UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

December 22, 2003

MEMORANDUM TO: ACNW Members
ACNW Staff

FROM: Michele S. Kelton
Technical Secretary, ACNW

SUBJECT: CERTIFIED MINUTES OF THE 146TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW) OCTOBER 21–23, 2003

The proposed minutes of the subject meeting have been certified as the official record of the proceedings for that meeting.

Attachment:
Certified Minutes, 146th ACNW
Meeting, October 21–23, 2003

cc: J. Larkins, ACRS/ACNW
S. Bahadur, ACRS/ACNW
H. Larson, ACNW/ACNW
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CONTENTS

APPENDICES

CERTIFIED
12/16/2003
By B. JOHN GARRICK

Issued:12/12/03

CERTIFIED MINUTES OF THE 146TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE OCTOBER 21-23, 2003

The U.S. Nuclear Regulatory Commission (NRC) Advisory Committee on Nuclear Waste (ACNW or the Committee) held its 146th meeting on October 21-23, 2003, at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. The ACNW published a notice of this meeting in the *Federal Register* on October 9, 2003 (68 FR 58364) (Appendix A). This meeting served as a forum for attendees to discuss and take appropriate action on the items listed in the agenda (Appendix B). A portion of this meeting was closed to the public pursuant to 5 U.S.C. 552b(c)(2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of the ACNW and information the release of which would constitute a clearly unwarranted invasion of personal privacy.

A transcript of selected portions of the meeting is available in the NRC's Public Document Room at One White Flint North, Room 1F19, 11555 Rockville Pike, Rockville, Maryland. Copies of the transcript are available for purchase from Neal R. Gross and Co., Inc., 1323 Rhode Island Avenue, NW., Washington, DC 20005. Transcripts may also be downloaded from, or reviewed on, the Internet at http://www.nrc.gov/reading-rm/doc-collections/acnw/tr/ at no cost.

ACNW Members who attended this meeting were Dr. B. John Garrick, Chairman, Dr. George M. Hornberger, Dr. Michael T. Ryan (Vice-Chairman), and Dr. Ruth F. Weiner. For a list of other attendees, see Appendix C.

I. CHAIRMAN'S REPORT (OPEN)

[Dr. John T. Larkins was the Designated Federal Official for this portion of the meeting.]

Dr. B. John Garrick, ACNW Chairman, convened the meeting at 10:30 a.m. and briefly reviewed the agenda. He also stated that the meeting was being conducted in conformance with the Federal Advisory Committee Act. In addition, Dr. Garrick asked members of the public who were present and had something to contribute to the meeting to inform the ACNW staff so that time could be allocated for them to speak. He concluded his report by noting the following items of interest.

- Jenny Gallo, Chief of the Operations Support Branch, ACRS/ACNW, has been selected to participate in the NRC's Leadership Potential Program (of the 175 employees who applied, Ms. Gallo was one of the 25 selected).

- Keith McConnell has been appointed Executive Assistant for Materials and Security in the Office of the Chairman. Dr. McConnell served in increasingly responsible positions on the NRC staff and is currently completing the requirements of the Senior Executive Service Candidate Development Program. He has also served on the personal staff of former Chairman Ivan Selin and former Chairman Richard Meserve and has appeared before the ACNW many times.

- James E. Dyer has been appointed Director of the Office of Nuclear Reactor Regulation and James L. Caldwell, Regional Administrator of Region III.

- The Appropriations Bill for the Department of Energy (DOE) and the NRC (among several independent agencies) has not yet been signed into law. The NRC is funded until October 31, 2003, under a continuing resolution.

- The trade press has indicated an agreement between Congress and the White House to nominate both Gregory Jaczko, Senator Reid's chief license advisor, and retired Vice Admiral John Grossenbacher to the NRC (filling the seats left vacant by the departure of Richard Meserve and Greta Dicus).

II. SUMMER INTERN PROJECT (OPEN)

[John T. Larkins was the Designated Federal Official for this portion of the meeting.]

Ms. Tina Ghosh, ACNW summer 2003 intern (Ph.D. candidate at the Massachusetts Institute of Technology's Nuclear Engineering Department), presented an interim report on her project titled "Risk-Informed Uncertainty Studies for the Yucca Mountain Repository Program." The report was well received. ACNW Members provided suggestions for further refinements to her final report.

III. SITE VISIT - YUCCA MOUNTAIN, NEVADA (OPEN)

[Michael P. Lee was the Designated Federal Official for this portion of the meeting.]

As part of its public outreach efforts, the ACNW schedules one meeting annually in southern Nevada. The Committee plans to visit the Yucca Mountain site as part of the 147th ACNW meeting on November 18, 2003. The focus of the tour will be to inspect geologic features within the exploratory studies facility (ESF) that may have a bearing on underground repository design and engineered barrier performance.

Following the underground tour, the Committee plans a bus excursion to the nearby community of Amargosa Valley. The bus tour will be conducted by a local knowledgeable resident, Mr. Robert McCracken. The local population is about 1200, and they obtain their drinking water from a geologic aquifer that is down-gradient from the proposed Yucca Mountain repository. The Committee hopes to learn more first-hand about the characteristics and lifestyles of this

rural farming area. The tour is also expected to contribute to the Members' knowledge base for the forthcoming ACNW Working Group meeting on biosphere dose calculations, currently scheduled for February 2004. As part of the tour, tentative plans include visits to the 5000-head Ponderosa Dairy, an organic alfalfa farm, a clay-mining operation, and the Ash Meadows National Wildlife Refuge.

Both the underground tour and bus excursion will be organized by the DOE. Representatives of affected units of government and selected stakeholder organizations (i.e., the State of Nevada, Clark County, and the Nevada Nuclear Waste Task Force) have accepted invitations to accompany the Committee.

On November 19 and 20, 2003, the ACNW will conduct its 147th meeting. Potential briefing topics for this public meeting were discussed. The preliminary agenda includes presentations by DOE representatives on the status of the repository design, progress in license application preparation, possible ESF and rock-mechanics issues, developments in igneous activity consequence modeling, and ESF chlorine-36 characterization. The Committee also hopes to be briefed by representatives of Inyo County (California) on their drilling program intended to evaluate the regional carbonate aquifer in Southern Nevada-Eastern California, and by Nye County on Phase IV of their early warning drilling program to the south of the proposed repository. A representative from the Electric Power Research Institute has also agreed to brief the Committee on its recent workshop on the potential use of natural analogs in Yucca Mountain programs. Lastly, time has been allocated in the meeting agenda for interested stakeholders and members of the public to address the Committee.

IV. BIOSPHERE SCENARIOS AND DOSE CALCULATION WORKING GROUP SESSION (OPEN)

[Michael P. Lee was the Designated Federal Official for this portion of the meeting.]

Dr. Ryan reported that initial coordination of the draft prospectus and agenda for the February 2004 Biosphere Working Group with the NRC staff was complete. He also noted that the panel of invited experts had been finalized and included the following individuals:

Panel Member	Affiliation
Dr. Dade Moeller (Keynote Speaker)	Chairman of the Board Dade Moeller and Associates
Dr. Keith Eckerman	Earth Sciences Division Oak Ridge National Laboratory
Dr. Jeffrey Daniels	Environmental Sciences Division Lawrence Livermore National Laboratory
Dr. Michael Thorne[1]	Principal Mike Thorne and Associates (UK)

[1] Representing the State of Nevada.

Dr. John Till	President Risk Assessment Corporation
Dr. Ward Whicker	Department of Radiological Health Sciences Colorado State University

Lastly, Dr. Ryan reported that the Working Group prospectus and agenda had been given, for comment, to the panel of invited experts, representatives of the DOE, and interested stakeholders.

V. COMMITTEE RETREAT [OPEN/CLOSED]

[John T. Larkins was the Designated Federal Official for this portion of the meeting.]

On September 17, 2003, the ACNW conducted its 2003 retreat. The purpose of the retreat was to identify the technical topics (including focused Working Groups) that the Committee intends to examine during the next calendar year. The topics selected were intended to be consistent with the priorities defined in the ACNW's 2003–04 Action Plan as well as earlier Committee discussions with the Commission and Office of Nuclear Material Safety and Safeguards (NMSS) management. However, the Committee's retreat was abridged in September owing to the repercussions of tropical storm Isabel on the Washington metropolitan area and continued during this meeting.

Two outside speakers had agreed to speak to the Members as part of the retreat deliberations. Dr. Kevin Crowley, Staff Director of the National Academies Board on Radioactive Waste Management, presented his personal views on emerging waste management issues that may be of potential interest to the ACNW. Ms. Margaret Federline, NMSS Deputy Director, presented the NRC's waste management perspective on those staff products and activities (both planned and underway) that might benefit from independent review by the Committee.

In the first presentation, Dr. Crowley suggested that there were three potential areas for the ACNW to focus its deliberations on over the next couple of years. In order of importance, they were:

1. The proposed high-level radioactive waste (HLW) repository at Yucca Mountain (Nevada).
2. The security, transportation, and storage of spent nuclear fuel (SNF).
3. The management of certain low-activity radioactive wastes.[2]

The Proposed Yucca Mountain Repository: Dr. Crowley noted that the United States currently has an operating geologic repository for transuranic wastes in the form of the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. He noted that WIPP already had several years of operational experience and the disposal facility was soon to undergo a recertification

[2]E.g., low-level radioactive wastes, naturally occurring radioactive materials (or NORM), and/or technically enhanced radioactive materials (or TENORM).

(i.e., licensing) process with the U.S. Environmental Protection Agency (EPA). Dr. Crowley suggested that there were some important lessons learned from the WIPP licensing experience that could be potentially applied to Yucca Mountain. He cited two examples.

- ***EPA's RCRA[3] requirements:*** Dr. Crowley observed that the applicability of EPA's RCRA requirements to SNF and other HLW destined for the proposed Yucca Mountain repository has not been addressed by the DOE at this time. DOE has focused its resources almost exclusively on addressing site suitability issues and NRC's pre-licensing concerns. However, in the case of WIPP, DOE's lack of attention to RCRA was costly and ultimately became *the* critical path activity necessary to receive an operating license. In Dr. Crowley's view, DOE was again failing to address the potential for dual regulation of a geologic repository under RCRA[4]—this time at Yucca Mountain.

- ***DOE's performance confirmation program:*** At WIPP, DOE was required to conduct a performance confirmation program prior to its original operating certification in 1998. After receiving that certification, the WIPP certification program was essentially terminated. Dr. Crowley suggested that the lack of performance confirmation-based data may place DOE at a technical disadvantage during recertification. In the case of the proposed Yucca Mountain repository, DOE has not implemented a performance confirmation program at this time even though NRC's regulations require that one be in place as early as possible as part of the Department's site characterization programs. (DOE's Yucca Mountain site characterization programs began about 1988.) In Dr. Crowley's view, DOE was again failing to take advantage of an opportunity to strengthen the technical basis it needs for a favorable licensing outcome.

In summary, Dr. Crowley believes that the Committee should determine if there are lessons learned from the WIPP certification experience that could be applied to Yucca Mountain.

SNF Security: Dr. Crowley noted the widespread concern expressed in the media about the vulnerability of SNF (either in storage or in transport) to acts of terrorism and sabotage. He felt that the current practice of limited public disclosure was not effective and more could be done to ease public concerns in this area without compromising existing safeguards and security measures. Dr. Crowley suggested that the ACNW provide advice to the Commission on the adequacy of the existing security assessments and how this information might be effectively communicated to the public.

Low Activity Radioactive Waste: Dr. Crowley noted that the regulatory framework in place for managing these materials was ineffective. He observed that some radioactive waste streams were subject to ambiguous regulation (i.e., RCRA-characteristic wastes[5]) whereas others (some types of HLW) were subject to no regulation at all. Dr. Crowley suggested that all radioactive

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[3]The Resource Conservation and Recovery Act.

[4]EPA also permits its RCRA regulations to be implemented (enforced) by the States, which would include the State of Nevada, in this instance.

[5]Appears on the EPA list of chemically hazardous wastes.

material process streams needed to be examined. As part of this examination, he recommended that the Committee study an earlier National Council on Radiation Protection and Measurements report[6] as well as a forthcoming (interim) National Academies report (scheduled for 2003) and make recommendations to the Commission on ways for improvement to ensure that the waste streams in question were adequately regulated.

In the second presentation, Ms. Margaret Federline provided the NMSS management perspective on emerging waste management issues that may be of potential interest to the ACNW. She said both the Commission and NRC staff would benefit from independent ACNW review of these issues. She noted the value of past ACNW reviews, especially when it comes to the Committee's "out-of-the-box" perspective. Through the course of her presentation and in follow-on discussions with the Members, Ms. Federline recommended that the Committee consider seven areas for future action and advice:

- In the area of HLW, the Committee should review the development and use of risk insights in pre-licensing programs (Area 1) and the transition of the pre-licensing program into repository licensing and inspections (Area 2).

- In the area of SNF transportation, it was recommended that the Committee review revisions to the Waste Package Performance study before it is finalized (Area 3).

- As regards NRC's decommissioning programs, it was recommended the staff approaches to the implementation of the proposed License Termination Rule be reviewed (Area 4) as well as NMSS recommendations to the Commission on the disposition of solid materials (i.e., the "clearance" rule, Area 5).

- Consistent with the Commission's earlier PRA Policy Statement, NMSS is examining ways to better risk-inform its programs. A potential area for ACNW review generally would be future staff recommendations to harmonize these programs as well as any subsequent guidance development (Area 6).

- Lastly, it was recommended that NRC staff participation in its international cooperation effort in radiation standard-setting (e.g., the International Commission on Radiation Protection) would be an area for which the independent ACNW views would be welcomed (Area 7).

During the Committee deliberations that followed, the Members agreed to a partial list of technical topics they intended to examine during the next calendar year. It was also agreed that the deliberations on this subject would continue in subsequent Committee meetings.

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[6]Entitled "Risked-Based Classification of Radioactive and Hazardous Chemical Wastes."

VI. YUCCA MOUNTAIN PRE-CLOSURE SAFETY AND DRIFT DEGRADATION ISSUES (OPEN)

[Richard K. Major was the Designated Federal Official for this portion of the meeting.]

Introduction (By Dr. Mysore Nataraja, NRC/NMSS)

Dr. Nataraja noted that the purpose of this presentation was two-fold. The first part was intended to provide an update on the pre-closure safety analysis (PCSA) methodology and associated computer program (PCSA tool). The second half of the presentation was intended to present recent staff analyses of long-term drift degradation and its potential effects on engineered barrier design and performance.

In summary, Dr. Nataraja noted that the PCSA provides the overall methodology for evaluating the DOE's repository design and assessing the risk significance of its components during the operational phase of the repository. The PCSA is the primary means for the staff to determine whether the pre-closure performance objectives are met. The staff will also use PCSA to review the DOE's identification of structures systems and components important to safety.

The second part of the presentation focused on drift degradation. Dr. Nataraja observed that the timing and extent of drift degradation, and its possible effects, are the subject of several agreements between NRC and DOE. Long-term degradation of emplacement drifts is ranked "high" in risk significance because of its potential effects on long-term performance of the engineered barrier system.

The link between these two presentations is the repository design and thermal-mechanical effects key technical issue, which affects construction and operation of the repository in the pre-closure period as well as long-term thermal-mechanical and seismic effects which affect the postclosure performance of the repository. The staff was asked if the lack of a detailed design has hampered pre-closure considerations. The staff said it was troubling, but the focus at this stage was on generic design issues.

PCSA Tool and Example Application (By Mr. Robert K. Johnson, NRC/NMSS, and Dr. Biswajit Dasgupta, Center for Nuclear Waste Regulatory Analyses)

The PCSA tool will be used to review selected portions of DOE's pre-closure safety analysis. The tool is intended to provide the staff with an independent analysis capability. The pre-closure safety analysis is defined as a systematic examination of the site; the design; and the potential hazards; initiating events and their resulting event sequences; and potential dose consequences to workers and to the public.

The staff will use the Yucca Mountain Review Plan (YMRP) to review DOE's license application. The PCSA tool applies review methods contained in the YMRP. The staff will use the PCSA tool to conduct selected confirmatory analyses.

The staff described the pre-closure review methodology which focused on input to the PCSA tool, PCSA tool functions, and the objectives of the pre-closure safety analysis. Input to the tool includes a site description and facility design and natural and human-induced hazard analysis.

PCSA functions include an operational hazard analysis, event sequence analysis, and consequence analysis. The results of the analysis include an assessment of compliance with dose limits in the regulations and an identification of structures, systems, and components important to safety.

The staff presented a hypothetical example of an analysis of a dry transfer facility. An example of a compliance analysis for expected events was also presented. The analysis demonstrated compliance with the regulations with substantial margin. The staff also presented a hypothetical analysis for rare events (less than 1 chance in 10,000). Again, doses were within compliance limits with substantial margin.

The staff believes the PCSA tool provides additional capability to gain risk insights. The tool evaluates aggregate risk to a member of the public from the entire facility. The tool identifies the total risk, the largest contributors to the total risk, and the most likely outcomes for a combination of events.

Evaluation of Rock Fall Effects In Postclosure Performance Assessment (By Goodluck I. Ofoegbu, CNWRA)

Dr. Ofoegbu presented the drift degradation analysis due to rock fall for the postclosure performance assessment. In the postclosure analysis, the staff and Center for Nuclear Waste Regulatory Analyses (CNWRA) will evaluate mechanical loading of the engineered barrier system caused by dynamic rock-block impact and accumulated rock fall rubble. The analysis will also evaluate changes in emplacement drift configuration that could affect the waste package environment.

Dynamic rock-block impact on the drip shield was discussed. In the lower lithophysal stratigraphic unit, rock-block impact on the drip shield is not a concern. Potential individual rock blocks are generally not large enough to cause any damage to the drip shield. In the middle nonlithophysal stratigraphic unit, the potential for dynamic rock-block impact exists. Rock blocks of between 2 1/2 and 5 tons are predicted to fall affecting 15 to 25% of the emplacement area in the middle nonlithophysal unit. This prediction is based on fracture spacing.

The staff and CNWRA believe emplacement drifts are expected to experience rock fall and accumulation of rock fall rubble after permanent closure. The CNWRA has proposed an analysis based on documented engineering experience of the design of underground openings and the behavior of abandoned underground coal mine openings in Pennsylvania. The CNWRA presented empirical data for the stability of unsupported underground openings. This mining information is generally used to guide drift support installation decisions. Dr. Ofoegbu noted that DOE is not likely to use this rock quality index (the "G" index) for mechanical characterization of Yucca Mountain work. The CNWRA's assumptions were characterized as conservative. The CNWRA does believe that ground support would be needed to maintain stable openings for the design evaluated. As the ground supports degrade, so would the drifts.

The amounts of accumulated rock fall rubble were presented. The height of rubble determines the magnitude of mechanical loading on the drip shield. Values of bulking factors for long-term drift configuration with accumulated rock fall ranged from 1.25–1.35 or a very compact debris pile, with little spacing between individual rocks. In the CNWRA's model, drifts are expected to

degrade and fill with rubble within a few hundred years after cessation of drift maintenance. The DOE has proposed using static fatigue response data to estimate drift degradation rates. The staff and CNWRA believe using static fatigue testing to estimate long-term (hundreds to thousands of years) behavior of underground openings is unprecedented.

According to Dr. Ofoegbu, the DOE and NRC staffs' views appear similar regarding dynamic rock-block impact on the drip shield and the occurrence of drift degradation and accumulated rubble within 10,000 years. However, the DOE and NRC staffs views differ regarding the following items: (1) magnitude of drip shield loading from accumulated rubble, (2) rates of drift degradation and rubble accumulation, and (3) representation of drift degradation and rubble accumulation in performance assessment (not included in the DOE model).

MECHFAIL: A TPA Code Module for Evaluating Engineered Barrier Performance Under Mechanical Loading Conditions - (By G. Douglas Gute, CNWRA)

The objective of this work is to stochastically estimate the number of drip shield and waste package failures attributable to seismic and rock fall events. A number of risk insights were presented. A total-system performance assessment (TPA) analysis indicates that removal of the drip shields at the time of repository closure results in projected doses at least two orders of magnitude below the regulatory limit. When both the drip shield and waste package are removed at the time of repository closure, the calculated dose increases two orders of magnitude relative to the nominal scenario. Increased seepage into the drift caused by rock fall has not been considered yet.

The response of the drip shield to seismic ground motion time histories has yet to be assessed. Eigenvalue analyses indicate the drift shield has several natural frequencies below 33 Hz. The vast majority of the energy associated with a seismic event can be attributed to the generated ground waves with frequencies less than 33 Hz. The response of the waste package to seismic ground motion time histories has yet to be assessed.

Dr. Gute summarized the waste package response to rock fall loads, both static and dynamic. No direct rock fall loads should be experienced by the package. DOE has committed to designing the drip shield to achieve this goal. Also under consideration are drip shield and waste package interactions. For static rock fall loads, preliminary qualitative assessment indicates the potential for significant plastic straining of the waste package outer barrier if the drip shield deflects sufficiently far to transfer static rock fall loads to the waste package. Drip shield and waste package interactions arising from dynamic rock fall loads are relatively low priority because a small percentage of waste packages could be affected.

In closing, it was observed that preliminary MECHFAIL module[7] results indicated that 75% of the drip shields buckle under static rock fall loads within 500 years after cessation of maintenance of ground support systems. The drip shield and invert designs are being reevaluated by DOE.

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[7]An NRC-developed computer code.

Rebuttal Comments by Dr. Mark Board's on NRC Rock Fall Evaluations (Subsurface Project Engineer, Yucca Mountain Project, Bechtel SAIC Company)

Dr. Board explained that DOE and NRC have had several recent information exchanges which provided much shared understanding. He urged caution in the use of empirical mining studies. The coal mines used in the analyses by the CNWRA have high stresses and are mined to the rock's limit for economic reasons. By contrast, the tunnels that will comprise the repository are isolated from one another and are far from tunnel stress limits. The 25-foot diameter excavation cut into Yucca Mountain over the past 5-7 years has shown no rock falls, even though these drifts are in what is expected to be the worst rock in the repository. NRC conservatisms appear to be on the high end of the scale, more associated with mining safety requirements than long-term drift stability. Dr. Board referred to unsupported copper mines in Sweden that have been open for 500 years. He stated that it was important to understand the mechanics of the actual Yucca Mountain tunnels. The timing of tunnel collapse remains an open issue between DOE and NRC. Dr. Board is waiting for the results of the TSPA Code to place this issue in the context of overall safety concerns.

VII. UPDATED STAFF PERFORMANCE ASSESSMENT CODE TPA 5.0 AND PEER REVIEW COMMENTS (OPEN)

[Michael P. Lee was the Designated Federal Official for this portion of the meeting.]

NMSS Division of Waste Management (DWM) staff briefed the Committee on recent improvements to NRC's total-system performance assessment (TPA) computer code, including revisions made in response to an NRC-sponsored peer review of that computer code. In 1997, the ACNW recommended that the NRC staff seek a peer review of its TPA computer code. In 1998, NRC directed its technical assistance contractor, CNWRA, to undertake an external peer review of its TPA computer code (Version 3.2 at the time) as well as the overall NRC TPA methodology. In 2000, the ACNW Members received a briefing on the external peer review results which resulted in additional Committee comments on this issue. The presentations were conducted by Mr. John Peckenpaugh and Mr. Chris Grossman from the DWM. Dr. Andrew Campbell made some introductory remarks concerning the purpose and role of NRC's performance assessment capability.

The first set of presentations were made by Mr. Peckenpaugh. He noted that peer review members (see Table 1) were provided with Version 3.2 of NRC's TPA computer code and other references for their evaluation. To help focus their review, Mr. Peckenpaugh summarized the primary goals of the independent peer review:

- Examine the methods and assumptions of the NRC studies implemented in the TPA computer code.
- Recommend improvements that the code be made in subsequent revisions, modifications, and updates to the computer code.
- Evaluate implementation of conceptual models, including parameter choices.

- Determine whether the NRC approach to TPA is suitable for achieving its objectives to review the DOE license application and associated performance assessments.

In addition to the primary goals, the peer review group was also asked to respond to the following questions:

1. Is Version 3.2 the TPA computer code sufficiently complete?

2. Are the conceptual model abstractions and data in the TPA computer code defensible?

3. Are parameter values in the TPA computer code defensible reasonable?

4. What are the strengths and weaknesses of NRC's TPA computer code as a tool in supporting NRC decisionmaking during licensing?

5. What improvements to the computer code would the panel members recommend, taking into consideration the intended application of the code to support NRC decision-making during licensing?

During 1998–1999, the peer review group provided 233 individual comments and recommendations to the CNWRA for the NRC staff to consider.[8] Peer review comments applied to specific areas of the TPA code, as well as to the overall performance assessment process. In the summary report,[9] the decision was to index the comments and recommendations by integrated subissue, which is the format expected to be used by the staff to review DOE's license application. The distribution of the peer review comments and recommendations by integrated subissue is as follows:

[8]The NRC peer review was not a consensus review and no compilation report was prepared.

[9]Weldy, J.R., and J. Peckenpaugh, "Response to the External Peer Review of the Total-System Performance assessment Version 3.2 Code, San Antonio, Center for Nuclear Waste regulatory Analyses, CNWRA 2001-02 Revision 1, 2003.

Overall Performance Assessment Process	81
Degradation of Engineered Barriers (ENG1)	19
Mechanical Disruption of Engineered Barriers (ENG2)	14
Quality and Chemistry of Water Contacting the Waste Package and Waste Form (ENG3)	14
Radionuclide Release Rates and Solubility Limits (ENG4)	22
Climate and Infiltration (UZ1)	2
Flow Paths in the Unsaturated Zone (UZ2)	17
Radionuclide Transport in the Unsaturated Zone (UZ3)	10
Flow Paths in the Saturated Zone (SZ1)	8
Radionuclide Transport in the Saturated Zone (SZ2)	5
Volcanic Disruption of Waste Packages (Direct 1)	5
Airborne Transport of Radionuclides (Direct 2)	3
Dilution of Radionuclides in Water due to Well Pumping (Dose 1)	6
Redistribution of Radionuclides in Soil (Dose 2)	6
Lifestyle of Critical Group (Dose 3)	21
TOTAL	**233**

Overall, Mr. Peckenpaugh observed that the peer review group comments and recommendations could be summarized as follows:

- NRC's TPA computer code was well-developed and captured important physical processes associated with repository behavior.
- NRC's TPA computer code would be sufficient in technical quality and flexibility to be used to review DOE's License Application.
- Specific improvements were necessary to enhance the use of the code.[10]

[10]That is, modeling of coupled [T-M-H-C] repository processes, improvements in the modeling of the chemical composition of water, additional data for saturated zone modeling, technical basis for the selection of radionuclides tracked in the analysis, and TPA computer code documentation.

Mr. Peckenpaugh next discussed how the peer review group comments and recommendations were addressed.[11] He noted that in parallel to the peer review process, the NRC staff continued to make enhancements to the TPA computer code. Revisions made to the computer code in fiscal year 2001 (Version 4.1) reflect some of the peer review group comments and recommendations generally cited above. Other peer review group comments were addressed through improvements to documentation in the TPA computer code User's Guide. Overall, it is estimated that about 17% of the peer review group comments concern the TPA computer code itself. Mr. Peckenpaugh noted that the staff intends additional enhancements for Version 5.0 of the code—the version to be used to review DOE's license application (now under development), to reflect additional peer review group comments and recommendations not treated in the earlier TPA Version 4.1.

Mr. Peckenpaugh's presentation was followed by questions and comments from individual ACNW Members and staff. During this portion of the staff presentation, it was noted that a number of the 5.0 TPA enhancements were intended to improve the technical validity of the process models underpinning the computer code itself as well as verify its computational accuracy.

The second set of presentations were made by Mr. Grossman. These addressed changes to Version 5.0 of the TPA computer code. Mr. Grossman observed that in addition to addressing the peer review group recommendations, the staff made modifications to the TPA computer code based on the following criteria:

- support staff's review of a DOE License Application for Yucca Mountain
- improve staff understanding of repository behavior at Yucca Mountain
- enhance flexibility of TPA as a review tool
- maintain computational efficiency

Mr. Grossman identified specific repository process areas for which the staff had made major enhancements (modifications) to the computer code to improve its realism as well as the specific nature of the enhancement. These areas included:

- near-field chemistry
- drip shield lifetime
- waste package lifetime
- source term
- unsaturated and saturated zone transport
- Igneous activity

It was noted that some lesser changes were made to other TPA computational modules.

Mr. Grossman's presentation was followed by questions and comments from individual ACNW Members and staff regarding specific capabilities of NRC's TPA computer code.

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[11]All NRC responses to the peer review group comments can be found in Weldy and Peckenpaugh.

Table 1. 1999 TPA Peer Review Group Members

Dr. Barry Brady	University of Australia	Rock Mechanics and Mining Engineering
Dr. Paul Delany	U.S. Geological Survey	Volcanology
Dr. Ghislain de Marsily	Laboratoire Géologie Appliquée, Université Pierre and Marie Curie (France)	Hydrology
Dr. Robert Kelly	University of Virginia	Material Science and Corrosion Engineering
Dr. Gérald Ouzounian	Agence Nationale Pour La Gestion Des Déchets Radioactifs (France)	Geochemistry
Dr. Brain Thompson	Independent Consultant (United Kingdom)	Overall Performance Assessment
Dr. Frits van Dorp	NAGRA (Switzerland)	Features, Events, and Processes
Dr. F Ward Whicker	Colorado State University	Health Physics

VIII. WASTE MANAGEMENT-RELATED SAFETY RESEARCH REPORT (OPEN)

[Richard P. Savio was the Designated Federal Official for this portion of the meeting.]

The Committee discussed a plan for its annual review of the NRC-sponsored research and technical assistance program and agreed to a scope of work. Dr. Ruth Weiner, ACNW Member, will continue to work on this project.

IX. UPDATE ON WASTE MANAGEMENT TOPICS (OPEN)

[Howard J. Larson was the Designated Federal Official for this portion of the meeting.]

Dr. Garrick introduced Mr. John Greeves, Director of NMSS DWM, who briefed the Committee on both recent and future DWM activities of possible interest. He was accompanied by Mr. William Reamer, Deputy Director, DWM.

After discussing recent changes in the NMSS organization, Mr. Greeves then discussed a variety of topics, including the status of the West Valley project in western New York State, low-level waste disposal site accessability, current DWM decommissioning activities of possible interest to the Committee, the status of the igneous activity issue at Yucca Mountain, and the mutual staff/ACNW plans to closely coordinate future interactions so as to maximize their value.

The Committee expressed appreciation for these periodic briefings and indicated that all topics were of interest and value.

APPENDIX A

proposed action and concludes that the proposed exemptions would not increase the probability or consequences of accidents previously analyzed, and would not affect facility radiation levels or facility radiological effluents.

The proposed action will not significantly increase the probability or consequences of accidents, no changes are being made in the types of effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does not involve any historic sites. It does not affect nonradiological plant effluents and has no other environmental impact. Therefore, there are no significant nonradiological environmental impacts associated with the proposed action.

Accordingly, the NRC staff concludes that there are no significant environmental impacts associated with the proposed action.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to the proposed action, the staff considered denial of the proposed action (*i.e.*, the "no-action" alternative). Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources

The action does not involve the use of any different resources than those previously considered in the Final Environmental Statement for MP3, dated December 1984.

Agencies and Persons Consulted

On August 22, 2003, the staff consulted with the Connecticut State official, Mr. Michael Firsick, of the Connecticut Department of Environmental Protection, regarding the environmental impact of the proposed action. The State official had no comments.

Finding of No Significant Impact

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated July 1, 2003. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the internet at the NRC Web site, *http://www.nrc.gov/reading-rm/adams.html*. Persons who do not have access to ADAMS, or who encounter problems in accessing the documents located in ADAMS, should contact the NRC's PDR Reference staff by telephone at 1–800–397–4209 or 301–415–4737, or by e-mail to *pdr@nrc.gov*.

Dated at Rockville, Maryland, this 2nd day of October 2003.

For The Nuclear Regulatory Commission.

James W. Clifford,

Chief, Section 2, Project Directorate I, Division of Licensing Project Management, Office of Nuclear Reactor Regulation.

[FR Doc. 03–25605 Filed 10–8–03; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Nuclear Waste Meeting on Planning and Procedures, Revised Notice of Meeting

The ACNW will hold a Planning and Procedures meeting on October 21, 2003, Room T–2B1, 11545 Rockville Pike, Rockville, Maryland.

The entire meeting will be open to public attendance, with the exception of a portion that may be closed pursuant to 5 U.S.C. 552b(c)(2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of ACNW, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.

The agenda for the subject meeting shall be as follows:

Tuesday, October 21, 2003—8:30 a.m.–10 a.m.

The Committee will discuss proposed ACNW activities and related matters. The purpose of this meeting is to gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate, for deliberation by the full Committee.

Members of the public desiring to provide oral statements and/or written comments should notify the Designated Federal Official, Mr. Howard J. Larson (Telephone: 301/415–6805) between 7:30 a.m. and 4:15 p.m. (ET) five days prior to the meeting, if possible, so that appropriate arrangements can be made. Electronic recordings will be permitted only during those portions of the meeting that are open to the public.

Further information regarding this meeting can be obtained by contacting the Designated Federal Official between 7:30 a.m. and 4:15 p.m. (ET). Persons planning to attend this meeting are urged to contact the above named individual at least two working days prior to the meeting to be advised of any potential changes in the agenda.

Dated: October 2, 2003.

Sher Bahadur,

Associate Director for Technical Support, ACRS/ACNW.

[FR Doc. 03–25600 Filed 10–8–03; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Nuclear Waste; Notice of Meeting

The Advisory Committee on Nuclear Waste (ACNW) will hold its 146th meeting on October 21–23, 2003, Room T–2B3, 11545 Rockville Pike, Rockville, Maryland.

The entire meeting will be open to public attendance.

The schedule for this meeting is as follows:

Tuesday, October 21, 2003

10:30 a.m.–10:40 a.m.: Opening Statement (Open)—The Chairman will open the meeting with brief opening remarks, outline the topics to be discussed, and indicate items of interest.

10:40 a.m.–12 Noon.: Summer Intern Project (Open)—The ACNW summer intern will provide her final report to the Committee on the project titled, "Assessment Model Uncertainty in Performance Assessment."

1 p.m.–1:30 p.m.: Biosphere Scenarios and Dose Calculation Working Group (Open)—The Committee will review the agenda and speakers for the Biosphere Working Group scheduled for February 24–26, 2004 in Rockville, Maryland.

1:30 p.m.–2 p.m.: Site Visit—Yucca Mountain, Nevada (Open)—The Committee will finalize its November 18, 2003, trip to Yucca Mountain and the Amargosa Valley, and its subsequent technical discussions in Las Vegas, NV with DOE representatives and stakeholders during the 147th ACNW Meeting, November 19–20, 3004.

2:15 p.m.–6 p.m.: Committee Retreat (Open/Closed)—The Committee will continue its discussion (from the 145th meeting) on technical topics it intends to examine over the next 12 to 18 months and ACNW activities and related matters.

Note: A portion of this session may be closed pursuant to 5 U.S.C. 552b(c) (2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of the ACNW, and information the release of which would constitute a clearly unwarranted invasion of personal privacy

Wednesday, October 22, 2003

8:30 a.m.–8.35 a.m.: Opening Statement (Open)—The Chairman will make opening remarks regarding the conduct of today's sessions.

8:35 a.m.–12:15 p.m.: Yucca Mountain Pre-Closure Safety and Drift Degradation Issues (Open)—The Committee will hear from representatives of the NRC staff on these issues. Presentations will include a summation of the status of related agreements, a demonstration of the pre-closure safety analysis tool, and the MECH–FAIL computer code used to evaluate drift degradation within a geologic repository.

1:30 p.m.–3:30 p m.: Updated Staff Performance Assessment Code TPA 5.0 and Peer Review Comments (Open)—The Committee will hear from representatives of the NRC staff on the updated TPA Code 5.0 and how external peer review comments were incorporated into the code.

3:45 p.m.–4 p.m.: Waste Management—Related Safety Research Report (Open)—The Committee will discuss plans for ACNW review of NRC waste management-related safety research.

4 p.m.–6 p.m.: Preparation for Meeting with the NRC Commissioners (Open)—The next meeting with the NRC Commissioners is scheduled to be held at 10 a.m. in the Commissioners' Conference Room, One White Flint North on October 23, 2003. The Committee will review its proposed presentations.

Thursday, October 23, 2003

8:30 a.m.–8:35 a.m.: Opening Statement (Open)—The Chairman will make opening remarks regarding the conduct of today's sessions.

8:35 a.m.–9:30 a.m.: Update on Waste Management Topics (Open)—The Committee will receive its semi-annual update on waste management topics from the Director, Division of Waste Management, NMSS.

9:30 a.m.–9:45 a.m.: Discussion of Topics for Meeting with the NRC Commissioners (Open)—The Committee will discuss topics scheduled for the ACNW Meeting with the NRC Commissioners at 10 a.m.

10 a.m.–12 Noon: Meeting with the NRC Commissioners (Open)—The Committee will meet with the NRC Commissioners in the Commissioners' Conference Room, One White Flint North to discuss the following:

- Chairman's Report
- Status and Pathway to Closure on Key Technical Issues
- High-Level Waste Risk Insights
- Total System Performance Assessment (TSPA/TPA) Working Group
- Performance Confirmation Working Group

1 p.m.–2:45 p.m.: Preparation of ACNW Report (Open)—The Committee will discuss potential reports on Yucca Mountain Pre-Closure Safety and Drift Degradation Issues and Updated Staff Performance Code TPA 5.0 (tentative).

2:45 p.m.–3 p.m.: Miscellaneous (Open)—The Committee will discuss matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

Procedures for the conduct of and participation in ACNW meetings were published in the **Federal Register** on October 11, 2002 (67 FR 63459). In accordance with these procedures, oral or written statements may be presented by members of the public. Electronic recordings will be permitted only during those portions of the meeting that are open to the public. Persons desiring to make oral statements should notify Mr. Howard J. Larson, Special Assistant (Telephone 301/415–6805), between 7:30 a.m. and 4 p.m. ET, as far in advance as practicable so that appropriate arrangements can be made to schedule the necessary time during the meeting for such statements. Use of still, motion picture, and television cameras during this meeting will be limited to selected portions of the meeting as determined by the ACNW Chairman. Information regarding the time to be set aside for taking pictures may be obtained by contacting the ACNW office 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 notify Mr. Howard J. Larson as to their particular needs.

Further information regarding topics to be discussed, whether the meeting has been canceled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefore can be obtained by contacting Mr. Howard J. Larson.

ACNW meeting agenda, meeting transcripts, and letter reports are available through the NRC Public Document Room at *pdr@nrc.gov*, or by calling the PDR at 1–800–397–4209, or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS) which is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm/adams.html* or *http://www.nrc.gov/reading-rm/doc-collections/* (ACRS & ACNW Mtg schedules/agendas).

Videoteleconferencing service is available for observing open sessions of ACNW meetings. Those wishing to use this service for observing ACNW meetings should contact Mr. Theron Brown, ACNW Audiovisual Technician (301/415–8066), between 7:30 a.m. and 3:45 p.m. ET, at least 10 days before the meeting to ensure the availability of this service. Individuals or organizations requesting this service will be responsible for telephone line charges and for providing the equipment and facilities that they use to establish the video teleconferencing link. The availability of video teleconferencing services is not guaranteed.

Dated: October 3, 2003.

Andrew L. Bates,

Advisory Committee Management Officer.

[FR Doc. 03–25602 Filed 10–8–03; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Biweekly Notice; Applications and Amendments to Facility Operating Licenses Involving No Significant Hazards Consideration; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Biweekly notice; correction.

SUMMARY: This document corrects a notice appearing in the **Federal Register** on September 18, 2003 (68 FR 54747). This action is necessary to correct an erroneous date.

FOR FURTHER INFORMATION CONTACT: Michael T. Lesar, Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555–

APPENDIX B

UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

October 3, 2003

AGENDA
146th ACNW MEETING
OCTOBER 21-23, 2003

TUESDAY, OCTOBER 21, 2003, CONFERENCE ROOM T- 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

1) 10:30 - 10:~~40~~ 35 A.M. Opening Statement (Open) (BJG/JTL)
The Chairman will open the meeting with brief opening remarks, outline the topics to be discussed, and indicate items of interest.

2) 10:~~40~~ 35 - ~~12:00~~ 11:52 Noon Summer Intern Project (Open) (STG)
The ACNW summer intern will provide her final report to the Committee on the project titled, "Assessment Model Uncertainty in Performance Assessment."

~~12:00~~ 11:52 - 1:00 P.M. ***LUNCH***

3) 1:00 - 1:30 P.M. Biosphere Scenarios and Dose Calculation Working Group (Open) (MTR/MPL)
The Committee will review the agenda and speakers for the Biosphere Working Group scheduled for February 24-26, 2004 in Rockville, Maryland.

4) 1:30 - ~~2:00~~ 1:37 P.M. Site Visit - Yucca Mountain, Nevada (Open) (BJG/MPL)
The Committee will finalize its proposed activities for its November 18, 2003, trip to Yucca Mountain and the Amargosa Valley, and its subsequent technical discussions in Las Vegas, NV with DOE representatives and stakeholders during the 147th ACNW Meeting, November 19-20, 2003.

2:00 - ~~2:15~~ 2:35 P.M. ***BREAK***

5) ~~2:15~~ 2:35 - 6:00 P.M. Committee Retreat (Open/Closed)
~~5:15~~
The Committee will continue its discussion (from the 145th meeting) on technical topics it intends to examine over the next 12 to 18 months and ACNW activities and related matters. A portion of this session may be closed pursuant to 5 U.S.C. 552b(c) (2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of the ACNW, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.

3:30 - 5:15 Closed

5:15 Recess

WEDNESDAY, OCTOBER 22, 2003, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

6. 8:30 - 8:35 A.M. Opening Statement (Open) (BJG/HJL)
The Chairman will make opening remarks regarding the conduct of today's sessions.

7) 8:35 - 12:15 P.M. Yucca Mountain Pre-Closure Safety and Drift Degradation Issues (Open) (BJG/RKM)
The Committee will hear from representatives of the NRC staff on these issues. Presentations will include a summation of the status of related agreements, a demonstration of the pre-closure safety analysis tool, and the MECH-FAIL computer code used to evaluate drift degradation within a geologic repository.

10:00 - 10:20
To be Determined ***BREAK***

12:15 - 1:30 P.M. ***LUNCH***

8) 1:30 - ~~3:30~~ 2:35 P.M. Updated Staff Performance Assessment Code TPA 5.0 and Peer Review Comments (Open) (BJG/MPL)
The Committee will hear from representatives of the NRC staff on the updated TPA Code 5.0 and how external peer review comments were incorporated into the code.

3:30 - 3:45 P.M. ***BREAK***

9) ~~3:45 - 4:00~~ 3:15 3:40 P.M. Waste Management - Related Safety Research Report (Open) (RFW/RPS)
Discussion of plan for ACNW review of NRC waste management-related safety research.

10) 4:20 ~~4:00~~ - 6:00 P.M. Preparation for Meeting with the NRC Commissioners (Open) (BJG/JTL)
The next meeting with the NRC Commissioners is scheduled to be held at 10:00 a.m. in the Commissioners' Conference Room, One White Flint North on October 23, 2003. The Committee will review its proposed presentations.
- TPA 5.0
- MECHFAIL Code
- PCSA Tool
- YMP Preclosure Safety & Drift Degradation

3:40 - 4:20 Prep. of ACNW Reports

THURSDAY, OCTOBER 23, 2003, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

11) 8:30 - 8:35 A.M. Opening Statement (Open) (BJG/JTL)
The Chairman will make opening remarks regarding the conduct of today's sessions.

12) 8:35 - 9:30 A.M. Update on Waste Management Topics (Open) (BJG/HJL)
The Committee will receive its semi-annual update on waste management topics from the Director, Division of Waste Management, NMSS.

13) 9:30 - 9:45 A.M. Discussion of Topics for Meeting with the NRC Commissioners (Open) (BJG, et al./JTL, et al.)
Discussion of topics scheduled for the ACNW meeting with the NRC Commissioners at 10:00 a.m.

9:45 - 10:00 A.M. ***BREAK***

14) 10:00 - 12:00 Noon Meeting with the NRC Commissioners (Open) (BJG, et al./JTL, et al.)
The Committee will meet with the NRC Commissioners in the Commissioners' Conference Room, One White Flint North to discuss the following:
— Chairman's Report (BJG/HJL)
— Status and Pathway to Closure on Key Technical Issues (BJG/MPL)
— High-Level Waste Risk Insights (RFW/RKM)
— Total System Performance Assessment (TSPA/TPA) Working Group (GMH/NMC)
— Performance Confirmation Working Group (MTR/NMC)

1:35
12:00 - ~~1:00~~ P.M. ***LUNCH***

15) ~~1:00 - 2:45~~ P.M. Preparation of ACNW Report (Open)
The Committee will discuss potential reports on:
15.1) Yucca Mountain Pre-Closure Safety and Drift Degradation Issues (BJG/RKM) (Tentative)
15.2) Updated Staff Performance Code TPA 5.0 (BJG/MPL) (Tentative)

16) 2:45 - 3:00 P.M. Miscellaneous (Open)
The Committee will discuss matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

1:50
3:00 P.M. Adjourn 146th Meeting

NOTE:

- Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.

- Thirty-Five (35) copies of the presentation materials should be provided to the ACNW.

- ACNW meeting schedules are subject to change. Presentations may be canceled or rescheduled to another day. If such a change would result in significant inconvenience or hardship, be sure to verify the schedule with Mr. Howard Larson at 301-415-6805 between 8:00 a.m. and 4:00 p.m. prior to the meeting.

APPENDIX C: MEETING ATTENDEES

146TH ACNW MEETING
OCTOBER 21–23, 2003

ACNW STAFF

John Larkins
Sher Bahadur
Neil Coleman
Michele Kelton
Howard Larson
Michael Lee
Richard Major
Richard Savio

ATTENDEES FROM THE NUCLEAR REGULATORY COMMISSION

OCTOBER 21, 2003

P. Justus	NMSS
T. Kobetz	NMSS
W. Burton	NMSS
C. Grossman	NMSS
K. Compton	NMSS
D. Diaz	NMSS

OCTOBER 22, 2003

C. McKenney	NMSS
R. Johnson	NMSS
T. Bloomer	NMSS
M. Nataraja	NMSS
T. Kobetz	NMSS
B. Jagannath	NMSS
C. Ryder	NMSS
A. Campbell	NMSS
B. Leslie	NMSS
K. Compton	NMSS
D. Diaz	NMSS
J. Rubenstone	NMSS
P. Justus	NMSS
Y. Kim	NRR
D. Esh	NMSS
K. Stablein	NMSS
D. Rom	NMSS

ATTENDEES FROM THE NUCLEAR REGULATORY COMMISSION (CONT'D)

OCTOBER 22, 2003 (Cont'd)

G. Hatchett	NMSS
H. Arlt	NMSS
O. Tabatabai	NMSS
C. Grossman	NMSS
T. McCartin	NMSS
M. Young	NMSS
J. Bradbury	NMSS
L. Hamdan	NMSS
J. Peckenpaugh	

OCTOBER 23, 2003

T. Kobetz	NMSS
C. Craig	NMSS
D. Esh	NMSS
W. Reamer	NMSS
J. Rubenstone	NMSS
T. Bloomer	NMSS
L. Kokajko	NMSS
P. Justus	NMSS
K. Banovac	NMSS

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

OCTOBER 21, 2003

E. von Tiesenhausen	CCCP
N. Henderson	Bechtel SAIC Co.
C. Hanlon	DOE
M. O'Mealia	Nevada

OCTOBER 22, 2003

A. Chowdhury	CNWRA
D. Gute	CNWRA
G. Ofoeghan	CNWRA
B. Dasgupta	CNWRA
E. von Tiesenhausen	CCCP
C. Hanlon	DOE

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC (CONT'D)

OCTOBER 22, 2003 (Con'td)

N. Henderson	Bechtel SAIC Co.
J. Kessler	Electric Power Research Institute (EPRI)
J. Shaffner	MTS
J. Pye	Nuclear Waste Technical Review Board (NWTRB)
M. Board	Bechtel SAIC Co.
N. Nunzio	DOE
P. LaPlante	CNWRA
R. McCullen	Nuclear Energy Institute (NEI)
H. Stern	K-Rock

Via Teleconferencing

A. Ghosh	CNWRA
R. Benke	CNWRA
W. Patrick	CNWRA
B. Sagar	CNWRA
G. Wittmeyer	CNWRA
E. Pearcy	CNWRA
R. Janetzke	CNWRA
O. Povete	CNWRA
L. Howard	CNWRA
V. Jain	CNWRA
S. Mohanty	CNWRA
O. Pensado	CNWRA
K. Rabadan	Prine Sci
R. Fedors	CNWRA
M. Smith	CNWRA
D. Tuner	CNWRA
G. Adams	CNWRA
D. Pickett	CNWRA
D. Dunn	CNWRA

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC (CONT'D)

OCTOBER 23, 2003

E. von Tiesenhausen	CCCP
R. Bernero	Self
N. Henderson	Bechtel SAIC Co.
C. Hanlon	DOE
R. McCullen	NEI
J. Shaffner	MTS East
S. Tetreault	Las Vegas Review Journal
S. Steglinski	Las Vegas Sun
J. Meredith	Exchange Monitor

APPENDIX D: FUTURE AGENDA

The Committee approved the following topics for discussion during its 147th meeting, scheduled for November 19–20, 2003:

- DOE Opening Remarks
- Yucca Mountain Program Status
- Repository Design Status
- DOE Approach to Drift Degradation Analyses
- Stakeholder Interactions
- Igneous Activity Status Report
- Inyo County Carbonate Drilling Program Status
- Nye County Early Warning Drilling Program Status
- Electric Power Research Institute Workshop on Natural Analogues
- Presentation by Affected Units of Local Government
- Preparation of ACNW reports

APPENDIX E
LIST OF DOCUMENTS PROVIDED TO THE COMMITTEE

[Note: Some documents listed below may have been provided or prepared for Committee use only. These documents must be reviewed prior to release to the public.]

MEETING HANDOUTS

AGENDA ITEM NO.	DOCUMENTS
2	**Summer Intern Project**
	1. Risk-Informed Uncertainty Studies for the Yucca Mountain HLW Repository Program, presented by Tina Ghosh, ACNW Intern **[Viewgraphs]**
5	**Committee Retreat**
	2. ACNW Retreat Follow-up, provided by Mike Lee, ACNW, Agenda Item 5, Handout No. 1 **[Handout]** • ACNW Calendar of Events • 2004 ACNW Meeting Dates Memo
	3. Presentation to the ACNW Annual Retreat on Future Activities, September 23, 2003, by Dr. Kevin Crowley, Board on Radioactive Waste Management, The National Academies **[Handout]**
7	**Yucca Mountain Pre-Closure Safety and Drift Degradation Issues**
	4. Preclosure Safety Analysis Methodology and Drift-Degradation Evaluation, Repository Design and Thermal-Mechanical Effects Key Technical Issue, presented by Mysore Nataraja, NMSS **[Viewgraphs]**
	5. Evaluation of Rockfall Effects in Postclosure Performance Assessment, presented by Goodluck Ofoegbu, CNWRA **[Viewgraphs]**
	6. MECHFAIL: A TPA Code Module for Evaluating Engineered Barrier Performance Under Mechanical Loading Conditions, presented by Doug Gute, CNWRA **[Viewgraphs]**

MEETING HANDOUTS (CONT'D)

AGENDA ITEM NO.	DOCUMENTS
8	**Udated Staff Performance Assessment Code TPA 5.0 and Peer Review Comments**

7. PCSA Tool and Example Application, presented by Robert Johnson, NMSS,and Biswajit Dasgupta, CNWRA **[Viewgraphs]**

8. Response to the External Peer Review of the Total-System Performance Assessment, Version 3.2 Code, presented by Jon Peckenpaugh, NMSS **[Viewgraphs]**

9. Total-System Performance Assessment (TPA) Version 5.0 Code, presented by Christopher Grossman, NMSS **[Viewgraphs]**

MEETING NOTEBOOK CONTENTS

TAB NUMBER	DOCUMENTS
	Opening Statement by ACNW Chairman
	1. Agenda,146th ACNW Meeting, October 21–23, 2003, dated October 3, 2003
	2. Color Code - 146th ACNW Meeting, dated October 7, 2003
	3. Introductory Statement by ACNW Chairman, Tuesday, October 21, 2003 undated
	4. Items of Interest for 146th ACNW Meeting, undated
	5. Introductory Statement by ACNW Chairman, Wednesday, October 22, 2003, undated
	6. Introductory Statement by ACNW Chairman, Thursday, October 23, 2003, undated
3	**Biosphere Scenarios andDose Calculation Working Group**
	7. Draft Prospectus, ACNW Working Group Session, "Biosphere Dose Assessments for the Proposed Yucca Mountain High-Level Waste Repository," February 24-25, 2004
4	**Site Visit - Yucca Mountain, Nevada**
	8. Table of Contents
	9. Proposed Itinerary, Week of November 16, 2003
	10. November 18, 2003, Yucca Mountain and Amargosa Valley Tour
	11. 147th ACNW Meeting, Texas Station Hotel and Casino, Las Vegas, Nevada, Current Draft Agenda
5	**Committee Retreat**
	12. ACNW Retreat Follow-Up, ACNW Meeting Handout, Agenda Item 5, Handout No. 1
	• ACNW Calendar of Events
	• 2004 ACNW Meeting Dates Memo
7	**Yucca Mountain Pre-Closure Safety and Drift Degradation Issues**
	13. Table of Contents
	14. Meeting Agenda
	15. Status Report
	16. Preclosure Safety Analysis Tool Version 2.0 User Guide
	17. 10 CFR Part 63, Sections 63.111 and 63.112 (Preclosure Performance Objective)

18. ACNW Letter Report, "Risk-Informed Activities in the Office of Nuclear Material Safety and Safeguards," January 14, 2002 (recommends Integrated Safety Assessment as a logical path to probabilistic risk assessment)
19. MECHFAIL: A Total-System Performance Assessment Code Module for Evaluating Engineered Barrier Performance Under Mechanical Loading Conditions

8 **Updated Staff Performance Assessment**

20. Status Report
    - Attachments
      - Letter dated October 8, 2997, from B. John Garrick, Chairman, ACNW, to The Honorable Shirley Ann Jackson, Chairman, NRC, Subject: Comments on Performance Assessment Capability in the NRC High-Level Radioactive Waste Program
      - Letter dated February 7, 2001, from B. John Garrick, Chairman, ACNW, to The Honorable Richard A. Meserve, Chairman, NRC, Subject: Comments on Improvements in NRC Staff's Capability in Performance Assessment

9 **Waste Management-Related Safety Research Report**

21. Status Report

14 **Meeting With the NRC Commissioners**

22. Memo dated October 15, 2003, from John T. Larkins, Executive Director, to Annette L. Vietti-Cook, Secretary of the Commission, Subject: Advisory Committee on Nuclear Waste Meeting With the U.S. Nuclear Regulatory Commission, October 23, 2003—Schedule and Background Information