Committee is expected to make its observations and views known to the Commission after the trip.

The Committee plans to visit the Center for Nuclear Waste Regulatory Analyses on Thursday, November 30, 1989. In order for the Committee to prepare for the site visit, the NRC staff has agreed to provide a revised CNWRA staffing plan that includes staff (and consultant) skills and curriculum vitae. The plan is also expected to identify the function of each unit within the organization.

The Committee observed that past CNWRA reports have not been received as expected. The Committee, once again, requested that the NRC staff ensure that future CNWRA reports are routinely sent to the Committee.

3. Future Meeting Schedules

Dr. Moeller is scheduled to meet with the Commissioners' Technical Assistants on November 2, 1989, to discuss items of mutual interest.

Dr. Hinze recommended that the technical assessment review of the ESF, now in its review stage, be brought to the Committee's attention when it becomes available.

Dr. Hinze suggested that the Committee might want to invite representatives of the Nuclear Waste Technical Review Board to a future meeting to discuss items of mutual interest. Dr. Carter offered to assist in the meeting preparation. Dr. Hinze also recommended that a formal exchange of technical reports and letters would be useful to both organizations.

Dr. Steindler suggested that the Committee consider an invitation to representatives from the NRC Office of State Programs to discuss the economic viability of LLW disposal facilities. The Committee agreed to take up this issue at a future meeting.

C. Future Activities

Appendix II summarizes the tentative agenda that were proposed for future meetings of the Committee.

The 14th ACNW meeting was adjourned on October 13, 1989, at 3:00 p.m.

APPENDICES

I. MEETING ATTENDEES

II. FUTURE AGENDA

III. OTHER DOCUMENTS RECEIVED

IV. ACNW LETTER REPORTS/MEMORANDA

APPENDIX I - ATTENDEES

14TH ACNW MEETING
OCTOBER 11-13, 1989

	1st Day	2nd Day	3rd Day
ACNW MEMBERS:			
Dr. William J. Hinze	X	X	X
Dr. Dade W. Moeller	X	X	X
Dr. Martin J. Steindler	X	X	X
ACNW CONSULTANTS:			
Dr. Melvin W. Carter	X	X	X
Dr. David Okrent		X	X
Dr. Paul W. Pomeroy	X		
Mr. Eugene E. Voiland	X	X	X

APPENDIX I - ATTENDEES (CONT'D)

NRC AND CONTRACTORS

A. Eiss
R. Ballard
P. Justus
K. McConnell
P. Justus
M. Blackford
J. Trapp
A. K-Ibraham
M. Lopez-Otin
M. Fliegel
G. Gnugnoli
E. O'Donnell
M. Haisfield
J. Surmeier
R. Starmer
T. Margulies
M. Bergeron
C. DeFino
M. Silberberg
J. Bunting
E. Shum
B. Youngblood
M. Lee
D. Hurt
R. Browning
D. Loosley
G. Roles
M. Bell
F. Cameron
J. Austin
M. Federline
R. Weiner, CNWRA
P. LaPlante, CNWRA

DOE AND CONTRACTORS

E. Regnier
D. Fenster - Weston
J. Kimball
B. Gamble - Weston
H. Bermanis - Weston
C. Dell - Weston
M. Lugo - Weston/Jacobs
H. Minwalla - Weston/Jacobs
P. Austin - SAIC
L. Tyler
P. Berger
P. Watters - Weston/Jacobs
T. McIntosh
C. Noronha - Weston

U. S. GEOLOGICAL SURVEY

R. Wallace, Jr.
D. Milton
E. Roseboom

U. S. ENVIRONMENTAL PROTECTION AGENCY

C. Petti
D. Egan

APPENDIX I - 14TH ACNW MINUTES

PUBLIC

J. Hileman - Battelle
P. Krishna - Battelle
S. Adams - Donrey Media
R. Shaw - Electric Power Research Institute
S. Cohen - SC&A
M. Bergeron - PNL
J. Allison - Westinghouse
S. Kale - ERC International
C. Henkel - Edison Electric Institute
M. Bauser - Edison Electric Institute
L. Connon - The NRC Calendar
A. Muir - ICF
F. Williams - Hainline & Williams
B. Sadauskos - SERCH Licensing/Bechtel
E. Miller - Afton Associates

APPENDIX II
FUTURE AGENDA

January 24-26, 1990 (tentative agenda)

Meeting with the Commissioners (Open)

Anticipated and Unanticipated Processes and Events (Open) - The Committee will review the revised rule being prepared by the NRC staff concerning the considerations of anticipated and unanticipated processes and events for the proposed high-level waste repository.

IAEA Safety Principles and Technical Criterion (Open) - The Committee will be briefed on "IAEA Safety Principles and Technical Criterion for the Underground Disposal of High-Level Radioactive Wastes", and the NRC staff position paper on this standard.

Definition of Substantially Complete Containment (Open) - The Committee will be briefed by the NRC staff on the Substantially Complete Containment Definition.

Seismic Hazards (Open) - The Committee will be briefed by the NRC staff on the Branch Technical Position on seismic hazards.

Site Characterization Plan (Open) - The Committee will be briefed by representatives of DOE on the semiannual SCP progress report.

International Programs on Waste Disposal (Open) - The Committee will meet with Mr. Harold Denton to discuss international programs on waste disposal.

Storage of Spent Nuclear Fuel (Open) - The Committee will be briefed by the NRC staff on the storage of spent nuclear fuel in NRC approved casks at commercial nuclear power plant sites (final rule for information and comment)

Technical Position on Waste Forms (Open) - The Committee will be briefed by the NRC staff on modifications to the LLW Waste Form Technical Position

Proactive Work in the Division of HLW Management (Open) - The Committee will be briefed by NRC staff on a draft Format and Content Guide for Technical Positions and Regulatory Guides.

MRS Commission Recommendations (Open) - The Committee will be briefed by representatives of the MRS Commission on their position report.

American Society for Testing Materials (Open) - The Committee will be briefed on the radioactive waste activities of ASTM.

Committee Activities (Open) - The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate.

APPENDIX II - 14TH ACNW MINUTES

February 21-23, 1990 (tentative agenda)

Mixed Wastes (Open) - The Committee will be briefed on the EPA criteria for the treatment, storage and disposal of mixed radioactive and hazardous wastes.

Committee Activities (Open) - The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate.

March 21-23, 1990 (tentative agenda)

Pathfinder Atomic Power Plant Dismantlement (Open) - The Committee will be briefed on the NRC staff's finding in their Safety Evaluation Report.

Committee Activities (Open) - The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate.

APPENDIX III - OTHER DOCUMENTS RECEIVED

A. Meeting Handouts from ACNW Staff and Presenters

III. Technical Position on the "Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites"

1. Staff Technical Position on Erosion Protection, October 11, 1989 (Viewgraphs)

IV. Low-Level Waste Performance Assessment Methodology

2. LLW Performance Assessment Methodology -- Progress Report, October 11, 1989, by Dr. John Starmer (Viewgraphs)

V. Waste Acceptance Process

3. Overview of Waste Acceptance Process (WAP) to ACNW, October 11, 1989, by Rick Weller (Viewgraphs)

VI. APEs and UPEs

4. Viewgraph, untitled, October 12, 1989, by Jeff Kimball, DOE

VII. Low-Level Waste Manifest Information and Reporting

5. Technical Position and Rulemaking on Low-Level Waste Shipment Manifest Information and Reporting, by Gary Roles, October 12, 1989 (Viewgraphs)

X. High-Level Waste Repository Program

6. EEI/UWASTE Repository Program Summary, by Steven Kraft, undated (Viewgraphs)

7. EPRI HLW Research Program, by Robert Shaw, October 12, 1989 (Viewgraphs)

XI. Status Report on EPA Standard 40 CFR 191

8. Status and Plans: 40 CFR 191, by Dan Egan, October 13, 1989 (Viewgraphs)

APPENDIX III (CONT'D)

B. Meeting Notebook Contents Listed by Tab Number

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1. Status Report on Tectonic Models.
2. Memorandum for ACNW Members from Parry, July 24, 1989, re Draft Technical Positions on Tectonic Models, with Attachment.
3. Letter for Linehan, NRC, from Appel, DOE, August 8, 1989, re Draft Technical Position on Tectonic Models, with USGS comments attached.
4. Letter for NRC Staff from Loux, NWPO, State of Nevada, August 18, 1989, re Technical Position on Tectonic Models, with attachment.
5. Letter for Linehan, NRC, from Appel, DOE, September 20, 1989, re Draft Technical Position on Tectonic Models, with attachment.
6. Draft Agenda for Tectonics Technical Exchange between DOE and NRC staffs, September 26, 1989.

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7. Status Report on Technical Position on the Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites.
8. Draft Staff Technical Position Design of Erosion Protection covers for Stabilization of Uranium Mill Tailings Sites, August 1989.

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9. Status Report on Performance Assessment Strategy for Low-Level Waste Disposal Sites.
10. NRC Paper, "Performance Assessment Strategy Low-Level Waste Disposal Sites," by Starmer, Deering and Weber.

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11. Status Report on Waste Acceptance Criteria for Defense and West Valley Wastes.

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12. Status Report on APEs and UPEs Rulemaking.
13. Memorandum for Moeller from Silberberg, October 2, 1989, re draft Federal Register Notice containing proposed amendments to 10 CFR Part 60, with attachment (OUO).
14. Partial Minutes from the 12th ACNW Meeting on Performance Assessment for High-Level Radioactive Waste Repository, pages 13-15.
15. Partial Transcript from the 12th ACNW Meeting on APEs and UPEs, pages 363-419.
16. ACNW Letter Report for Zech, August 1, 1989, re Draft Generic Technical Position: Guidance for Determination of Anticipated Processes and Events and Unanticipated Processes and Events.
17. Memorandum for Merrill and Moeller from Foster, July 27, 1988, re Comments on Draft Generic Technical Position.

APPENDIX III, NOTEBOOK CONTENTS, 14TH ACNW MEETING

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18. Memorandum for Merrill and Moeller from Maxwell, August 17, 1988, re Comments on Draft Generic Technical Position.
19. Letter for Merrill and Moeller from Page, August 30, 1988, re Comments on Draft Generic Technical Position.
20. Memorandum for Moeller from Krauskopf, August 19, 1988, re Draft Generic Technical Position.

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21. Status Report on Technical Position and Rulemaking on Low-Level Waste Manifest Information and Reporting.
22. Memorandum for Beckjord from Bernero, February 1, 1989, re Request for Rulemaking, with attachment (OUO).

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23. ACNW Future Schedule, undated.
24. Memorandum for ACNW Members from Parry, August 3, 1989, re West Valley Field Trip - October 26, 1989, with attachment.
25. Memorandum for ACNW Members from Parry, July 26, 1989, re Visit to the Center for Nuclear Waste Regulatory Analyses.

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26. Status Report on EPRI/EEI Perspective on the High-Level Waste Repository Program.
27. Memorandum for Moeller from Parry, August 23, 1989, re Meeting with Utility Association Representatives - August 16, 1989.

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28. Status Report on the EPA Standard for the High-Level Radioactive Waste Repository, 40 CFR 191.
29. Memorandum for ACNW Members from Parry, July 24, 1989, re Working Draft #1 of EPA's Revised HLW Standard, with attachment.
30. Partial Transcript from Nuclear Waste Technical Review Board Panel Meeting, September 14, 1989, pages 238-301.

APPENDIX IV - ACNW LETTER REPORTS/MEMORANDA

The letters/memorandum listed below were issued as result of the 13th ACNW meeting and are attached.

1. Recommendations Dealing with Investigation of Potential Volcanism at the Yucca Mountain High-Level Waste Repository Site (See Attachment 1).

2. Draft Technical Position on Tectonic Models in the Assessment of Performance of High-Level Radioactive Waste Repositories (See Attachment 2).

3. Draft Technical Position on the Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites (See Attachment 3).

4. Low-Level Waste Performance Assessment Methodology (See Attachment 4).

5. Proposed Rulemaking on Anticipated Processes and Events and Unanticipated Processes and Events (See Attachment 5).

6. Pathfinder Atomic Power Plant Dismantlement (See Attachment 6).