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MINUTES OF THE 91ST ACNW MEETING
APRIL 22-24, 1997

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BY Paul W. Pomeroy

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PROPOSED MINUTES OF THE 91ST MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE APRIL 22-24, 1997 ROCKVILLE, MARYLAND

The Advisory Committee on Nuclear Waste (ACNW) held its 91st meeting on April 22–24, 1997, at the Two White Flint North Building, 11545 Rockville Pike, Rockville, Maryland, to discuss and take appropriate action on the items listed in Appendix II. The entire meeting was open to public attendance except for a portion that dealt with organizational and personnel matters.

A transcript of selected portions of the meeting is available in the NRC Public Document Room in the Gelman Building, 2120 L Street, NW, Washington, DC. [Copies of the transcript are available for purchase from Neal R. Gross and Co., Inc., Court Reporters and Transcribers, 1323 Rhode Island Avenue, NW, Washington, D.C. 20005. Transcripts are also available on FedWorld from the "NRC MAIN MENU." The Direct Dial Access number for FedWorld is 800-303-9672; the local Direct Dial Access number is 703-321-3339.]

Dr. Paul W. Pomeroy, Committee Chairman, convened the meeting at 8:30 a.m. and briefly reviewed the schedule for the meeting. He stated that the meeting was being conducted in conformance with the Federal Advisory Committee Act. He also stated that the Committee had not received any requests from persons or organizations wishing to speak at the meeting. However, he asked members of the public who were present and had something to contribute to inform the ACNW staff so that it could allocate time for them to speak.

ACNW members Drs. B. John Garrick, William J. Hinze, and George M. Hornberger were present. [For a list of other attendees, see Appendix III.]

I. Chairman's Report (Open)

[Mr. Richard Major was the Designated Federal Official for this part of the meeting.]

Dr. Pomeroy reported a number of items that he believed were of interest to the Committee, including the following:

- On April 8, 1997, Representative Fred Upton (R-Michigan) introduced a bill in the House mandating the Department of Energy (DOE) to locate an interim spent fuel storage facility in Nevada The facility will be located near the candidate high-level waste repository site.

- In the Senate, S104 is moving toward a floor vote. Supporters of the bill need 60 votes before the Senate will begin debate.

- Undersecretary of Energy Tom Grumbly announced his resignation in March 1997. Mr. Grumbly will join his former boss, Hazel O'Leary, at ICF Kaiser, Fairfax, Virginia, where Mr. Grumbly will become president of the Federal Programs Group.

- DOE informed the Nuclear Regulatory Commission (NRC) that it believes NRC can take over the regulatory responsibility for certain DOE nuclear facilities at an annual cost of about $75 million. In late 1995, NRC estimated annual regulatory cost to be around $300 million and an increase in work force of 1200–1400 employees. According to DOE projections, the NRC will, at the end of a 10-year transition period, assume regulatory responsibility for approximately 200 DOE nuclear facilities.

II. Discussion on the Status of Igneous Activity Related to the Proposed Yucca Mountain Repository (Open)

[Ms. Lynn Deering was the Designated Federal Official for this part of the meeting]

The ACNW held a full-day working group session on the subject of igneous activity. Presentations were given by the NRC staff; the Center for Nuclear Waste Regulatory Analyses (CNWRA) staff; the DOE staff and its contractor, Geomatrix; and a representative from the State of Nevada (State).

John Trapp, NMSS, outlined the material to be presented at the meeting, noting that much of the information presented by NRC is in the NRC 1996 Annual Report, and much of DOE's material presented is in DOE's probabilistic volcanic hazard assessment (PVHA) study. He noted that NRC and DOE would address their concerns on expert elicitation at the May 1997 ACNW meeting, and that NRC would give the details of total system performance assessment (TSPA) as it relates to igneous activity during the July 1997 ACNW meeting. J. Trapp indicated that the National Academy of Science's (NAS) recommendations on Yucca Mountain have caused the staff to shift its focus on igneous activity from probability activities to transport and dose.

He pointed out two of NRC's concerns with PVHA: how new information will be considered and assumptions made regarding geologic zones. NRC is concerned that the PVHA is not comprehensive in that it may not have considered all characterization information. Regarding zoning, NRC is concerned that PVHA assumed that the Crater Flat Basin (CFB) and Yucca Mountain (YM) were separate geologic zones, when there is no geologic evidence to support such an assumption. J. Trapp stated that DOE's PVHA considered both secondary effects and direct disruption, and that NRC's estimate of probability, 1E-7, considers direct effects only. If DOE's PVHA considered direct effects only, the mean probability would be about 6E-9.

He noted that DOE is free to use its PVHA probability range of 1E-7 to 1 E-10, but that NRC will consider the full range of information available in conducting confirmatory analyses.

Chuck Conner, CNWRA, summarized the geologic setting and probability of volcanism in the Yucca Mountain region (YMR). He discussed the regional setting of basaltic volcanoes near YMR, new information from geophysical surveys, and geologic factors to be included in probability models.

C. Conner stated that the relationship between basaltic volcanism and structure can be factored into probability models. The regional setting is an extension setting with high-angle faults close to the surface, extending 5 km or more in depth. He reiterated that there is no evidence that any type of structure exists to prevent magma from rising into YMR from Crater Flat. He indicated that the U.S. Geological Survey (USGS) and others have collected much gravity data on the region, and that CNWRA has collected ground magnetic data in three areas that were once volcanically active. In order to understand patterns of volcanism through time, geophysical methods are used to locate buried cones in that subsiding basins in the region obscure some volcanic features.

More data increase confidence in changes in volcanism through time, interactions between geologic structure, and rates of volcanism. CNWRA believes there are 10–20 anomalies that, if proven to be buried cones, may affect probability. This new information on anomalies was collected after the PVHA was conducted. C. Conner speculated that an assumed 10 anomalies of Pliocene age would change the current probability estimate by 2–3 factors, and he did not know if this would be important to TSPA. Some of his conclusions follow:

- Probability models of volcanism should account for the following features:
  - clustered volcanism in Crater Flat
  - association of volcanoes and faults
  - prevalence of northeast trending vent alignments
  - low and persistent recurrence rate

- Including structural control in volcanic hazard models increases by several factors the probability of volcanic disruption of the proposed repository compared with models that do not contain structure. These models show a range of probability of volcanic disruption of the repository between 1E-7 per year and 1 E-8 per year.

Kevin Coppersmith, Geomatrix, summarized PVHA expert elicitation. The objective of the study was to assess the probability of disruption of a volcanic event (annual frequency of dike intersection) and to quantify the uncertainties associated with the assessment. The experts considered available data, methods, analogs, and processes, which led to the use of alternative spatial models, temporal models, and procedures for various calculations. He described key aspects of uncertainty characterization. The PVHA was conducted in accordance with NRC, DOE, and Electric Power Research Institute (EPRI) guidance on use of expert judgment. K. Coppersmith described the areas of knowledge of the members of the expert panel and other specialists involved in the workshops and field trips. He reviewed the logic tree structure used to model the PVHA, and showed the results of expert assessments for various components of the PVHA model. Conclusions of the study include the following:

- The annual frequency of intersection spans more than three orders of magnitude for the entire panel of experts.

- The greatest sources of uncertainty include:

  - rate parameters
  - choice of spatial model
  - smoothing constant, and
  - counts in NW Crater Flat.

- The mean frequency of intersection is 1.5E-8, with a 90-percent confidence interval of 5.4E-10 to 4.9E-8.

There was discussion about the differences between the definition of volcanic events in the PVHA study and definitions used by the CNWRA.

Next, K. Coppersmith indicated that the significance of new data gathered by other groups will be evaluated using sensitivity analyses for determining their significance to the probabilistic distribution function (PDF) and will be evaluated for their (1) implications, (2) comparison to the assessments by the experts, and (3) quantitative implications to the PDF.

He noted that DOE had evaluated the significance of two new data sets provided by the NRC in the February technical exchange. These data sets contained an increased volume estimate of Little Cones, based on ground magnetics data and an additional buried volcanic feature in Amargosa Valley, based on modeling of ground magnetics data. For the increased volumes of Little Cones, the calculated result is a less than 1 percent change in mean annual frequency of intersection. For the Amargosa Valley anomalies, a revised vent count of 4.7 to 6.1 events was used and hazard was recomputed using the revised count. The revised mean annual frequency of intersection remains approximately 1.5E-8.

A question was raised about what drives the tails and mean of the distribution. The response was the very low number of event counts, on the average of 200,000 to 500,000 years between events; thus there is high uncertainty. The only events that could change the results are (1) the spatial distribution would need to change or (2) the recurrence rates would need to escalate.

Timothy Sullivan, DOE, reported on the status of the DOE igneous activity program. He noted that the volcanism status report was issued in 1995; the volcanism synthesis report will be issued at the end of FY 1997; and the Site Description section of the project integrated safety assessment (PISA) will present an integrated discussion of regional geology. DOE will no longer collect data on this topic because of the low disruption probability, insensitivity of PVHA results to new data, and modeling results to date have indicated little effect on site performance. Additional consequence analysis is planned as part of the TSPA-VA. DOE's PVHA results yield a mean probability of 1.5E-8 with bounds

of 10^{-10} to 10^{-7}. He noted that during the NRC/DOE technical exchange, DOE agreed to evaluate new data presented by NRC through hazard sensitivity analyses, and to present partial results at this meeting. He also noted that NRC presented its basis at the technical exchange for concluding the probability of future volcanic events ranges between 10^{-6} and 10^{-7}, but DOE's probability distribution includes these bounds

Gene Yogodzinski, representing work funded by the State of Nevada, presented a summary of his volcanism study that was utilized in PVHA. He also presented work performed on Citadel Mountain as an analog for Yucca Mountain. The objective of his work was to define a boundary for the area of interest for volcanic hazard assessment in Yucca Mountain in order to delineate the magmatic system that is controlling or contributing to the formation of Pliocene and younger cinder cones. His key assumption was that the distribution of Pliocene and younger mafic volcanism is in some way tied to the distribution of melting anomalies in the mantle. He evaluated mantle source chemistry for basalts using strontium (Sr) and nodynmium (Nd) isotopic systems. The basalt flow in a cinder cone or dike reflects the chemistry of the mantle source. He found that samples from the Western Great Basin cluster around the very low Nd and high Sr end of the data array, which implies the basalt was derived from the cooler part of the mantle that is convecting and mixing over time. He concluded that the YM isotopic signature is entirely unique, and that the Death Valley southeast region (SE Death Valley) is the only regional basalt related chemically to Yucca Mountain.

In summary, basalts in the YM area define a distinctive regional isotopic end member. Pliocene and younger basalts in SE Death Valley are identical to those in the YM area. Basalts of the YM area and SE Death Valley form an isotopic province centered on the Amargosa Valley. Although there is no clear spatial/temporal pattern evident, as is usually the case, the scale may simply be too small. There is little information on ages of basalts. He stated that the boundary around the Amargosa Valley isotopic province encompasses the magmatic system that produced mafic volcanism around YM for the past 6 million years. This should be regarded as a natural boundary, and the system should be considered in PVHA.

Brittain Hill, CNWRA, presented material on CNWRA's investigations of igneous activity consequences on repository activity. B. Hill described the current conceptual model being used by the CNWRA for waste incorporation into a volcanic eruption. This model is the basis for the current NRC/CNWRA performance assessment (PA) calculations for volcanic disruption. It is assumed that the waste package fails under volcanic eruption conditions. Because of erosion, Waste behavior under eruption conditions and dispersal capability of YMR volcanoes are poorly known. Natural analogs, such as the Tolbachic and Cerro Negro volcanoes, have been used to constrain the amount of waste potentially disrupted and dispersal capabilities of volcanoes at YMR. B. Hill presented aspects of the 1983 Suzuki ash dispersal model and results from sensitivity studies of waste particle size and incorporation factors.

B. Hill also presented dose calculations performed by CNWRA, for a critical group located 20-30 km south of the repository. The calculated mean for a single canister failure is less than or equal to 50 mrem/yr. Assuming 10 canisters fail, the mean is 500 mrem per year. The risk is calculated by multiplying the current CNWRA probability range by 500 mrem per year, which is 0.5 mrem per year. B. Hill emphasized that this estimate is based on a single scenario, and that it is considered a reasonable upper bound, but not the worst case. B. Hill indicated that the significance of the risk from igneous activity depends on the evaluation of expected undisturbed repository doses and the nature of the Environmental Protection Agency (EPA) standard. CNWRA still plans to evaluate the timing of eruptions; waste incorporation mechanisms; system response to thermal, chemical, and mechanical loads from igneous activity; and various dose point locations; and to take into account the repository cavity.

Timothy McCartin, NMSS, presented results of previous preliminary PAs performed by NRC and DOE as a framework for discussing current dose calculations for volcanic eruption. In TSPA-95, DOE calculated a median annual individual 10,000-year dose at 5 km downgradient for drinking water of 0.4 mrem and 10 mrem (95th percentile) assuming an undisturbed repository. Volcanism was not considered quantitatively. In its evaluation

of the NAS recommendations on Yucca Mountain, NRC calculated a median peak dose at 5 km of 23 mrem and 104 mrem (95th percentile), and at 30 km, a median dose of 4 mrem, and 18 mrem (95th percentile). These values give a range of undisturbed repository performance and present a context to evaluate current dose calculations for volcanic eruptions.

Abe Van Luik, DOE, presented a summary of DOE's planned sensitivity analyses of the effects, consequences, and risks of volcanic hazards at Yucca Mountain in TSPA-VA. He summarized the volcanic scenarios used in previous TSPA analyses and volcanic scenarios to be considered in the TSPA-VA. In TSPA-91 and TSPA-93, both probabilities and consequence were calculated to be low.

For TSPA-VA, DOE plans to rely on the PVHA estimates of probability of occurrence for intersection of a dike with the repository, and to use the some model used by NRC to evaluate direct effects and tephra dispersion from basaltic eruptions. In addition, DOE will update its earlier consequence studies with new information contained in the Volcanism Synthesis report on lithic abundance studies, analog studies, and information obtained on factors that influence shallow intrusions. In summary, the TSPA-VA will use recent results from PVHA, the Volcanism Synthesis report, and NRC/CNWRA analyses and interpretations of consequence studies. Sensitivity analyses of probability of occurrence, direct and indirect effects, and consequences will be conducted and documented in the TSPA-VA. If either consequences or risks are significant, then DOE will include volcanic scenarios in the TSPA-VA reference case. If both consequences and risk are insignificant, then volcanic scenarios will not be included in the TSPA-VA reference case, and DOE will close the issue.

Dr. B. John Garrick, ACNW, expressed concern about terminology used to differentiate consequence and risk, pointing out that consequences are an inherent part of risk. Dr. Garrick noted that a large risk communication problem exists. He believes that DOE is assessing conditional risk, in that it is not considering all reasonable scenarios up front

and addressing each scenario. Rather, DOE is calculating complementary cumulative distribution functions (CCDFs) based on such factors as an assumed infiltration rate. A. Van Luik indicated that DOE's goal is to make the PA understandable, traceable, and transparent.

J. Trapp, NMSS, and T. Sullivan, DOE, together reviewed the DOE/NRC agreements from the February 1997 technical exchange, follows:

(1) DOE and NRC agree that the rate of volcanism is relatively constant for the last 5 million years and can be assumed to remain relatively constant for the period of performance.

(2) DOE and NRC agree that on the basis of current information, silicic volcanism need not be evaluated

(3) DOE will to consider evaluating, through sensitivity analyses, such new data as the size and volume of Little Cone and the number of events associated with Anomaly A.

(4) NRC believes that an annual probability of 1E-7 per year is a reasonably conservative upper bound for extrusive events. There are differing views on the lower bound. DOE, recognizing NRC's concerns, will explain how the PDF for the probability of distribution form PVHA will be used in PA, including sensitivity studies.

(5) DOE and NRC agree that volcanism is of regulatory interest and its probability and consequences will be considered. If determined to be significant, the effects of volcanism will be included in the total system performance.

(6) The treatment of consequences outlined by DOE that includes extrusive mag matic events and intrusive magmatic events with both direct and indirect effects is generally appropriate at the level of detail given by DOE in the technical exchange.

(7) DOE and NRC agree that there is uncertainty in consequence analysis for magmatic waste package/waste form interactions and these will be evaluated

(8) DOE agrees to send NRC a letter describing the DOE basis for subissue resolution, as specified in items 3 and 4 above, for consideration in the development of NRC's Issue Resolution Status Report.

T. Sullivan made a few summary statements and indicated that DOE and NRC risk results are converging; this should lead to closure of the consequence subissue.

T. Sullivan noted that DOE had already reviewed the impact of Little Cone and Anomaly A and found it insignificant. He added that this implies that the new data from the CNWRA on potential burial centers are not likely to affect the results, and that DOE does not intend to update the PVHA.

There was discussion about whether it is appropriate for DOE to review or use NRC's consequence ash dispersion model. Michael Bell, NMSS, indicated that this should not be a problem because regulatory guides often recommend that the licensee use NRC's codes.

Dr. William J. Hinze asked about the status of open items. M. Bell indicated that (1) this is a generic question, (2) there are many open items, and (3) DOE will not be performing the work. NRC must look at the significance of the missing information, and if it is important to performance, then NRC will ask DOE for the information.

J. Trapp described NRC's planned activities. There are three igneous activity subissues: probability, consequence, and data quality. The NRC staff plans to present an Issue Resolution Status Report (IRSR) in early FY 1998 on the probability of basaltic igneous activity. Some additional work is planned, including investigation of the significance of buried geophysical anomalies and the probability of indirect effects. The NRC staff plans to issue an IRSR on the consequence subissue in early FY 1999. Additional work will include the following: evaluate secondary effects, modify and test tephra dispersion models, develop an additional basis for the subsurface area of disruption, and model

waste package/waste form behavior. Work under the data quality subissue includes review of the DOE Volcanism Synthesis report. Crosscutting issues include sensitivity studies, reprioritization of key technical issues (KTIs), and review of TSPA.

T. Sullivan presented DOE's future work. He indicated that the PVHA results are intended to provide a sound defensible basis for licensing. T. Sullivan also indicated that new information is not likely to change the disruption probability, and that DOE reviewed the new data collected by CNWRA and determined that they do not affect the PVHA results.

No additional site characterization data will be collected. He indicated that DOE will address the agreements it made in the technical exchange involving evaluation of new CNWRA data and description of the use of hazard results in the TSPA-VA. DOE will develop consequence analysis for direct effects for TSPA-VA. DOE will also evaluate igneous activity scenarios for the TSPA-VA, and if consequence or risk are significant, DOE will include volcanic scenarios in the TSPA-VA reference case and will document results.

Roundtable Discussion

ACNW consultants provided summary thoughts during this session. Kenneth Foland, Ohio State University, cautioned that consensus through expert elicitation does not necessarily mean the answer is correct. Michael Ryan, USGS, noted that volcanic systems are large, integrated, and three-dimensional structures with processes and dynamics that are ongoing in them, and are not what they appear from the surface. K. Coppersmith, Geomatrix, noted that the two events that should be considered for hazard analysis are (1) where future events will occur and (2) what their average rate is. The likelihood of an event occurring is extremely low. There was some discussion about spatial migration. Because of very few volcanic events, based on simple models, DOE found no regular discernible migration. B. Hill, CNWRA, noted that new information on new volcanoes may provide a discernible spatial pattern, especially looking at volcanoes of interest in PVHA, 5 million years and younger.

J. Trapp, NMSS, concluded, stating that the new information collected by CNWRA has been most useful for integrating various models, such as relationship of volcanism to basin subsidence and tieing volcanism to an overall tectonic model.

III. Nevada Perspective on the Difference Between DOE's Viability Assessment and the Site Suitability Determination for the Proposed Yucca Mountain Repository (Open)

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

Dr. Pomeroy stated that Mr. Steve Frishman, Agency for Nuclear Projects, State of Nevada, in addition to discussing the indicated subject, would also be presenting the State's perspective on the following topics:

(1) DOE's proposed revisions to 10 CFR Part 960

(2) Nevada's perspectives on the value of NRC's subsystem performance requirements

(3) NRC's issue resolution process

Dr. Pomeroy thanked S. Frishman for his presentations in the past, particularly noting that his comments during his last presentation led to the Committee visiting the Amargosa Valley, thereby permitting the ACNW to obtain a direct, personal appreciation of the agricultural and other varied activities in the area.

S. Frishman stated that the purpose of discussing these topics with the ACNW was to inform it of the State's perspective on these issues, so that in its advisory role capacity to the Commission, the ACNW would be aware of potential difficulties that could arise if each of these topics was not properly considered.

He purported that the invention of the "viability assessment" by DOE only served to further "muddle" the eventual determination of the suitability of Yucca Mountain as the location for a potential HLW repository. From the State's perspective, there is a danger

that the VA will be misunderstood and misused. He suggested that the DOE milestone reports be called "work products" rather than VA reports.

Dr. Hinze, after noting that DOE has made it clear that the VA process is not a site suitability assessment, asked what DOE plans to do between completion of the VA in 1998 and 2001, the year when the Secretary, DOE, is to make a formal recommendation as to the suitability of Yucca Mountain. S. Frishman stated that the DOE's primary emphasis will be on data collection relative to the thermal loading decision. There may also be some data collection work on the steep hydrologic gradient just north of the site.

S. Frishman also was asked how DOE will demonstrate that the data collection in the heated drift will be sufficient and how that testing is to be considered as representative of the entire area.

In response to Dr. Garrick's question as to whether there was a way to perform the thermal loading tests that would satisfy the State of Nevada and Congress, S. Frishman deferred a direct answer, stating that application of the current guidelines would disqualify the site.

Regarding the proposed changes to 10 CFR Part 960, S. Frishman believes that this is a deliberate attempt by DOE to permit making the site suitable. He further stated his belief that the guidelines do not match the requirements in the Nuclear Waste Policy Act (as amended). He noted that DOE appears to be relying on dilution in order to meet the guidelines, even though EPA, in its 40 CFR Part 191, has indicated that dilution should not be relied upon. Also, groundwater travel time (GWTT) was a limitation, but it can now be perceived that particle travel time is the criterion.

S. Frishman stated that the original concept of geologic disposal was that one could rely upon the geology of an acceptable site for a long time, but he believes that now the current emphasis on performance assessment, as being demonstrated in the TSPA, seems to shift reliance to the engineered barriers in the long term.

In discussing subsystem performance requirements, S. Frishman believes there is value

in retaining release limits and the concept of a "substantially complete containment." The State of Nevada also has considerable concern about the issue-resolution process and the reduction (apparently driven by funding and resource limitations) by the NRC staff in the area of quality assurance.

Dr. Homberger asked whether it mattered that the GWTT was 100 or 1000 or 20,000 years. In response, S. Frishman stated that it was a measure of the extent to which isolation is achieved.

Continuing the presentation by the State of Nevada, Linda Lehman, President, TREG, Inc., and a consultant to the State, discussed how she believes the State's oversight function has been of value to the Yucca Mountain project. Her presentation focused on two areas wherein she believed the studies by the State (and its persistence) overcame DOE's reluctance to accept their work. She also believes that the reluctance by DOE to accept the State's efforts has been detrimental to the project. She pointed out that Nevada's program should be viewed as one that looks at the project "through a different set of glasses."

After providing a brief background on the State oversight funds and some of the activities that were undertaken with these funds, she focused her presentation on the Nevada unsaturated zone model, particularly its value in ascertaining GWTT and flux rates. L. Lehman noted particularly that the current values used by DOE are values that are in the range of those suggested by the State more than a 5 years ago. She also discussed relevant State model dilution calculations.

Dr. Garrick stated that with a good PA model one could save an enormous amount of time and money in terms of how much information is needed to make a decision, and asked how much movement there was in that direction. L. Lehman replied that although those types of analyses could be very valuable, one needed "some field or ground truth" and that essentially no data are available on some of the most important parameters.

Dr. Pomeroy also asked if there was adequate interaction with the NRC staff. L. Lehman indicated that she believed the staff was responsive and that one of the best means of

interacting is through the technical exchanges. She noted, however, that there is probably a limit to the degree of possible interaction with the NRC since the agency must keep "an arm's length from the State."

Dr. Pomeroy thanked both presenters, indicating that he would appreciate continuing to hear from them in the future.

IV. Screening Methodology for Assessing Prior Land Burials

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

Dr. Pomeroy noted that the Committee had previously reviewed the branch technical position (BTP) at its 87th meeting (October 22–23, 1996) and that the presentations would be an opportunity to discuss, with the NRC staff, the public comments received and to review the final document.

Heather Astwood, NMSS, reviewed the background and history of the proposed screening methodology that will be employed before decommissioning sites that previously had buried radwastes as authorized under former 10 CFR 20.304 and 20.302.

H. Astwood stated that there had been only five public comments had been received (three from entities in the of State of Washington, the University of Wyoming, and the Illinois Department of Nuclear Safety). In addition, several telephone calls with comments/questions had been received. She indicated that the NRC staff, in its December 23, 1996, letter, had responded to the comments transmitted by the ACNW in its November 20, 1996, letter. After carefully considering all of the comments received, the staff plans to reissue the earlier draft without change. Currently, publication in the *Federal Register* is scheduled for late June 1997.

In response to a question, it was noted that although the staff was not certain as to the additional workload this BTP would generate, based on the past average, the agency receives perhaps a half-dozen requests a year for onsite burial in accordance with 10

CFR 20.2002, whereas there were perhaps several hundred prior burials that were not subjected to Section 20.2002 requirements (prior terminated licenses). Robert Nelson, NMSS, stated that half of a full-time equivalent ((FTE) per year is budgeted for this activity. It is the intent of the fairly simple methodology in this BTP to facilitate the "screening out" of many sites, but the staff recognizes that there still may be many that need to be handled on a case-by-case basis.

Responding to another related question, the staff indicated that if there were still a large number of sites that had problems being released even with the application of this methodology, the BTP could be changed to reflect that experience.

The Committee asked to be kept informed of progress (and difficulties) as the BTP is implemented. The Committee also asked to be kept informed on future implementing guidance documents and was particularly interested in the onsite burials information database.

The Committee decided not to send a comment letter since no changes had been made to the BTP and the ACNW's comments on the earlier draft had been adequately dispositioned.

V. Meeting With the Director, Division of Waste Management, Office of Nuclear Material Safety and Safeguards (Open)

John Greeves, Director, Division of Waste Management, NMSS, discussed the decommissioning rule, NRC regulation of DOE nuclear facilities, the status of legislation, the Convention on Waste Management, low-level waste (LLW) and decommissioning issues, DOE siting guidelines, and the status of Yucca Mountain site characterization.

J. Greeves stated that the decommissioning rule and staff comments were sent to the Commission for review. Because of the level of controversy over the proposed rule, the Commission made it publicly available before a Commission vote. He also stated that the draft rule follows a graded approach with three levels of compliance. J. Greeves also discussed the specific requirements for each level of compliance. There was discussion

by Dr. Pomeroy and J. Greeves on the drinking water standard, the level of compliance, and the differences between NRC and EPA over these issues.

J. Greeves next discussed the external regulation of DOE by the NRC. He stated that the NRC staff anticipates using a phased approach with Phase 1 covering research and nuclear facilities and Phase 2 focusing on defense facilities or defense programs and cleanup activities. He discussed costs and timing issues. He also stated that there would be a reduced number of facilities to be regulated by phasing in NRC regulation. Dr. Pomeroy asked how this would happen and the amount of FTEs that would be required. J. Greeves stated that a pilot program and other approaches may be tried. The Commission is forming a task force, with all offices represented, to address these issues. John Austin, NMSS, discussed the creation of the task force. One goal of the task force, he stated, is to identify issues that need to be addressed in legislation. He then described five groups within the task force.

The next item discussed was the proposed legislation on high-level waste (HLW). J. Greeves noted that on April 15,1997, the U.S. Senate passed the Murkowski amendment, 65-34. He discussed the details of the legislation and the requirements for NRC. He noted that much of the bill is devoted to interim storage, but provides for no determination of an interim storage site until such time as Yucca Mountain is found suitable. He stated that the House version of the bill, HB-1270, is similar to the HLW legislation introduced last year. He discussed the details of HB-1270 and stated that the differences between the Senate and House bills will require reconciliation. Dr. Pomeroy asked about a presidential veto. J. Greeves stated that the main concern is the issue of the storage facility location.

M. Bell next discussed the International Waste Convention. He discussed a series of meetings attended by representatives of 50 countries at the International Atomic Energy Agency (IAEA) to develop the conventions. M. Bell described the composition of the U.S. delegation, which had representative from EPA, NRC, DOE, and the State Department. The convention covers all radioactive waste, civil and military. He noted that the provisions affect DOE, EPA, NRC, and individual States. M. Bell described the controversy over whether to treat spent fuel under the waste convention or not. It was agreed to

develop parallel chapters on spent fuel and on radioactive waste, but not all parties were satisfied. M. Bell then discussed military waste. He described the U.S. position on defense waste and noted that some governments were unhappy with this. He stated that it was military waste would be handled in one of two ways. It would fall under the convention when a civilian agency (e.g., DOE) takes control of it or by voluntary action on the part of a country.

M. Bell discussed the transboundary movement of waste (e.g., groundwater discharge), siting requirements, required consultations with neighboring countries, and the possible impacts on Agreement State regulation of various activities, e.g., mill tailings, and waste sites. The convention, he stated, would obligate the U.S. to consult with Canada and Mexico over issues that normally would not have a Federal component. The NRC is consulting with licensees, Agreement States, and others to make them aware of the convention and to get feedback for the U.S. delegation. He described some of the reporting procedures that were a big issue to some and he stated that the U.S. inserted language that provided for different interpretations of these requirements. Dr. Hinze asked if transboundary movement covers shipments. M. Bell replied that it would, for example, cover the shipment of reprocessed material and plutonium from France back to Japan through the territorial waters of intervening countries.

He described the next steps for the International Waste Convention. He stated that the IAEA Board of Governors could decide to convene an International Diplomatic Convention and the Waste Convention would be ready for signature at the IAEA General Conference in September. He noted that it took 2 years for the Convention on Nuclear Safety (CNS) to get the necessary signatures . The CNS is going into effect without U.S. Senate ratification, even though the U.S. was lead state in this convention. He stated that given this time frame, the first meeting of the Convention will take place early next millennium. He stated that the Division of Waste Management would put together that part of the U.S. report dealing with civilian waste. In addition, the NRC Commissioners must agree that the State Department will represent the NRC at the conference. He noted that there is an opportunity for ACNW to comment in the June or July to make its views known to the Commission.

J. Greeves continued with his presentation by stating that the Commission has decided to go with the LLW Direction Setting Issue, Option 3 approach. He added that given budget constraints, the staff may not even be able to support this approach. J. Greeves stated that with respect to the BTP on LLW PA, the staff requirements memorandum expects public comment and analysis by August 1997. He added that after consultation with ACNW staff, the time frame letter appears to be a thoughtful piece and he will view it as a comment on the BTP. He discussed adjustments to the schedule to get ACNW views on the BTP. J. Greeves then discussed decommissioning issues, the transfer of sites to EPA, the need for durable institutional controls, and discussions with DOE.

J. Greeves then discussed the guidelines on siting an HLW repository at Yucca Mountain. The Commission approved the staff recommendations made in a SECY paper. He discussed DOE and NRC actions in this area. J. Greeves then described the current Yucca Mountain site characterization activities. He noted that the tunnel boring machine (TBM) is 10 feet from breaking through at the south portal. He also described the work at the Ghost Dance Fault drift and the heater test alcove work and other ongoing activities at Yucca Mountain.

One member asked about the breakthrough of the TBM and the condition of the ground. M. Bell stated that they are in category 3-4 ground and are moving slower than when boring the north ramp through the same formations. Dr. Pomeroy asked about the Ghost Dance Fault alcove. Ray Wallace, USGS, stated that the USGS had already penetrated the Ghost Dace Fault by bore hole, but had not crossed the fault yet.

VI. Defense in Depth (Open)

[Ms. Lynn Deering was the designated Federal Official for this part of the meeting.]

Dr. Garrick noted that the Committee is continuing to explore different viewpoints concerning the existing subsystem requirements in 10 CFR Part 60 and what changes, if any, ought to be considered in the context of risk-informed, performance-based regulation. Dr. Garrick reviewed some of the options, including allowing complete flexibility by regulating in terms of a risk-based standard, having a standard with qualitative subsystem requirements, the status quo, and other variations. Then he introduced the next

speaker, Charles Fairhurst, past Chairman of the NAS Waste Isolation Pilot Plant (WIPP) panel. C. Fairhurst was also a member of the NAS Committee on Rethinking High Level Waste, as well as the NAS Technical Bases for Yucca Mountain Standards Committee.

C. Fairhurst shared his views on the subsystem requirements in 10 CFR Part 60 and the defense-in-depth philosophy. In doing this, he reiterated some of the themes from the 1990 "Rethinking HLW" report. In summary, he recommended that the prescriptive aspect of subsystem requirements should be eliminated in favor of a more flexible approach that allows for revising the design and the regulations as obstacles are encountered. He favors the multiple-barrier approach, and emphasized the important role played by engineering components. He encouraged adopting a dose-based rather than a release-based standard, because the same release at two different sites poses different consequences.

Highlights from his presentation included the following:

- Geologic disposal was initially attractive because of the fact that rock is relatively stable over millions of years, whereas fabricated engineering structures may only have a predicted lifetime on the order of 50 to 100 years. Geologists are not comfortable, however, making predictions in the range of on thousand to one million years, which is the period of interest for waste disposal.

- Geotechnical people play a stronger role in waste disposal in other countries than in the U.S., where nuclear engineers and scientists play the strong role.

- The U.S. prescriptive approach to HLW disposal is poorly matched to the task at hand. The U.S. is the only country that writes detailed prescriptive requirements before there is sufficient understanding.

- The U.S. HLW program is bound by requirements that may be impossible to meet. The alternate approach emphasizes flexibility, time to asses performance and willingness to respond to problems as they are found, remediation if things do not turn out as planned, and revision of the design and regulations if they are found to impede progress toward the health goal already defined as safe disposal.

- There is a need to design "as you go" to optimize the design of the repository, because we do not know what will be found underground.

- If the performance of a system depends on contribution from components whose behavior cannot be adequately determined, then the design should be changed to eliminate dependence on that component.

- A scientifically sound objective of geological modeling is to learn, over time, how to achieve reasonable assurance about the long-term isolation of radioactive wastes, as opposed to *predicting* the long-term behavior of a repository.

- Many of the uncertainties associated with a candidate site will be technically interesting but irrelevant to overall repository performance.

- The advancement of computers over the past 20 to 25 years allows us to do much more in the way of gaining understanding and insight.

- The NRC should consider (1) What level of statistical or modeling evidence is really necessary, obtainable, or even feasible; (2) To what extent is it necessary to prescribe engineering design, rather than allowing alternatives that accomplish the same goal; (3) What can be done to accommodate design changes necessitated by surprises during construction; (4) What new strategies, such as copper containers, might be allowed or encouraged as events dictate.

To exemplify his point that overly prescriptive regulations can be too limiting, C. Fairhurst described a proposed site in France, apparently located in a seismically active region. It turns out that the location of the site itself is stable, protected from seismicity because it

is sitting on a fluid-like salt layer, which diverts stress to the basement rocks below. He also gave the following examples from the Swedish and Canadian waste disposal programs:

- TSPA should include comparative risk, which allows for consideration of the "do nothing" option and transportation risk, as well as geologic risk.

- In using WIPP as an example, C. Fairhurst made the point that being too conservative can unnecessarily prevent progress. He believes that a PA should start with a look at reasonable behavior based on best information, and then only consider worst-case assumptions to put bounds on the reasonable behavior. He noted that DOE was overly conservative when it assumed at WIPP that wastes degrades to a fine sand. He noted he had recently seen 3000-year-old artifacts in a salt mine in Austria, that are beautifully preserved, which makes the DOE assumption seem grossly conservative.

- Waste retrievability does not always make sense as a requirement, for example, in a salt environment.

- Subsystem requirements make sense, but they should not be too rigid. He noted that monitoring could be useful to add confidence. He encouraged adopting a dose-based rather than a release-based standard, because the same release at two different sites poses different consequences.

Questions from the Committee included the following:

- Dr. Garrick indicated that what is needed are subsystem criteria that do not preclude being able to optimize the design to meet a specific safety requirement. He asked how we can achieve confidence in reliability but still allow for creativity in design. He also suggested that perhaps what is needed in PA is agreement on some initial conditions, ranges of parameter values, and scenarios, then to define a specific performance or release from various components in the system. Performance assessment could be used to illuminate the anticipated behavior at

the various checkpoints. Dr. Fairhurst agreed, and added that engineering remedies or options should be taken advantage of to maximize performance. He gave a hypothetical example of perhaps requiring that permeability of a certain area cannot be impacted. This could lead to adjusting the thermal loading to control the extent of the disturbed zone.

- Dr. Hornberger asked whether other countries are adopting subsystem requirements or risk-based standards. C. Fairhurst indicated that other countries are moving toward dose-based standards, but they are no further along than the U.S.

- Dr. Pomeroy inquired about ideas to allow the regulatory maximum flexibility in implementing subsystem requirements. C. Fairhurst indicated that somehow subsystem requirements need to result in optimizing the design in the near and far field, without resulting in an overall suboptimal design.

- Dr. Hinze asked several questions for clarification on waste retrievability, time frame for making predictions regarding geologic stability, and risks associated with engineering failure.

VII. Executive Session (Open)

A. Report

Final Rule on Radiological Criteria for License Termination (Report to Edward McGaffigan, Jr., Commissioner, NRC, from Paul W. Pomeroy, Chairman, ACNW, dated April 24, 1997).

B. Future Meeting Agenda

Appendix IV summarizes the proposed items endorsed by the Committee for the 92nd ACNW Meeting, Rockville, Maryland, May 20-22, 1997.

C. Future Committee Activities (Open)

List of Agencies and Persons Consulted

The Director of the Laboratory and Radiation Services Division of the Colorado Department of Public Health and Environment was consulted about the EA for the proposed action. This organization had no comments on the proposed action.

During a public meeting held on February 20, 1997, the DOE and PSCo staffs were consulted regarding the environmental monitoring program.

References used in preparation of the EA:

1. DOE–ID License Transfer Application, including the Decommissioning Plan, Emergency Plan, Environmental Report, Quality Assurance Requirements and Description, and Technical Specifications, dated December 17, 1996, as supplemented February 4, 5, and 18, and March 12 and 13, 1997.
2. NRC, "Environmental Assessment Regarding Order Authorizing Decommissioning of Fort St. Vrain Nuclear Generating Station," dated November 1992.
3. NRC, "Environmental Assessment Related to the Construction and Operation of the Fo St. Vrain Independent Spent Fuel Storage Installation," dated February 1991.
4. AEC, "Final Environmental Statement Related to the Operation of Fort St. Vrain Nuclear Generating Station," dated August 1972.
5. NRC, 10 CFR Part 20, "Standards for Protection Against Radiation."
6. NRC, 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

Finding of No Significant Impact

The environmental impacts of the proposed action have been reviewed in accordance with the requirements set forth in 10 CFR Part 51. The staff has determined that the proposed action of transferring Materials License SNM–2504 from PSCo to DOE and the subsequent license amendment will not significantly impact the quality of the environment. Therefore, an environmental impact statement is not warranted, and pursuant to 10 CFR 51.31, a Finding of No Significant Impact is appropriate.

Based upon the EA, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an EIS for the proposed action.

For further details with respect to this action, see the application dated December 17, 1996, as supplemented February 4, 5, and 18, and March 12 and 13, 1997, which is available for public inspection at the Commission's Public Document Room, 2120 L Street, NW, Washington, DC 20555, and at the Local Public Document Room at the Weld Library District, Lincoln Park Branch, 919 7th Street, Greeley, Colorado 80631.

Dated at Rockville, Maryland, this 26th day of March 1997.

For the U.S. Nuclear Regulatory Commission.

William F. Kane,

Director, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 97-8402 Filed 4-1-97; 8:45 am]

BILLING CODE 7590-01-P

Advisory Committee on Nuclear Waste; Notice of Meeting

The Advisory Committee on Nuclear Waste (ACNW) will hold its 91st meeting on April 22–24, 1997, in Room T–2B3, at 11545 Rockville Pike, Rockville, Maryland.

The entire meeting will be open to public attendance.

The schedule for this meeting is as follows:

Tuesday, April 22, 1997—8:30 A.M. until 6:00 P.M.
Wednesday, April 23, 1997—8:30 A.M. until 6:00 P.M.
Thursday, April 24, 1997—8:30 A.M. until 4:00 P.M.

During this meeting, the Committee plans to consider the following:

A. Igneous Activity—The Committee will review the NRC staff and DOE investigations of this potentially adverse condition to the acceptability of the proposed high-level waste repository at Yucca Mountain, Nevada. The review will focus on the status of results and paths toward resolution from these studies of potential volcanism.

B. Planning for Commission Meeting—The Committee will prepare for its next meeting with the Commission currently scheduled for May 20, 1997 at 2:00 p.m.

C. Convention on the Safety of Radioactive Waste Management—The Committee will hear a report from the NRC's Division of Waste Management on this international treaty which is under consideration.

D. Screening Methodology for Assessing Prior Land Burials—The Committee will review the staff's final branch technical position on this screening methodology including its disposition of public comments received.

E. State of Nevada—The Committee will hear from a representative of the State of Nevada who will discuss the Nevada perspective as to the difference between DOE's viability assessment and the site suitability determinations for the proposed Yucca Mountain repository. Comments will also be offered on the proposed amendments to DOE's 10 CFR Part 960. The amendments would focus Part 960 as to its use in evaluating the suitability of the Yucca Mountain site for development as a repository.

F. Meeting with the Director, the Division of Waste Management-The Committee will hold a current events discussion with the Director.

G. Defense-in-Depth—The Committee will hear presentations from representatives of industry that will address the topic of subsystem requirements in 10 CFR 60 as a means on implementing the defense-in-depth concept.

H. Preparation of ACNW Reports—The Committee will discuss potential reports, including Igneous Activity related to the proposed Yucca Mountain Repository, a Branch Technical Position on a Screening Methodology for Assessing Prior Land Burials, and other topics discussed during the meeting as the need arises.

I. Committee Activities/Future Agenda—The Committee will consider topics proposed for future consideration by the full Committee and Working Groups. The Committee will discuss ACNW-related activities of individual members.

J. Miscellaneous—The Committee will discuss miscellaneous matters related to the conduct of Committee activities and organizational activities and complete discussion of 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 8, 1996 (61 FR 52814). 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, and questions may be asked only by members of the Committee, its consultants, and staff. Persons desiring to make oral statements should notify the Chief, Nuclear Waste Branch, Mr. Richard K. Major, 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 this purpose may be obtained by contacting the Chief, Nuclear Waste Branch, 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. Major as to their particular needs.

Further information regarding topics to be discussed, whether the meeting has been cancelled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefor can be obtained by contacting Mr. Richard K. Major, Chief, Nuclear Waste Branch (telephone 301/415–7366), between 8:00 A.M. and 5:00 P.M. EST.

ACNW meeting notices, meeting transcripts, and letter reports are now available on FedWorld from the "NRC MAIN MENU." Direct Dial Access number to FedWorld is (800) 303–9672; the local direct dial number is 703–321–3339.

Dated: March 27, 1997.

Andrew L. Bates,

Advisory Committee Management Officer.

[FR Doc. 97–8404 Filed 4–1–97; 8:45 am]

BILLING CODE 7590–01–P

Memorandum of Understanding Between the U.S. Nuclear Regulatory Commission and the U.S. Department of Health and Human Services, Food and Drug Administration

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of renewal of Memorandum of Understanding (MOU) between the U.S. Nuclear Regulatory Commission and the U.S. Department of Health and Human Services, Food and Drug Administration (DHHS, FDA).

SUMMARY: The NRC and the DHHS, FDA, signed a Memorandum of Understanding (MOU) on August 28, 1993, which describes the respective roles of the FDA and NRC for regulating medical devices and radiopharmaceuticals containing radioactive materials, and the coordination between the two agencies. The MOU was noticed in the Federal Register on September 8, 1993 (58 FR 47300). This notice announces the 3-year renewal of the MOU. The only changes to the MOU were the liaison officers for each agency.

FOR FURTHER INFORMATION CONTACT: Larry W. Camper, Office of Nuclear Material Safety and Safeguards, MS T–8 F 5, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301–415–7231.

Dated: March 27, 1997

Larry W. Camper,

Chief, Medical, Academic, and Commercial Use Safety Branch, Division of Industrial and Medical Nuclear Safety, NMSS.

[FR Doc. 97–8403 Filed 4–1–97; 8:45 am]

BILLING CODE 7590–01–P

POSTAL SERVICE

Request for Comments on Development of Strategic Plan for U.S. Postal Service, Pursuant to the Government Performance and Results Act of 1993

AGENCY: Postal Service.

ACTION: Request for comments.

SUMMARY: The Government Performance and Results Act of 1993 requires that the Postal Service and Federal agencies set strategic goals, measure performance, and report on results. It requires development, no later than by the end of fiscal year 1997, of a five-year strategic plan, to include the organization's mission statement, identify its long-term strategic goals, and describe how it intends to achieve its goals. The Act also requires that in developing its Strategic Plan, the Postal Service shall solicit and consider the ideas of those potentially affected by or interested in the Strategic Plan. This notice therefore asks for public comment concerning development of the Postal Service's Strategic Plan for the years 1998–2002.

DATES: Comments must be received by June 1, 1997.

ADDRESSES: Written comments should be directed to Robert A.F. Reimer, Vice President, Strategic Planning, U.S. Postal Service, 475 L'Enfant Plaza, S.W., Washington, DC 20260–1520.

FOR FURTHER INFORMATION CONTACT: Jon L. Cook, (202) 268–4069.

SUPPLEMENTARY INFORMATION:

Statutory Background

The Government Performance and Results Act of 1993, Public Law 103–62, (GPRA) was enacted to make Federal programs more effective and publicly accountable by targeting results, service quality, and customer satisfaction. Other statutory goals were to improve Congressional decisionmaking and to improve internal management of the Federal Government. Public Law 103–62, section 2(b), 107 Stat 285. Because of the Postal Service's role as an independent establishment of the Executive Branch of the Government of the United States, section 7 of the law establishes separate provisions which apply to the Postal Service (sections 2801–2805 of title 39, United States Code).

Section 2802 of title 39, United States Code, requires that the Postal Service submit to the President and the Congress a strategic plan for its program activities, no later than September 30, 1997. The plan is to contain:

(1) a comprehensive mission statement covering the major functions and operations of the Postal Service;

(2) general goals and objectives, including outcome-related goals and objectives, for the major functions and operations of the Postal Service;

(3) a description of how the goals and objectives are to be achieved, including a description of the operational processes, skills and technology, and the human, capital, information, and other resources required to meet those goals and objectives;

(4) a description of how the performance goals included in the plan required under section 2803 shall be related to the general goals and objectives in the strategic plan;

(5) an identification of those key factors external to the Postal Service and beyond its control that could significantly affect the achievement of the general goals and objectives; and

(6) a description of the program evaluations used in establishing or revising general goals and objectives, with a schedule for future program evaluations.

39 U.S.C. 2802(a).

The GPRA also requires the preparation of annual performance plans covering each program activity set forth in the Postal Service budget. 39 U.S.C. 2803. These plans are to link the strategic goals in the Strategic Plan with ongoing operations. In addition, the law requires preparation of program performance reports, to review and compare performance with performance goals in the annual performance plan. 39 U.S.C. 2804.

In order to involve the public in the process, GPRA requires that, as it develops its strategic plan, the Postal Service "shall solicit and consider the views and suggestions of those entities potentially affected by or interested in such a plan, and shall advise the Congress of the contents of the plan." 39 U.S.C. 2802(d).

Discussion of the Postal Service Mission and its Strategic Planning Process

In 1970, the Congress enacted the Postal Reorganization Act, recasting the former Post Office Department as the United States Postal Service. Its intent was that the former department evolve into a Federal entity that operates more

APPENDIX II

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

Revised: April 21, 1997

SCHEDULE AND OUTLINE FOR DISCUSSION
91ST ACNW MEETING
APRIL 22-24, 1997

Tuesday, April 22, 1997, Two White Flint North, Room T-2B3, 11545 Rockville Pike, Rockville, Maryland

1) 8:30 - 8:35 A.M. Opening Remarks by the ACNW Chairman (Open)
1.1) Opening Statement (PWP/RKM)
1.2) Items of Current Interest (PWP/RKM)

2) 8:35 - ~~6:15~~ 5:45 P.M. Discussion on the status of Igneous Activity related to the Proposed Yucca Mountain Repository (Open) (WJH/LGD)

8:30 - 8:45 A.M. ACNW Introductory Comments

8:45 - 9:~~15~~ 00 A.M. NRC Introduction and Overview, J. Trapp, NRC

9:~~15~~ 00 - ~~10:00~~ 11:10 A.M. Summary of CNWRA Work on Geologic Setting and Probability Estimates, C. Conner, CNWRA

10:~~00~~ 10 - 10:~~15~~ 20 A.M. * * * BREAK * * *

~~10:15~~ / - ~~11:00~~ P.M. Overview and Status of DOE Activities, and Summary of Probabilistic Volcanic Hazard Assessment (PVHA), T. Sullivan, DOE, and K. Coppersmith, Geomatrix
11:20 - 12:25

~~11:00~~ 1:20 - ~~11:30~~ 2:00 P.M. Summary of Volcanism Studies Related to PVHA, Gene Yogodzinski, State of Nevada

~~11:30~~ 2:00 - ~~12:15~~ 2:25 P.M. Summary of CNWRA Consequence analysis for Volcanic Disruption, B. Hill, CNWRA

12:~~15~~ 25 - 1:~~15~~ 20 P.M. * * * LUNCH * * *

~~1:15~~ 2:25 - ~~1:45~~ 3:18 P.M. NRC Preliminary Performance Assessment Calculations, T. McCartin, NRC/B. Hill

3:40 4:05 ~~1:45~~ - ~~2:15~~ P.M.	Incorporation of Volcanism into TSPA-VA, A. Van Luik, DOE
4:10 5:00 ~~2:15~~ - ~~3:00~~ P.M.	NRC and DOE Agreements from Technical Exchange, John Trapp, NRC, and T. Sullivan, DOE
3:18 3:40 ~~3:00~~ - ~~3:15~~ P.M.	* * * BREAK * * *
5:00 5:20 ~~3:15~~ - 3:45 P.M.	NRC Future Activities, J. Trapp, NRC
5:20 5:25 ~~3:45~~ - ~~4:15~~ P.M.	DOE Future Activities, T. Sullivan, DOE
~~4:15~~ - ~~5:15~~ P.M. 5:25 5:45	Round Table Discussion, ACNW, ACNW Consultants, NRC, CNWRA, DOE, and State of Nevada

ACNW Consultants: Ken Foland, Bruce Marsh, and Mike Ryan

5:45 P.M. Recess

Wednesday, April 23, 1997, Two White Flint North, Room T-2B3
11545 Rockville Pike, Rockville, Maryland

3) 8:30 - 8:35 A.M. Opening Remarks by ACNW Chairman (Open) (PWP/RKM)

10:30

4) 8:35 - 10:~~15~~ A.M. Nevada Perspective as to the Difference between DOE's Viability Assessment and the Site Suitability Determination for the Proposed Yucca Mountain Repository (Open) (PWP/HJL)

4.1) Comments will also be offered on 10 CFR Part 960, site specific siting guidelines for Yucca Mountain, as well as 10CFR60 Subsystem Requirements - S. Frishman, Agency for Nuclear Projects, State of NV

4.2) A presentation will be given on "The Value of State Oversight - Unsaturated Flow Model," by Linda Lehman, TREG, Inc.

10:45 11:~~00~~

5) ~~10:15~~ - ~~11:00~~ A.M. Screening Methodology for Assessing Prior Land Burials (Open) (PWP/HJL) Review the NRC staff's final branch technical position on this screening methodology including disposition of public comments, (Heather Astwood, NMSS)

10:30 10:45

~~11:00~~ - ~~11:15~~ A.M. * * * BREAK * * *

6) ~~11:15~~ - 12:30 P.M. Discussion with the Director, Division of Waste Management, NMSS (Open) (PWP/ACC)
11:20

A current events session with the Director, topics might include:

6.1) Convention on the Safety of Radioactive Waste Management

6.2) Status of site characterization at the proposed repository

6.3) Options under consideration for a revised 10CFR Part 60

6.4) Status of EPA HLW Standards

6.5) NRC regulation of certain DOE facilities

1:32

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

7) ~~1:30~~ - ~~3:00~~ P.M. Defense-In-Depth (Open) (BJG/LGD)
1:32 3:05

A discussion between the Committee members and invited experts on the

defense-in-depth philosophy as it applies to nuclear waste. The goal of this session is to provide assurance future versions o 10CFR Part 60 (risk-informed, performance-based) reflect adequate safety. Discussions with:
7.1) C. Fairhurst, Committee on Technical Bases for Yucca Mountain Standards, National Academy of Sciences

3:05 3:20
~~3:00~~ - ~~3:15~~ P.M. * * * BREAK * * *

8) ~~3:15~~ - ~~4:30~~ P.M. 3:42 5:15 Preparation of ACNW Reports (Open)
Discuss possible reports on the following topics:
8.1) Igneous Activity
8.2) Prior Land Burials
8.3) History of ACNW

3:20 3:42

9) ~~4:30~~ - ~~5:30~~ P.M. Committee Activities/Future Agenda (Open) (PWP/RKM)
9.1) Set Agenda for 92nd ACNW Meeting May 20-22, 1997
9.2) Review Item for the Out Months
9.3) Future Working Group Topics/Dates
9.4) Reconcile EDO Responses to Committee Reports
9.5) Other topics

5:45
~~5:30~~ P.M. * * * RECESS * * *

Thursday, April 24, 1997, Two White Flint North, Room T-2B3, 11545 Rockville Pike, Rockville, Maryland

10) 8:30 - 10:45 A.M. Prepare for the next meeting with the Commission (Open) (PWP/RKM)
Discuss possible topics and prepare background material, including slides for next meeting with the Commission currently scheduled for May 20, 1997 from 2:00 - 3:30 p.m.. Topic will include:
10.1) Selected topics from ACNW's November 20, 1996 Priority Issues (PWP/RKM)
10.2) Reference Biosphere Critical Group (BJG/HJL)
10.3) Flow and Radionuclide Transport/ Coupled Processes (GMH/LGD)
10.4) Igneous Activity (WJH/LGD)

		10.5) Risk-Informed, Performance-Based Regulation (BJG/ACC)
	10:15 10:40	
	~~10:45~~ - ~~11:00~~ A.M.	* * * BREAK * * *
11)	11:00 - 12:30 P.M.	Continue Preparation of ACNW Reports (Open) Discussion of potential ACNW reports listed in item 8 and topics reviewed earlier during this meeting.
	12:30 - 1:30 P.M.	* * * LUNCH * * *
12)	1:30 - 4:00 P.M.	Continue to Prepare ACNW Reports (Open)
	~~4:00~~ P.M. 12:00	ADJOURN

APPENDIX III: MEETING ATTENDEES

91ST ACNW MEETING
APRIL 22-24, 1996

ACNW MEMBERS	1st Day	2nd Day	3rd Day
Dr. Paul W. Pomeroy	X	X	X
Dr. William J. Hinze	X	X	X
Dr. George W. Hornberger	X	X	X
Dr. B. John Garrick	X	X	X

ACNW Invited Experts:

Charles Fairhurst, Kenneth Foland, Bruce Marsh, and Michael Ryan

ACNW STAFF	1st Day	2nd Day	3rd Day
Andrew C. Campbell	X	X	X
Lynn G. Deering	X	X	X
Howard J. Larson	X	X	X
Richard K. Major	X	X	X
John T. Larkins	X	X	X
Richard P. Savio	X	X	X
Michele S. Kelton	X	X	X

ATTENDEES FROM THE NUCLEAR REGULATORY COMMISSION

April 22, 1997

J. Trapp	NMSS
B. Ibrahim	NMSS
R. Johnson	NMSS
P. Justus	NMSS

April 22, 1997 (cont'd)

M. Lee	NMSS
E. O'Donnell	RES
S. McDuffie	NMSS
P. Reed	NMSS
D. Vinson	NMSS
J. Firth	NMSS
D. Brooks	NMSS
N. Eisenberg	NMSS

April 23, 1997

B. Leslie	NMSS
B. Nelson	NMSS
T. Harris	NMSS
B. Ibrahim	NMSS
J. Trapp	NMSS
J. Firth	NMSS

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

April 22, 1997

R. Wallace	USGS
A. Van Luik	DOE
B. Hill	CNWRA
C. Conner	CNWRA
K. Coppersmith	Geomatrix/M&O
L. Lehman	State of Nevada
B. Marsh	Johns Hopkins Univ.
M. Ryan	USGS
F. Rodgers	DOE
W. Patrick	CNWRA
W. Mahphiele	Gamma End
S. Frishman	State of NV

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

April 22, 1997 (Cont'd)

C. Hanlon	DOE
J. Russell	CNWRA
G. Roseboom	USGS
T. Sullivan	DOE
R. Murphy	DOE

April 23, 1997

L. Lehman	State of NV
J. Russell	CNWRA
A. Van Luik	DOE
R. Wallace	USGS
F. Rodgers	DOE
S. Katz	BRM
S. Hanauer	DOE
P. Krishna	M&O/TRW
J. Treichel	NV NWTF
S. Frishman	State of NV
R. Murphy	DOE
J. Weil	Radioactive Exchange
R. Andersen	NEI
D. Fehringer	NWTRB
B. Hill	CNWRA
C. Hanlon	DOE
G. Roseboom	USGS (retired)

April 24, 1997

L. Lehman	State of NV

APPENDIX IV: FUTURE AGENDA

The Committee agreed to consider the following during the 92nd ACNW Meeting, May 20-22, 1997:

- Planning for and Meeting with the Nuclear Regulatory Commission - The Committee will prepare for and meet with the Commission to discuss items of mutual interest. Topics will include the ACNW priority list and past Committee reports on the reference biosphere and critical group, flow and transport models for Yucca Mountain, coupled processes in NRC's high-level waste prelicensing program, igneous activity at Yucca Mountain, and risk informed, performance based regulations. The Committee is currently scheduled to meet with the Commission on May 20, 1997 at 2:00 p.m.

- Generic Methodology for Decommissioning Performance Assessment (PA) - The Committee will review the use of performance assessment in the decommissioning of various facilities.

- Meeting with NRC's Director, Division of Waste Management,NMSS - The Committee will hold a current events discussion with the Director of NMSS. Topics might include the status of work at the Yucca Mountain site, and high-level waste standards and regulations.

- Meeting with Representatives of the DOE and NRC - The Committee will meet with representatives of the Department of Energy and the NRC staff to discuss DOE's Performance Integrated Safety Assessment (PISA), experience with the use of expert elicitation in the high-level waste repository program, and comments on the defense-in-depth philosophy.

- Spent Fuel Dry Storage Facilities - The Committee will review a draft version of the NRC staff's Standard Review Plan for a spent fuel dry storage facility.

- Central Interim Storage Facility - The Committee will review DOE's non-site-specific Topical Safety Analysis Report (TSAR) for a Central Interim Storage Facility (CISF).

- Federal Guidance Report 13 - The Committee will review the Proposed Federal Guidance Report 13, Health Risk for Environmental Exposure to Radionuclides (tentative).

- Waste Classification at Hanford, Washington, and Savannah River, South Carolina - The Committee will discuss the waste classification methodology used by the DOE for wastes resulting from HLW treatment and from bulk HLW removal and cleaning of tanks (tentative).

- Preparation of ACNW Reports - The Committee will discuss potential reports, including igneous activity related to the proposed Yucca Mountain Repository, and other topics discussed during the meeting as the need arises.

APPENDIX V
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	**Discussion on the Status of Igneous Activity Related to the Proposed Yucca Mountain Repository**

1. Introductory Comments, presented by John Trapp, Senior Geologist, Engineering and Geoscience Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, dated April 22, 1997 [Viewgraphs]

2. Geologic Setting and Probability, Volcanism in the Yucca Mountain Region and Disruption of the Proposed Repository, presented by Chuck Connor, Center for Nuclear Waste Regulatory Analyses, dated April 22, 1997 [Viewgraphs]

3. Igneous Activity Program, Introduction, presented by Tim Sullivan, Viability Assessment Team Leader, Yucca Mountain Site Characterization Office, dated April 22, 1997 [Viewgraphs]

4. Probabilistic Volcanic Hazard Analysis for Yucca Mountain, Nevada, presented by Kevin J. Coppersmith, Geomatrix Consultants, dated April 22, 1997 [Viewgraphs]

5. PVHA at Yucca Mountain, State of Nevada, presented by Gene Yogodzinski, University of Nevada Las Vegas, Dickinson College [Viewgraphs]

6. CNWRA Investigations of Igneous Activity Consequences on Repository Performance, presented by Dr. Brittain Hill, Research Scientist, Center for Nuclear Waste Regulatory Analyses, dated April 22, 1997 [Viewgraphs]

7. Annual Individual Dose Estimates from "Preliminary" Performance Calculations, presented by Tim McCartin, Office of Nuclear Material Safety and Safeguards, dated April 22, 1997 [Viewgraphs]

MEETING HANDOUTS (CONT'D)

AGENDA ITEM NO.	DOCUMENTS
2	Discussion on the Status of Igneous Activity Related to the Proposed Yucca Mountain Repository (Cont'd)
	8. Planned Sensitivity Analyses of the Effects, Consequences and Risks of Volcanic Hazards at Yucca Mountain in TSPA-VA, presented by Dr. Abe Van Luik, U. S. Department of Energy, dated April 24, 1997 [Viewgraphs]
	9. DOE/NRC Agreements from Technical Exchange with Comments, presented by John Trapp, Nuclear Regulatory Commission, and Tim Sullivan, Department of Energy, dated April 22, 1997 [Viewgraphs]
	10. NRC Planned Activities, presented by John Trapp, Senior Geologist, Engineering and Geoscience Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, dated April 22, 1997 [Viewgraphs]
	11. Igneous Activity Program, Path Forward, presented by Tim Sullivan, Viability Assessment Team Leader, Yucca Mountain Site Characterization Office, dated April 22, 1997 [Viewgraphs]
4	State of Nevada Perspective as to the Difference Between DOE's Viability Assessment and the Site Suitability Determination for the Proposed Yucca Mountain Repository
	12. The Value of State Oversight in the Department of Energy Yucca Mountain Project, presented by Linda Lehman, President, Technical & Regulatory Evaluations Group, Inc., undated [Viewgraphs]
5	Screening Methodology for Assessing Prior Land Burials
	13. Branch Technical Position on Screening Methodology for Assessing Prior Land Burials of Radioactive Waste Authorized Under Former 10 CFR 20.304, and 20.302, presented by Heather Astwood, Low-Level Waste and Regulatory Issues Section, Low-Level Waste and Decommissioning Projects Branch, Division of Waste Management, NMSS, dated April 23, 1997

MEETING HANDOUTS (CONT'D)

AGENDA ITEM NO.	DOCUMENTS
7	Defense in Depth Philosophy
	14. 10 CFR Part 60 Technical Criteria and Total System Performance Assessment, Comments Before the American Council on Nuclear Waste, presented by Charles Fairhurst, University of Minnesota, dated April 23, 1997

MEETING NOTEBOOK CONTENTS (CONT'D)

TAB NUMBER	DOCUMENTS
1	Opening Remarks by ACNW Chairman

1. Introductory Statement by the ACNW Chairman, undated
2. Items of Current Interest, undated
3. Introductory Statement by the ACNW Chairman, Second Day, undated
4. Introductory Statement by the ACNW Chairman, Third Day, undated

2 Discussion on the Status of Igneous Activity Related to the Proposed Yucca Mountain Repository

See Separate Notebook

4 Comments from State of Nevada Representative on the DOE Viability Assessment Vis-A-Vis Site Suitability Determination and State Comments on 10 CFR Part 960

5. Table of Contents
6. Status Report
7. "OCRWM Viability Assessment for the Potential HLW Repository at Yucca Mountain, Nevada," Nevada Agency for Nuclear Projects Paper, November 1996
8. SECY-97-058, "U.S. Department of Energy's Revised General Guidelines for the Recommendation of States for Nuclear Waste repositories (10 CFR Part 960). March 6, 1997
9. Letter from R. Loux, Executive Director, Agency for Nuclear Projects, NV, to A.V. Gil, DOE, Subject: Notice of Proposed Rulemaking: 10 CFR Part 960, General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories. 61 FR No. 242, December 16, 1996
10. Letter from Governor Bob Miller, Nevada, to Hazel O'Leary, Secretary, DOE, December 24, 1996
11. Written Statement from Frankie Sue Del Papa, Attorney General, Nevada, submitted at DOE public hearing, Las Vegas, NV, January 23, 1997
12. Letter from U.S. Senator R.H. Byran, NV to C. Curtis, Acting Secretary, DOE, February 3, 1997
13. Letter from W. R. Taylor, U.S. Department of Interior, to A. V. Gil, DOE, February 7, 1997
14. Letter from R. Loux, Executive Director, Agency for Nuclear Projects, Nuclear Waste Project Office, NV, to J. T. Greeves, Director, Division of Waste Management, NRC, January 27, 1997
15. Linda Lehman, Technical & Regulatory Evaluations Group, Inc, "The Value of State Oversight in the Department of Energy Nuclear Waste Disposal Operations,"

MEETING NOTEBOOK CONTENTS (CONT'D)

TAB NUMBER	DOCUMENTS
5	**Disposal of Radioactive Waste by Land Burial Authorized Under 10 CFR 304 and 302**
	16. Table of Contents
	17. Status Report
	18. Memorandum from H. J. Larson, Staff Engineer, ACNW, to ACNW Members, Subject: Screening Methodologies for Prior Land Burials of Radwaste, November 6, 1996
	19. Memorandum from James M. Taylor, Executive Director for Operations, NRC, to Paul W. Pomeroy, Chairman, ACNW, Subject: Screening Methodology for Assessing Prior Land Burials of Radioactive Waste Authorized Under Former 10 CFR 20.304 and 20.302, December 23, 1996
	20. NRC Information Notice 96-47: "Recordkeeping. Decommissioning Notifications for Disposal of Radioactive Waste by Land Burials Authorized Under Former 10 CFR 20.304, 20.302, and current 20.2002," August 19, 1996
	21. LLW Notes, p. 32, "NRC Information Notice Re On-Site Land Burials," August/September 1996
	22. Minutes of the 87th ACNW Meeting, October 22-23, 1996 [Viewgraphs used by H. Astwood, NMSS]
	23. Letter from Paul W. Pomeroy, Chairman, ACNW, to Shirley Ann Jackson, Chairman, NRC, Subject: Screening Methodology for Assessing Prior Land Burials of Radioactive Waste Authorized Under Former 10 CFR 20.034 and 20.302, November 20, 1996
	24. University of Wisconsin, Illinois Department of Nuclear Safety, Department of Health-State of Washington, University of Washington, Washington State University, "Public Comments," January 3, 1997
	25. Memorandum from L. Joseph Callan, Executive Director for Operations, NRC, to the Commissioners, NRC Subject: Application of Risk-Informed Regulation to the Decommissioning of Formerly Licensed Sites and Old Burials, April 2, 1997
6	**Meeting with the Director, Division of Waste Management**
	26. Table of Contents
	27. Status Report
	28. Senate Bill 104, "Murkowski Amendment," April 9, 1997
	29. Report by J. T. Greeves, M. J. Bell, and C. W. Reamer, "Status Report on the Development of an International Convention on the Safety of Radioactive Waste Management," March 4, 1997
	30. Memorandum by J. T. Greeves, NMSS and K. Cyr, OGC, to C. J. Paperiello, Director, NMSS, and C.R. Stoiber, Director, IP, Subject: Report on Fifth Meeting of Group of Experts on the Draft Convention on the Safety of Radioactive Waste Management, November 18-22, 1996, December 31, 1996

MEETING NOTEBOOK CONTENTS (CONT'D)

TAB NUMBER	DOCUMENTS
7	10 CFR 60 Subsystem Requirements(Cont'd.)
	31. Table of Contents
	32. Status Report
	33. Note from R. L. Johnson, NMSS, to R. Major, Chief, ACNW, and L. Deering, Staff Scientist, ACNW Subject: Transmittal of Two Documents Requested by ACNW in the March 1997 Meeting," April 2, 1997
	34. SECY-81-267, "10 CFR Part 60 - Disposal of High-Level Radioactive Wastes in Geologic Repositories: Technical Criteria," April 27, 1981
	35. Division of Waste Management, "Rationale for Performance Objectives and Required Characteristics of the Geologic Setting: Technical Criteria for Regulating Geologic Disposal of High-Level Radioactive Waste," April 1981
	36. Interagency Review Group on Nuclear Waste Management, "Draft Subgroup Report on Alternative Technology Strategies for the Isolation of Nuclear Waste," October 1978
	37. Letter from J. Randall, to J. C. Hoyle, Secretary of the Commission, Subject: Comments on Strategic Assessment Paper DSI 6: Recommended Actions of the Commission Continues to Favor Option 3, Maintaining the Current NRC HLW Program, October 17, 1996
	38. Note from L. Deering, Staff Scientist, ACNW, to W. J. Hinze, ACNW Member, Subject: Thoughts on Time Frame of Regulatory Compliance, April 9, 1996
8.3	Preparation of ACNW Reports: History of ACNW
	39. E-mail from William J. Hinze, ACNW Member, to B.J. Garrick, ACNW Member, Subject: Overview of ACNW, dated April 10, 1997
9.	Committee Activities/Future Agenda
	40. Table of Contents
	41. Set Agenda for 92nd ACNW Meeting May 20-22, 1997
	42. [illegible]. Agenda for Out Months through October 1997
	43. Discuss Outside Meetings Attended by Members and Staff
	44. Reconcile EDO Responses to Committee Reports
	45. EDO's List of Future Meeting Topics
	46. CRWMS/M&O Meeting List
	47. One Year Calendar of Events

MEETING NOTEBOOK CONTENTS (CONT'D)

TAB NUMBER	DOCUMENTS
10.	Prepare for the Next Meeting with the Commission
48.	Summary Letter from Paul W. Pomeroy, Chairman, ACNW, to Shirley Ann Jackson, Chairman, NRC, Subject: 1997 Priority Issues for the Advisory Committee on Nuclear Waste, November 20, 1996
49.	"Reference Bioshpere and Critical Group Issues and their Application to the Proposed HLW Repository at Yucca Mountain, Nevada," proposed Viewgraphs from H. J. Larson, ACNW, to B. J. Garrick, ACNW Member, undated
50.	Summary Letter from Paul W. Pomeroy, Chairman, ACNW, to Shirley Ann Jackson, Chairman, NRC, Subject: Reference Bioshpere and Critical Group Issues and Their Application to the Proposed High-Level Waste Repository At Yucca Mountain, Nevada, April 3, 1997
51.	"Coupled Processes," proposed Viewgraphs from L. G. Deering, ACNW, to G. M. Homberger, undated
52.	"Igneous Activity," proposed Viewgraphs from L. G. Deering, ACNW, to W. J. Hinze, ACNW Member, undated
53.	"Flow and Radionuclide Transport Issues at Yucca Mountain," proposed Viewgraphs by to Dr. George Homberger, ACNW Member, April 24, 1997
54.	"Risk-Informed Performance-Based Regulation" proposed Viewgraphs from A. C. Campbell to B. J. Garrick, ACNW Member, undated