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

July 27, 2006

MEMORANDUM TO: ACNW Members
ACNW Staff

FROM: Michele S. Kelton
Technical Secretary, ACNW

SUBJECT: CERTIFIED MINUTES OF THE 170TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW), MAY 23–26, 2006

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

Attachment:
Certified Minutes of the 170th Meeting
May 23–26, 2006

cc A. Bates, SECY (O-16C1)
S. Jones, NMSS (T-8A23)
Belkys Sosa, EDO (O-16E17)

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

MEMORANDUM TO: Antonio Dias, Team Leader
ACRS/ACNW

FROM: Michael T. Ryan, Chairman
Advisory Committee on Nuclear Waste

SUBJECT: PROPOSED MINUTES OF THE 170TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW) MAY 23–26, 2006

I certify that, based on my review of these minutes[1], and to the best of my knowledge and belief, I have observed no substantive errors or omissions in the record of this proceeding subject to the comments noted below.

Comments:

Michael T. Ryan, Chairman

7/27/06
Date

[1] Minutes of the 170th Meeting of the ACNW held May 23-26, 2006, dated July 27, 2006.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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WASHINGTON, D.C. 20555-0001

July 27, 2006

MEMORANDUM TO: Michael T. Ryan, Chairman
Advisory Committee on Nuclear Waste

FROM: Michele S. Kelton, Technical Secretary /S/
Advisory Committee on Nuclear Waste

SUBJECT: PROPOSED MINUTES OF THE 170TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW) MAY 23–26, 2006

Enclosed are the proposed minutes of the 170th meeting of the ACNW. This draft is being provided to give you an opportunity to review the record of this meeting and provide comments. Your comments will be incorporated into the final certified set of minutes as appropriate. Please provide your corrections and comments to me.

Please note that these minutes are being issued in two parts: (1) main body (working copy form) and (2) appendices. The appendices are being sent only to those members who have requested them.

A copy of the certified minutes with appendices will be forwarded to each member.

Enclosure: As stated

cc w/o Encl. 2: ACNW Members
ACNW Staff

CONTENTS

		Page
I.	Advisory Committee on Nuclear Waste Working Group Meeting on Low-Level Radioactive Waste Management Issues (Open)	1
II.	National Academy of Sciences Report on the Management of Certain Tank Wastes at Department of Energy Sites (Open)	41
III	U.S. Nuclear Regulatory Commission Standard Review Plan for Waste Determinations (Open)	44
IV.	Review of International Commission on Radiological Protection Draft Report, "The Scope of Radiological Protection Regulations" (Open)	45
V.	Overview of U.S. Nuclear Regulatory Commission Spent Fuel Storage Program (Open)	46

APPENDICES

A *Federal Register* Notice
B Meeting Agenda
C Meeting Attendees
D Future Agenda
E List of Documents Provided to the Committee and Meeting Notebook Contents

CERTIFIED
7/27/06
BY MICHAEL T. RYAN

Issued: 7/27 /06

CERTIFIED MINUTES OF THE 170TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE MAY 23–26, 2006

The U.S. Nuclear Regulatory Commission (NRC) Advisory Committee on Nuclear Waste (ACNW or the Committee) held its 170th meeting on May 23–26, 2006, at One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The ACNW published a notice of this meeting in Volume 71, page 18785, of the *Federal Register* on April 12, 2006 (71 FR 18785) (see Appendix A to these minutes). This meeting served as a forum for attendees to discuss and take appropriate action on the items in the agenda (see Appendix B to these minutes). The entire meeting was open to the public.

A transcript of selected parts 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 Company, Inc.,1323 Rhode Island Avenue, NW, Washington, DC 20005. Transcripts may also be downloaded from, or reviewed on, the NRC Web site at http://www.nrc.gov/reading-rm/doc-collections/acnw/tr/ at no cost.

ACNW Members, Michael T. Ryan (ACNW Chairman), Allen G. Croff (ACNW Vice Chairman), James H. Clarke, William J. Hinze, and Ruth Weiner attended the meeting. For a list of other attendees, see Appendix C to these minutes.

Dr. Ryan, ACNW Chairman, convened the meeting at 8:35 a.m. and briefly reviewed the agenda. He noted that the meeting was being conducted in conformance with the Federal Advisory Committee Act. Dr. Ryan asked members of the public who were present and wished to address the Committee to inform the ACNW staff so that time could be allocated for them to speak. Dr. Ryan also provided an overview of the planned technical sessions for the first day of the meeting.

I. ACNW Working Group Meeting on Low-Level Radioactive Waste Management Issues

(Mr. Michael P. Lee was the Designated Federal Official for this portion of the meeting.)

During its 170th meeting on May 23–26, 2006, the ACNW held a Working Group Meeting regarding emerging low-level radioactive waste (LLW) issues and opportunities to better risk inform the management of these wastes. The reason for conducting a meeting on this topic can be traced back to the ACNW March 2005 briefing of the Commission. At that time, the ACNW agreed to examine some of the issues surrounding the lack of progress in the national LLW program.

As a first step in that examination, the Committee undertook the development of a background paper, or white paper, that briefly reviewed the history and current status of commercial LLW disposal in the United States, as well as the NRC staff's reasoning and approach to developing LLW regulations at Title 10, Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," of the *Code of Federal Regulations* (10 CFR Part 61). The LLW white paper, a draft of which was forwarded to the Commission on December 27, 2005,[1] has three parts. Part I provides an historic perspective of past programs for the management and disposal of commercial LLW. Part II describes NRC's commercial LLW regulatory framework, which is primarily found at 10 CFR Part 61. Part III summarizes past ACNW advice in the area of commercial LLW. The LLW white paper also includes several appendices. In addition, the white paper identifies several emerging staff initiatives, as well as other ongoing initiatives by outside organizations and agencies that could potentially have a bearing on the management of commercial LLW.[2] Lastly, the ACNW December 2005 letter also identified a preliminary list of areas in which 10 CFR Part 61 might be better risk informed to improve the effectiveness of the current regulatory framework. The NRC Executive Director of Operations' February 24, 2006, letter to ACNW, commenting on the December 2005 draft of the white paper, noted that the paper was an excellent point-of-departure for the ACNW Working Group Meeting to discuss those broader issues being examined by the NRC staff. (The white paper, now designated NUREG-1853, will be published later this summer.)

The ACNW 2-day Working Group Meeting drew an attendance of approximately 100. Formal participation in the meeting included representatives of the American Ecology Corporation, the Army Corps of Engineers, EnergySolutions (formerly Envirocare), the California Radiation Forum (CalRadForum), Duratek-Chem-Nuclear Systems, LLC, EnergySolutions, the Entergy utility group, the environmental community, Harvard University, the LLW Forum, the Nuclear Energy Institute (NEI), the South Carolina Department of Health and Environmental Control (DHEC), the Southwestern LLW Compact, the Texas Commission on Environmental Quality (TCEQ), and Waste Control Specialists, LLC (WSC). Staff from NRC's Division of Waste Management and Environmental Protection (DWMEP), as well as independent stakeholders, also participated in the discussions.

ACNW-invited experts at this meeting included Dr. David Kocher/SENES Oak Ridge, Inc., and Mr. Howard Larson/ACNW staff (retired).

May 23, 2006: Greeting and Introductions

The ACNW Chairman is the cognizant ACNW member for LLW issues. Following greetings and salutations to meeting participants and observers, Dr. Ryan made a few introductory remarks. In those brief remarks, he reviewed the purposes of the ACNW May 2006 Working Group Meeting, which included the following:

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1 Ryan, M.T., Chairman/Advisory Committee on Nuclear Waste, letter to the Honorable Nils J. Diaz, Chairman/U.S. Nuclear Regulatory Commission, Subject: "Opportunities in the Area of Low-Level Radioactive Waste Management", dated December 27, 2005.

2 A PDF version of this letter and the accompanying draft white paper can be found on the ACNW Web site at http://www.nrc.gov/reading-rm/doc-collections/acnw/tr/.

- Obtain current information on commercial LLW management practices.
- Identify emerging LLW management issues and concerns.
- Solicit stakeholder views on what changes to the regulatory framework for managing commercial LLW should be recommended for Commission consideration.
- Solicit stakeholder views on actions the Commission can take to ensure a stable, reliable, and adaptable regulatory framework for effective LLW management.
- Identify specific impacts, both positive and negative, of potential future staff activities.

Dr. Ryan noted that the NRC staff recently announced that it intended to update its strategic planning in the LLW area following a Commission-directed reduction in the program about a decade ago. Consequently, as part of the Working Group Meeting, Dr. Ryan noted that the Committee sought stakeholder views on what changes to the regulatory framework for managing commercial LLW should be recommended to the Commission for its consideration.

Consistent with the aforementioned purposes, Dr. Ryan noted that the anticipated outcomes from this Working Group Meeting were the following:

- Complement the earlier December 2005 ACNW letter concerning LLW management.
- Provide input to a second (new) letter to the Commission addressing the purposes stated above.
- Provide useful input to ongoing NRC staff strategic planning efforts in the area of commercial LLW regulation and management

To aid in the discussions, Dr. Ryan also noted that the Working Group Meeting participants had been asked to consider some questions in advance that were thought to have a bearing on the issues of interest to the ACNW, as well as staff from the NRC Office of Nuclear Material Safety and Safeguards. To achieve these purposes and outcomes, he noted that the Working Group Meeting was divided into four sessions covering the following general themes

- current LLW program status
- existing regulatory framework for managing commercial LLW and operational issues
- industry panel discussion on current and future challenges in the management of LLW
- stakeholder perspectives on the forthcoming NRC strategic assessment effort

Presentations made during the May 2006 LLW Working Group Meeting were consistent with the scope of the published ACNW prospectus. The presentations were followed by questions and comments from the ACNW members, invited subject matter experts, and other meeting attendees. Specific time in the agenda was offered to stakeholders and interested members of the public to provide additional comments on the issues under discussion. The ACNW meeting

transcript provides a verbatim account of the nature and scope of these questions and comments, which are summarized below.[3]

I.A Session I: Current LLW Program Status

I.A.1 Existing LLW Licensee Operational Experience and Perspective

The first technical presentation provided an overview of current disposal practice for commercial LLW in the United States. Conventional disposal practice generally includes placing the waste in a container, placing the container in a shallow trench, and covering the trench with some type of infiltration barrier. By examining disposal facilities in two different locations (i.e., a humid vs. an arid environment), it is possible to understand how the dissimilar geographies influence the management of these wastes.

Bill House/Chem-Nuclear Systems, LLC.*[4] Mr. Bill House, Vice President for Regulatory Affairs at Chem-Nuclear Systems, made the first presentation.[5] Chem-Nuclear Systems operates the Barnwell LLW disposal facility in South Carolina. This shallow-land disposal facility sees high levels of rainfall—on the order of about 30+ inches per year. The Barnwell site has been in continuous operation since 1969 and disposes of Class A, B, and C wastes. It serves the Southeast LLW Compact,[6] as well as other LLW generators throughout the country. Two State authorities regulate the facility. The South Carolina Budget Control Board, a State Public Service Commission, establishes the fees that the Barnwell facility can charge generators for disposal services. DHEC provides public health and safety and environmental oversight.[7] In 2008, the facility is expected to end its practice of receiving LLW from generators outside of the Compact.

In his presentation, Mr. House provided a brief history of the Barnwell disposal site, described current operations, and talked about the impacts from the Atlantic Compact law on disposal operations. He also summarized the safety and compliance history at the site, talked about a risk-informed approach that Chem-Nuclear Systems has generally used in its disposal operations over the years, and provided some examples of how risk-informed approaches have been applied to the company's decisionmaking and suggested some areas for evaluation that might lead to improvements in disposal operations at the site. Mr. House also noted that in 2002, as part of a license application renewal, DHEC independently peer reviewed Chem-

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3 Refer to http://www.nrc.gov/reading-rm/doc-collections/acnw/tr/2006/.

4 An asterisk (*) indicates that the speaker brought presentation materials for distribution at the Working Group Meeting. These can be found in Appendix E to these minutes.

5 A wholly owned subsidiary of Duratek, Inc., who acquired Chem-Nuclear Systems in 2000.

6 The Southeast LLW Compact consists of South Carolina, Connecticut, and New Jersey.

7 Mr. Henry Porter, representing DHEC in the Working Group Meeting, further discussed this topic. His presentation focused on the methods the agency uses to regulate the Barnwell LLW disposal site.

Nuclear Systems' performance assessment and found the methodologies and results to be acceptable. A key focus of current activities at the site is remediating the older disposal trench covers by capping those trenches with a synthetic liner impervious to water movement—usually high-density polyurethane (HDPE)—and adding a graded clay ground cover on top of the liner that is also impervious to water movement.

Mr. House also noted that for nonsafety reasons, the Barnwell site was not operating at full disposal capacity. He cited the South Carolina Compact Act and its restrictions on disposal volume reductions over time as one of the reasons. The other reason he cited concerned the State-controlled regulation of waste pricing and generator-imposed efficiencies in LLW volume production.

Mr. House made the following key points during his presentation:

- The combination of the NRC's 10 CFR Part 61 regulatory system and the DHEC requirements have worked well for the Barnwell site. This regulatory combination has resulted in 50 license amendments imposing 101 license conditions that apply to the operation of the disposal facility.

- The so-called Barnwell "rule of 10," for the averaging of radionuclide concentrations within LLW containers, has been successfully used to manage different types and quantities of wastes received.

Tye Rogers/EnergySolutions.* Mr. Tye Rogers, representing EnergySolutions, made the second presentation. Mr. Rogers is the Vice President for Compliance and Licensing. EnergySolutions, as well as its predecessor Envirocare of Utah, operates a radioactive waste disposal facility in Clive, Utah. The Clive site is located geographically in mid-latitude desert, characterized by low amounts of rainfall—on the order of about 8 inches per year—and high rates of evapotranspiration (ET). As background, Mr. Rogers noted that Utah became an NRC Agreement State in 1984 and shallow-land disposal operations began at the Clive site in 1986. Like the Barnwell site, disposal operations at the Clive site have proceeded incrementally through the institution of license conditions. For example, Mr. Rogers explained that the site was initially approved as a Department of Energy (DOE) uranium mill tailings disposal site. Subsequent license amendments were received for the disposal of naturally occurring radioactive material (NORM) (1988), low-activity radioactive waste (LARW) (1991), mixed low-level radioactive waste (MLLW) (1993), Atomic Energy Act (AEA) 11e.(2) materials[8] (1994), and 10 CFR Part 61 Class A, B, and C LLW (2000–01). However, the Clive facility has the distinction of being licensed outside of the Low-level Radioactive Waste Policy Act of 1980 (LLWPA), as amended, framework; it was initially licensed by the Utah Department of Environmental Quality.

All of the disposal operations take place on a contiguous parcel of land covering about 1 square mile. In 2005, a private equity firm purchased Envirocare and made the decision to withdraw

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8 Defined in the Uranium Mill Tailings Radiation Control Act as "tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content." NORM, LARW, MLLW. AEA refers to the Atomic Energy Act of 1954, as amended.

the Class B and C license application because that particular license required the approval of both the State's legislature and Governor. In addition to this history, Mr. Rogers described current operations at the Clive site and summarized its safety and compliance history. He noted that a key factor working in favor of compliance at the site is its arid geographical setting and the presence of a nonpotable (brackish) local groundwater supply.

During his presentation, Mr. Rogers highlighted several points with respect to disposal operations at the Clive site:

- First, as noted above, at least six radioactive waste types have been disposed of at the Clive site. Although several of the waste streams have similar radionuclide concentrations, they are managed under different sets of regulations by virtue of how the wastes are defined in the regulations. Harmonization of the regulatory frameworks applicable to these waste streams (based on hazard rather than source) would lead to certain efficiencies in their management.

- Second, although Utah is an NRC Agreement State,[9] the State has no exemption provisions similar to those found in 10 CFR 61.58, "Alternative Requirements for Waste Classification and Characteristics,"[10] that allow for alternative concentration limits of radioactive wastes. The absence of an alternate concentration provision in the State's regulations represents an obstacle to the receipt of certain waste streams that otherwise might be acceptable for disposal at the facility based on the favorable performance characteristics of the site.

- Third, because of the characteristics of the site and specific design features, a performance ased system of regulation would allow for much-needed disposal of higher activity LLW.

The presentations by Messrs. House and Rogers also included a review of the system of financial assurances in place at both sites to ensure acceptable closure and caretaker activities of those facilities. They also noted that both the Barnwell and Clive sites had substantial remaining disposal capacity. The two presentations concluded with the speakers' respective

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9 Under Section 274 of the Atomic Energy Act, as amended, the NRC can relinquish portions of its regulatory authority to license and regulate byproduct materials, source materials, and certain quantities of special nuclear materials to the States. The mechanism for the transfer of NRC's authority is an agreement signed by the Governor of the State and the Chairman of the Commission, in accordance with Section 274b of the AEA. Therefore, "Agreement States" are those States whose Governors have entered into such limited agreements with the Commission.

10 10 CFR 61.58 states the following:

> The Commission may, upon request or on its own initiative, authorize other provisions for the classification and characteristics of waste on a specific basis, if, after evaluation, of the specific characteristics of the waste, disposal site, and method of disposal, it finds reasonable assurance of compliance with the performance objectives in subpart C of this part.

recommendations on how to improve the existing regulatory framework for commercial LLW management. Following the completion of Mr. Rogers' presentation, both speakers responded to questions and comments from the ACNW members.

I.A.2 Alternative Disposal Options and Practices

It has been generally estimated that less than 10 percent of commercial LLW contains chemical contaminants and hence is subject to joint regulation under regulations promulgated by the Environmental Protection Agency pursuant to the Resource Conservation and Recovery Act of 1976 (RCRA). The second series of technical presentations provided some background on how LARW streams with chemical constituents are managed.

Bill Dornsife/Waste Control Specialists. Mr. Bill Dornsife made the first presentation in this series. He is the Corporate Radiation Safety Officer for WSC. The WSC Andrews County, Texas, site is one of about four RCRA-approved facilities in the country that can dispose of LARW. Two State authorities, operating under an interagency memorandum of understanding (MOU), regulate the Andrews County RCRA treatment and disposal facility.[11] Through this MOU, TCEQ has been granted overall regulatory authority for the site. Mr. Dornsife's presentation focused on how WSC manages the disposal of LARW and other types of radioactive materials at its Andrews County facility. Like the Clive site, the Andrews County facility is also located in an arid geographical setting. The county gets about 15 inches of rainfall per year and ET is estimated to be about four times the amount of rainfall resulting in an overall water deficit. This deficit limits the transmission of percolating rainwater to the water table, which is a favorable performance attribute because little groundwater is available to interact with the disposed wastes.

Mr. Dornsife summarized the geology of the site, described the basic RCRA facility design, and provided an overview of current disposal operations. The WCS site is located on 16,000 acres, mostly in Andrews County with a portion extending into New Mexico. More than 1340 acres is currently permitted to treat and dispose of RCRA waste and Toxic Substances Control Act materials. The Andrews WCS site is also permitted for greater-than-Class C (GTCC) LLW storage, polychlorinated byphenyl (PCB)-contaminated waste treatment, storage and land disposal, AEA Section 11e.(2) waste storage, and NRC exempt and exempt-mixed waste land disposal, including selected NORM waste. He also summarized the results of the performance assessments conducted over a 100,000-year timeframe that WSC used to demonstrate compliance with the applicable regulatory requirements. As a result of these analyses and in light of this particular site and design, Mr. Dornsife expressed the view that the Andrews RCRA facility for LARW would perform as well or better than a comparable 10 CFR Part 61-based facility because RCRA facilities rely on a double HDPE liner as well as a leachate collection system. Mr. Dornsife also noted that a subsequent presentation by Dean Kunihiro, also of WCS, would describe the company's ongoing efforts to obtain a LLW disposal license from the State to dispose of 10 CFR Part 61 types of waste at the Andrews County facility.

Mr. Dornsife then went on to describe how the Andrews County facility has been used to dispose of other types of radioactive waste. For example, he noted that WSC applied for and was granted permission by the NRC to dispose of source material in small concentrations at the

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11 With the Texas Department of State Health Services.

Andrews County facility. Mr. Dornsife expressed the view that the NRC exemption process worked well and should be expanded to include other LARW streams (e.g., NORM, formerly utilized sites remedial action program (FUSRAP) site wastes,[12] NRC decommissioning/ clearance materials) with considerable costs savings. In fact, he noted that WSC feels so strongly about the value of the case-by-case exemption process that his company proposed a regulation to TCEQ consistent with the concept proposed by EPA in its 2003 Advance Notice of Proposed Rulemaking requesting comment on the suitability of using RCRA Subtitle C disposal technology (and regulations) for disposing of certain "unimportant quantities" of mixed LARW.[13]

Steve Romano/American Ecology Corporation. The second presentation in this series was conducted by Mr. Steve Romano. He is the Chief Executive Officer of the American Ecology Corporation. A subsidiary of his company, U.S. Ecology, was the former operator of two now-decommissioned LLW disposal sites in Sheffield, Illinois, and Beatty, Nevada. U.S. Ecology has operated a Class A, B, and C LLW disposal facility on Government-leased land in Richland, Washington, since 1965. More recently, in 2001, U.S. Ecology acquired a RCRA Subtitle C disposal facility in Grand View, Idaho. Geographically, the Grand View site is in a semi-arid location and receives about 10 inches per year of rainfall and experiences about 60 inches per year of ET. At the time of the acquisition, the operators also had "general" permits to receive for disposal some types of LARW. Since the 2001 acquisition, U.S. Ecology has successfully worked to expand the facility's LARW disposal operations by providing more specificity regarding the various types of radioactive waste that can be disposed of at the site (i.e., FUSRAP site waste, commercial NORM, naturally occurring or accelerator-produced radioactive material (NARM), and certain NRC exempt waste. Mr. Romano described the administrative process that was successfully developed in consultation with the State regulator to expand the types of LARW disposed of at the Grand View site.

As with the other speakers, Mr. Romano provided an overview of the geology of the site and facility design. He briefly summarized the regulatory authorizations in place at the facility and their relationship to the types of radioactive materials being disposed. He also reviewed the facility's safety and compliance history including the occupational and environmental monitoring programs. In reviewing the types of materials received for disposal, Mr. Romano noted that NRC's regulations at 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," and 10 CFR Part 40, "Domestic Licensing of Source Material," allow for both general and specific disposal exemptions, upon application to the Commission, for certain products, devices, or items containing small amounts of low-activity radioactivity. He also noted that U.S. Ecology already had extensive operational experience in both LLW and LARW disposal, and the company applied this experience to the Grand View site in such a way as to

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12 FUSRAP sites are privately held sites that have contaminated soils and structures from the refining of radium and Cold War uranium and from bomb development in the 1950s and 1960s. Although FUSRAP waste contains very low concentrations of radioactive materials, there are large volumes of such waste. The U.S. Army Corps of Engineers is responsible for managing the FUSRAP program. No FUSRAP waste is generated from the operation of commercial power plants.

13 See Environmental Protection Agency, "Approaches to an Integrated Framework for Management and Disposal of Low-Activity Waste [Advance Notice of Proposed Rulemaking]," 68 FR 65119, November 18, 2003.

demonstrate that the scope of LARW disposal operations could be expanded without undue risk to public safety and the environment. Mr. Romano noted that U.S. Ecology sought and received approval from the State in 2001 to modify the existing (1999) RCRA permit to receive commercial NARM, NORM, and certain NRC exempt items and devices. He noted that U.S. Ecology used the RESRAD computer code[14] to demonstrate that any doses (exposures) from new waste streams would be acceptable to regulators given the favorable characteristics of the site and a robust RCRA design. Mr. Romano went on to report that U.S. Ecology provided the RESRAD modeling results to the State regulatory authorities for their independent review, which then formed the basis for license specifications at the site. In response to a question from the Committee (Member Hinze), Mr. Romano noted that the onsite occupational and environmental monitoring programs have validated the dose modeling results

In reflecting on the licensing process used by the State to permit the disposal of certain types of LARW at the Grand View site, Mr. Romano identified that a key reason for its success was the transparency of the overall process; U.S. Ecology engaged State regulators early in the formulation of the proposed process and the public was given the opportunity to comment on it prior to any final decisionmaking. (He also noted that this licensing approach is now also generally used in other States.) Mr. Romano also expressed the view that the licensing process now in place is flexible enough to include consideration of requests made pursuant to 10 CFR 20.2002, "Method for Obtaining Approval of Proposed Disposal Procedures."[15]

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14 Yu, C., A.J. Zielen, J-J. Cheng, D.J. LePoire, E. Gnanapragasam, S. Kamboj, J. Arnish, A. Wallo III, W.A. Williams, and H.T. Peterson Jr., "User's Manual for RESRAD Version 6," Argonne National Laboratory, ANL/EAD-4, July 2001.

15 From time to time, the Commission receives requests to permit the disposal of small quantities of LARW on site at existing NRC-licensed facilities. Disposal exemptions to 10 CFR Part 61 are allowed under NRC's regulation at 10 CFR 20.2002.

Title 10, Section 20.2002, of the *Code of Federal Regulations* (10 CFR 20.2002) states as follows:

> A licensee or applicant for a license may apply to the Commission for approval of proposed procedures, not otherwise authorized in the regulations in this chapter, to dispose of licensed material generated in the licensee's activities. Each application shall include:
>
> (a) A description of the waste containing licensed material to be disposed of, including the physical and chemical properties important to risk evaluation, and the proposed manner and conditions of waste disposal; and
>
> (b) An analysis and evaluation of pertinent information on the nature of the environment; and
>
> (c) The nature and location of other potentially affected licensed and unlicensed facilities; and

- Respond to a 2005 Commission Order[17] regarding the disposal of large quantities of depleted uranium.

- Address 10 CFR 20.2002 exemption issues.[18]

The purpose of the next presentation was to hear from the staff about its plans for the 2006 strategic planning initiative in more detail.

Larry Camper/NRC DWMEP: Mr. Camper is the Director of DWMEP within NRC's Office of Nuclear Safety and Safeguards. His presentation focused on the current DWMEP LLW program and the NRC staff's forthcoming LLW strategic planning initiative. As background, he reminded meeting participants that in the mid-1990s, the NRC significantly scaled-back its LLW program from about 10+ full-time equivalencies (FTEs) to about 2 or so FTEs for budgetary reasons. At the time, the actions were justified because the NRC already had a regulatory framework in place sufficient to review a 10 CFR Part 61 license application, and the Commission had relinquished its licensing authorities to those host States with a lead role in developing new LLW disposal facilities. Mr. Camper noted that NRC's current LLW program is no more than 3 FTEs in size and those resources are allocated to many routine activities, including, but not limited to, technical assistance to the NRC Agreement States, reviews under the Integrated Material Performance Evaluation Program, 10 CFR 20.2002 exemption requests, and maintenance of a general awareness of national LLW programs and developments.

Besides the staff's internal activities, Mr. Camper noted that a number of external activities and initiatives were underway that may have a bearing on the future of commercial LLW management in the United States. These include the following:

- the closing of the Barnwell LLW site to Class B and Class C LLW in 2008

- the recently completed National Academy of Sciences LARW study

- a new GAO review of best LLW management practices

- the emergence of depleted uranium as a potential new LLW stream

- the ongoing DOE work concerning a GTCC disposal facility and the staff's review thereof

For these reasons, Mr. Camper noted that the NRC staff had decided to conduct a strategic assessment of its LLW regulatory program. He noted that the ultimate objective of this

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17 In a Commission decision dated October 19, 2005, the staff were determine to whether depleted uranium produced by uranium enrichment facilities warranted consideration under 10 CFR 61.55(a) of NRC's LLW waste classification tables. See CLI-05-20, Memorandum and Order (in the matter of Louisiana Energy Services, L.P. (National Enrichment Facility)).

18 See SECY-06-0056, "Improving Transparency in the 10 CFR 20.2002 Process," dated March 9, 2006.

assessment is to identify and prioritize activities that the NRC staff can undertake to address vulnerabilities in the current regulatory framework, while also factoring in and addressing future needs and changes that may occur in the Nation's commercial LLW management system. The assessment is needed because the NRC staff faces a number of future challenges in the LLW area, as described above. For example, Mr. Camper noted that the staff needs to do more to improve the management of the 10 CFR 20.2002 exemption process.

In conducting this assessment, Mr. Camper noted that the NRC staff intends to consider information from the ACNW May 2006 Working Group Meeting, as well as public comments from stakeholders (to be solicited in the near future) and to provide programmatic recommendations for the Commission to consider and approve before the end of the calendar year. Based on Commission feedback, the staff would then develop a LLW Program Plan (in the fiscal year (FY) 2007 timeframe), consistent with some future level of resources approved by the Commission. Mr. Camper also noted that he intended to keep the Committee abreast of staff thinking on these projects as they develop. (It was also noted that later in the Working Group Meeting, Mr. Scott Flanders would provide additional details on the forthcoming LLW strategic assessment.)

Following the completion of his presentation, Mr. Camper responded to questions and comments from the ACNW members. When asked if there were any one activity for which the staff needed to proceed expeditiously, Mr. Camper responded by pointing to the potential need for interim guidance on LLW storage. He suggested that this one LLW management issue might need to be fast tracked by the staff in light of the pending closure of the Barnwell LLW site. In his judgment, such guidance needed to be available at least 6 months prior to closing of the Barnwell site.

I.A.4 10 CFR Part 61: Historical Perspectives on NRC's LLW Program

In response to the needs and requests of the public, the States, industry, and others, the Commission promulgated specific requirements for licensing the near-surface land disposal of commercial LLW at 10 CFR Part 61. These requirements were developed during the 5-year period from 1978 to 1982. In the mid-1990s, the NRC significantly scaled back its LLW program for budgetary reasons. At the time, the actions were justified because the NRC already had a regulatory framework in place sufficient to review a 10 CFR Part 61 license application, and the Commission had relinquished its licensing authorities to those Agreement States with a lead role in developing new LLW disposal facilities.

As noted earlier during Mr. Camper's presentation, the NRC staff is updating its strategic planning in the LLW area following a Commission-directed reduction in the program about 10 years ago. Although no decisions have been made regarding the scope of future NRC efforts in the LLW area, the two presentations provided during this portion of the meeting offered meeting participants some historic context, including first-hand knowledge (from Paul Lohaus) of key activities, studies, and issues that initially factored into the development of the 10 CFR Part 61 regulation to allow for their recognition in any future staff program recommendations. As the staff's ongoing assessment is not the first of its kind for the LLW program, the second presentation in this session (by Malcolm Knapp) was also intended to provide meeting participants with some historic context on those concerns that factored into the staff's earlier 1990s LLW strategic planning exercise.

Paul Lohaus/NRC (retired). At the time of its developoment, Dr. Lohaus was the lead for the NRC's interoffice team responsible for developing the 10 CFR Part 61 regulation, as well as the supporting technical, environmental, and regulatory analyses. To summarize, Dr. Lohaus noted that the staff began with a series of technical studies, followed by the development of an environmental impact statement and specification of the regulation itself, and ending with the preparation of implementing guidance. (The speaker noted that many of these activities and studies were summarized in the ACNW December 2005 LLW white paper.) In reviewing this earlier endeavor, Dr. Lohaus emphasized the value to the staff of obtaining and considering stakeholder input early in the regulatory development process. He also highlighted the importance of developing a program plan, designated NUREG-0240,[19] that was useful in identifying the direction-setting issues that formed the basis for staff activities leading to the development of the regulation. Dr. Lohaus also reviewed the major organizational features (sections) of the 10 CFR Part 61 regulation. As part of this review, he spotlighted two key features of the regulation. First, he reminded the audience of the importance of 10 CFR 61.7, "Definitions," in helping to explain the intent of the regulation. Second, he noted that the requirements of 10 CFR 61.58 reflect the Commission's understanding that the future of LLW management could not be predicted. There would be yet-to-be defined LLW streams, potentially greater reliance on engineered barriers, and other changes in technology that the 10 CFR Part 61 regulations would need to accommodate.

Dr. Lohaus ended his presentation by recommending the staff consider updating NUREG-0240 to define the current suite of direction-setting issues. Suggested subject areas for the updated plan included waste minimization, waste processing, interim storage, and disposal. His short list of suggested direction-setting issues included updating the LLW dose assessment methodology to reflect the newer methodology put forth by the International Commission on Radiological Protection, treatment of the lower and higher ends of the 10 CFR Part 61 LLW streams,[20] and security issues for sealed sources.

Given the Agreement States' prominent role in LLW management (as well as in other nuclear regulatory affairs), Dr. Lohaus recommended that consideration be given to adding an Agreement State seat to the ACNW, based on the Advisory Committee on the Medical Uses of Isotopes (ACMUI)[21] model.

Following the completion of his presentation, Dr. Lohaus responded to questions and comments from the ACNW members.

Malcolm Knapp/NRC (retired). In his presentation, Dr. Knapp noted that the Commission undertook a strategic assessment and rebaselining initiative in 1995. It was a four-phase strategic planning exercise, the goal of which was to assess and rebaseline the NRC regulatory

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19 U.S. Nuclear Regulatory Commission, "The Nuclear Regulatory Commission Low-Level Radioactive Waste Management Program," Office of Nuclear Material Safety and Safeguards, NUREG-0240, September 1977.

20 LARW at the low end and higher activity, GTCC types of waste at the upper end.

21 ACMUI advises the NRC on policy and technical issues that arise in the regulation of the medical uses of radioactive material in diagnosis and therapy.

activities to provide a sound foundation for future agency direction and decisionmaking. He noted that the principal focus of the initiative was to identify key strategic issues associated with NRC's primary responsibility to protect public health and safety and the environment. These key issues were called direction-setting issues or DSIs; 16 DSIs were identified. For each of the DSIs, Dr. Knapp explained that background papers were developed containing the Commission's preliminary views on policy options in each of the DSI topical areas. These papers identified and classified issues that affected each of the NRC programs and, ultimately, the means by which the agency got its work done. The 16 DSIs were assembled in the Strategic Planning Framework, which was made available for public comment in September 1996 and issued in final form in September 1997. DSI 5[22] applied to NRC's LLW program and was primarily authored by Dr. Knapp.

In his talk, Dr. Knapp summarized his recollections of how the DSI process was applied to the LLW DSI. DSI 5 proffered six options for the Commission's consideration for managing NRC's LLW programs:

- Option 1. *Assume a greater leadership role.*
- Option 2. *Assume a strong regulatory role in the national LLW program.*
- Option 3. *Retain current program.*
- Option 4. *Recognize progress and reduce program.*
- Option 5. *Transfer LLW program to EPA*
- Option 6. *Accept assured long-term storage.*

Following public comment, Dr. Knapp noted that the Commission decided in 1997 to select Option 3 and retain the current LLW program. However, as noted in the earlier talk by Mr. Camper, the Commission decided later to significantly reduce the size of its LLW program for budgetary reasons.

In retrospect, Dr. Knapp expressed his personal view that the DSI planning process was more useful than the plan ultimately produced. He also expressed the view that in light of the forthcoming new strategic assessment of the LLW regulatory program, he would not advocate amending the existing 10 CFR Part 61 regulation unless there was a "clear problem or a clear benefit to be gained." Citing from the ACNW December 2005 letter to the Commission, Dr. Knapp remarked that it was "important to identify and evaluate any untended consequences from recommended changes..." before they are made.

Following the completion of his presentation, the speaker responded to questions and comments from the ACNW members. One of the items that came up during the discussion was the issue of the need for assured storage for LLW. As a matter of clarification, Mr. Scott Flanders (DWMEP) noted that the staff had received direction to develop guidance in this area.

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22 Entitled "What Should Be the Role and Scope of the NRC's Low-Level Radioactive Waste Program?"

Dr. Knapp was also asked by the ACNW Chairman if he could offer a few recommendations on priority areas in LLW management that could be better risk informed and at least bring solutions to various technical issues. In response to this request, following the meeting, Drs. Lohaus and Knapp submitted a letter to the Committee, dated June 7, 2006,[23] containing their joint views and recommendations for the Committee to consider.

I.B Session Ii: Current Framework for Managing LLW and Operational Issues

I.B.1 State/Compact Disposal Experience

The LLWPA made the States responsible for disposing of LLW generated within their borders, and encouraged them to form regional interstate compacts and establish regional, rather than separate, disposal facilities. Although most of the States have entered into agreements to form compacts, there has been criticism of the LLWPA and its amendments because the legislation failed to produce any new LLW disposal facilities. The purpose of this session was to provide the Committee with an institutional perspective on the issues.

Don Womeldorf/Southwestern Low-Level Radioactive Waste Commission. Mr. Womeldorf is the Executive Director of the Southwestern LLW Commission[24] located in Sacramento, California. As the host State for that Compact's disposal facility, California was the only State to authorize construction of a new disposal facility, within the context of the LLWPA framework, at Ward Valley in 1993.

Mr. Womeldorf spoke about the State's earlier licensing experience at Ward Valley and current LLW management issues from the Compact's perspective. In summary, he expressed the view that the Ward Valley project had failed not for technical but for political reasons. At the time of the State licensing process, he noted that the Ward Valley project would have succeeded had it not been for the failure of the Clinton administration to approve the transfer (sale) of the Federal lands necessary to operate the Ward Valley facility to the State because the site was on public land. He went on to note that the Secretary of the Interior at that time deferred making the land-transfer decision necessary to construct and operate a State-approved facility. In a 1999 court decision brought on by California, it was found that Federal law did not require the Government to transfer the land. Mr. Womeldorf reported that, in 2002, the Governor of California subsequently signed legislation that prohibited the Ward Valley site from being used as a future LLW disposal facility, effectively ending the project.

Following the completion of his presentation, the speaker responded to questions and comments from the ACNW members. In response to one particular question, Mr. Womeldorf noted that no new initiatives to site a new disposal facility within the State existed at this time. Mr. Womeldorf cited a just-completed survey that, because there are no new siting initiatives within the State, only 25 percent of the LLW generators within the Southwestern LLW Compact are in a position to provide for the interim storage of their LLW.

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23 This June 2006 letter is attached as part of the ACNW meeting record.

24 Other members of the Compact include Arizona, North Dakota, and South Dakota.

(Mr. Romano later offered to provide the Committee with a report that summarized much of the Ward Valley history.[25])

Henry Porter/South Carolina DHEC.* Mr. Porter is the Assistant Director for the Division of Waste Management within DHEC. The primary responsibility of DHEC is the regulatory oversight of the commercial LLW disposal facility in Barnwell, as well as other commercial radioactive waste processing and radioactive material manufacturing facilities within the State. Mr. Porter spoke about the DHEC LLW regulatory program in general, the DHEC LLW acceptance process for the Barnwell site, and the DHEC approval process, which is the State's equivalent to NRC's 10 CFR 20.2002 disposal requests.

As background, Mr. Porter noted that South Carolina became an NRC Agreement State in 1969. Later, the State legislature passed the South Carolina Atomic Energy and Radiation Control Act which established DHEC. Mr. Porter noted that this Act gives DHEC broad authority to regulate any ionizing radiation or radioactive material. He also noted that, in August 1986, the DHEC initially adopted 10 CFR Part 61 as its LLW regulatory framework. Since then, the State has modified its regulations to include specific provisions (retroactively) for the use of engineered barrier caps and leachate collection systems for all LLW disposal units. For example, Mr. Porter noted that the State has relied extensively on the NRC branch technical position (BTP) entitled, "Concentration Averaging and Encapsulation."[26] This BTP defines a subset of concentration averaging and encapsulation practices that the NRC staff would find acceptable in determining the concentrations of 10 CFR 61.55, "Waste Classification," tabulated radionuclides in a particular waste package. For irradiated hardware, Mr. Porter noted that Chem-Nuclear Systems developed an averaging process that is similar to the BTP, referred to as the Barnwell "rule of 10." This guidance states that for discrete pieces of irradiated hardware in a particular waste container, the piece of metal with the highest concentration of radioactive material may not be greater than a fact of 10 higher than the piece of metal with the lowest concentration. In the case of irradiated hardware, the radioactive materials are part of the matrix of the metals and not readily available for transport in the disposal environments used for these materials. It is included in Chem-Nuclear's waste acceptance criteria, and in some cases, it is more restrictive than the NRC BTP. The speaker also discussed the State's radioactive waste transportation regulations.

Mr. Porter then reviewed the DHEC compliance program at Barnwell. The Barnwell LLW disposal license has 101 license conditions and includes more than 100 procedures that have to be conducted as part of routine disposal operations. The speaker noted that DHEC conducts two overall LLW license inspections each year at the Barnwell site. There are also quarterly environmental reports. The speaker also noted that onsite DHEC personnel conducted other inspections, as needed, of incoming shipping containers, manifest information, and disposal trench construction and preparation. Mr. Porter reviewed the DHEC waste concentration requirements for the disposal of wastes containing transuranics, sealed sources, and GTCC

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25 Andersen, G., "Disposing of Low-Level Radioactive Waste in California — A Guidebook for Public Participation," Crestline, League of Women Voters Environmental Action Committee, September 1998.

26 U.S. Nuclear Regulatory Commission, "Branch Technical Position on Concentration Averaging and Encapsulation," Division of Waste Management, January 17, 1995.

materials. He also discussed the DHEC system for performing reviews similar to the NRC 10 CFR 20.2002 review process, of which the State conducts about two to three a year. These reviews employ RESRAD types of analyses to ensure that a dose limit of 1 millirem per year is not exceeded.

Following the completion of his presentation, Mr. Porter responded to questions and comments from the ACNW members.

I.B.2 LLW Definitions and Licensing Experience

The next presentation in Session II was intended to be prospective, with the intent of identifying future LLW management issues and actions that are currently underway in the market to address future disposal needs.

Ralph Andersen/NEI. Mr. Andersen is the Chief Health Physicist and Director of the NEI Radiation Protection and LLW programs, in Washington, DC. His presentation focused on examining future LLW disposal needs. Using data collected by the Electric Power Research Institute (EPRI)[27] over a 3-year period, Mr. Andersen described the volumes and amounts of commercial LLW generated and being disposed of by the utilities. For the purposes of the EPRI analysis, LLW streams were defined as dry-solid, wet-solid, LARW exempt[28], oils/resins, irradiated hardware, GTCC, and mixed LLW. Generation and disposal volume data were presented by waste stream type and 10 CFR Part 61 waste class. Citing from those data, Mr. Andersen noted that dry- and wet-solid wastes make up about 54 and 31 percent, respectively, of the current LLW stream. Following secondary processing and volume reduction, these two waste streams account for about 85 percent of the Class A LLW which is ultimately disposed. Another feature highlighted but not readily apparent from the data is that most of the dry-solid LLW has activity levels barely above background, suggesting that this waste stream may be amenable to disposal using a method other than a 10 CFR Part 61 type of disposal facility.

Concerning future volumes and types of commercial LLW, Mr. Andersen provided some projections of generation volumes and disposal costs. (As an aside, he noted that EPRI and NEI were attempting to collect accurate data on decommissioning waste spectra.) As a planning assumption, Mr. Andersen suggested that the first wave of reactor decommissioning had passed and that the remaining reactors would likely remain in service for about the next 30 years. Consequently, the types and amounts of commercial LLW being generated would probably remain constant, based on a review of the recent EPRI data. However, at 2035, the speaker suggested that the current generation of power reactors would be decommissioned, resulting in a spike in the volumes of LLW to be disposed. Using current cost estimates, Mr. Andersen noted that this waste would amount to about $150 million per year in future disposal costs. Stated differently, the speaker suggested that the next wave of nuclear power reactor decommissioning could potentially represent a future market opportunity of about

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27 Mr. Sean Bushart of the EPRI Palo Alto, California, office provided these data in briefing slides also fund in Appendix E.

28 Described by Mr. Andersen as "green is clean" in reference to the State of Tennessee's LLW disposal program.

$3 billion.

Mr. Andersen ended his presentation with recommendations on both near-term and long-term actions to ensure access to disposal. Looking into the future and citing a recent NEI survey,[29] he noted that about 98 percent of all nuclear power utilities currently use the Barnwell, South Carolina, site for their Class A, B, and C wastes; about 93 percent of all nuclear power utilities use the Envirocare, Utah, site for Class A waste. After 2008 (the date the Barnwell site is scheduled to close to non-Compact States), the speaker reviewed the disposal options for the utilities associated with those non-Compact States. He suggested that about 80 percent of utilities will lack a Class B, C, and GTCC waste disposal option. Consequently, the speaker noted that in the near term, NEI intends to propose an industry guideline for the onsite storage of LLW at nuclear power plants. He noted that the approach being considered was "graded"[30] and was intended to account for the possibility that onsite storage may go on for extended periods of time, including through facility decommissioning. He also noted that the proposed guidance may also include some new recommendations on waste packaging requirements in reference to 10 CFR 61.56, "Waste Characteristics." Mr. Andersen noted that NEI intends to seek NRC concurrence on the proposed industry guideline sometime in 2007. Another near-term NEI initiative concerned the NRC 10 CFR 20.2002 exemption process. Mr. Andersen expressed the view that the process was neither transparent nor yielded consistent outcomes. As a first step, NEI was looking to develop industry guidelines to the ensure that the initial requests the NRC receives from the utilities are standardized to reduce some of the variability in the decisionmaking.

In the longer term, Mr. Andersen identified the following areas of NEI interest:

- the issue of permitting the use of alternate regulated facilities (e.g., RCRA, UMTRCA) for the disposal of LARW
- the need to update and improve the use of risk information in the implementation of 10 CFR Part 61
- the need to explore the potential for a Federally operated facility for the disposal of sealed sources and other forms of commercial LLW

In closing, Mr. Andersen noted that NEI intends to collect and analyze utility data to better understand the issues and provide recommendations for decisionmakers. He also referenced the National Academy of Sciences 2006 report on LARW and the NEI view that decisionmakers should consider those recommendations. Lastly, the speaker recommended greater collaboration between the Federal and State governments, industry, and stakeholders in seeking solutions to the management of LLW and LARW. Following the completion of his presentation, Mr. Andersen responded to detailed questions and comments from the ACNW members. In response to one particular question (from ACNW Member Hinze), the speaker

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29 Mr. Andersen was citing the 75 to 85 percent response rate to the survey.

30 Understood to account for the different types of radiation hazards posed by the different classes of LLW, as well as the natural decay of the radioactive materials in those wastes.

suggested that a Federally operated interim storage facility did not make sense because the utilities essentially have this capability.

I.B.3 New License Applicant Perspectives

The Texas Legislature passed legislation in 2003 that allows a private entity to apply for a permit to operate a LLW disposal site. This site would also be allowed to receive DOE LLW for disposal. On August 4, 2004, WCS submitted a license application to TCEQ to construct a near-surface LLW disposal facility at its Andrews County site.

Dean Kunihiro/WCS.* Mr. Kunihiro is Senior Vice President for Licensing and Regulatory Affairs at WCS. His presentation focused on the WSC proposal to build a 10 CFR Part 61 type of LLW disposal facility in Andrews County, Texas. (Later in his presentation, following questioning from ACNW Member Clarke, Mr. Kunihiro noted that WSC also intends to seek a RCRA permit for the new Andrews County LLW disposal facility.) Mr. Kunihiro's presentation consisted of four major elements. First, he acquainted the meeting participants with the WSC site (also reviewed earlier by Mr. Dornsife) and the proposed LLW disposal facility design, highlighting Key features. These included low permeability soils, frequent clay lenses, and caliché zones. Because of their imperviousness to water, Mr. Kunihiro noted that WSC intended to integrate the use of local clay materials into the design of the LLW disposal cells caps. Next, the speaker described the TCEQ licensing process and the status of the review. Mr. Kunihiro noted that the next major milestone in the review process is the completion of the TCEQ review of the license application and its release publicly, currently scheduled for August 2006, followed by administrative hearings possibly as early as December 2006. In this regard, Mr. Kunihiro reported significant support for the LLW project (in the ranges of 60 to 70 percent, based on a WSC-sponsored survey). The speaker also summarized the administrative and technical review results recently completed by WSC in conjunction with the TCEQ licensing review. If all goes as planned, Mr. Kunihiro speculated that a licensing decision could be reached in early calendar year 2008.

Mr. Kunihiro ended his prepared remarks with some personal observations regarding the existing LLW regulatory framework. He noted that the TCEQ regulations were modeled after the NRC 10 CFR Part 61 regulation. Although he expressed the view that the regulation itself was sound, he did note that many of the NRC products supporting the regulation (i.e., NUREGs and regulatory guides) were "outdated," and resulted in additional and [sic] unnecessary information requests from TCEQ. He cited, for example, a TCEQ request attributed to NUREG-1200[31] that required the Federal Emergency Management Agency to review and approve of the WSC emergency plans and procedures for the proposed LLW disposal facility.

Following the completion of his presentation, Mr. Kunihiro responded to questions and comments from the ACNW members, as well as the ACNW invited expert, Dr. Kocher. At this time, in response to a question from ACNW Member Weiner, it was noted that WSC intended

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31 U.S. Nuclear Regulatory Commission, "Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility (Rev. 2)," Office of Nuclear Material Safety and Safeguards/Division of Low-Level Waste Management and Decommissioning, NUREG-1200, January 1994.

to transfer title of those lands associated with the Andrews County LLW disposal facility to the State, should its license application be approved.

I.B.4 Public Comments

At the end of the first day of the ACNW 2006 Working Group Meeting, the ACNW Chairman provided the opportunity for interested stakeholders and other members of the public to comment on the day's briefing topics. The following is a summary of the public comments:

- Dr. Alan Pasternak, representing the CalRadForum, proposed some amendments to a few dates and facts given earlier in Mr. Womeldorf's talk.

- Mr. Rich Janati, a program manager within Pennsylvania's Bureau of Radiation Protection, Division of Nuclear Safety, had two observations/comments. First, he recommended that the NRC staff consider developing guidance describing how credit can be given in a LLW performance assessment for engineered barrier performance. Second, he recommended that any NRC guidance on the interim storage of LLW be coordinated with any industry/State efforts in this regard.

- Ms. Susan Jablonski, representing TCEQ, had two observations/comments concerning Mr. Kunihiro's presentation. The first was that TCEQ was not aware of the WSC intention to apply for a RCRA permit for the new Andrews County site. Second, she wanted meeting participants to be aware that, despite its proposed plans to transfer site ownership to the State, WSC still had some outstanding land ownership/mineral rights issues to resolve to the States's satisfaction.

- Ms. Diane D'Arrigo, representing the Nuclear Information Resource Service, commented on Mr. Andersen's suggestion that risk insights could be used to change the radionuclide concentration tables in 10 CFR Part 61. She expressed the view that increases in permissible levels of radionuclide concentrations should be commensurate with increased public protection. Ms. D'Arrigo also suggested that in light of the negative health effects of radiation on children and on the more vulnerable members of the population, regulators should be moving in the direction of reducing radiation exposures.

- Mr. Mike Tokar, representing the DWMEP staff had a comment in reference to Mr. House's earlier presentation. He reminded the audience that the primary intent of 10 CFR Part 61's structural stability requirements (at 10 CFR 61.56) was to ensure that the waste form retained its gross physical properties and identity over the 300-year time period of regulatory concern, should there be inadvertent human intrusion. He also noted the was performance benefit to the overall system as well by ensuring that the waste form could maintain its properties and thereby avoid the potential for subsidence or other types of ground failures at a disposal site. In this matter, Mr. Tokar reminded the audience of Dr. Lohaus' admonition regarding the the value of 10 CFR 61.7, "Concepts," of the LLW regulation.

May 23, 2006: Greeting and Introductions

Following greetings and salutations to meeting participants and observers on the second day of the meeting, Dr. Ryan made a few introductory remarks. In those brief remarks, he reviewed the current status of the ACNW LLW white paper. A preliminary version of the white paper was transmitted to the Commission following the ACNW 166th meeting along with a preliminary list of areas within the NRC's existing LLW regulation that could be risk-informed to improve the effectiveness of that framework. The white paper and the preliminary list of Committee recommendations was subsequently discussed with the Commission during a February 2006 briefing. Since then, the white paper has undergone editorial and limited external peer review. Some modifications and revisions to the white paper were made as a result of those reviews, including the addition of new material on three topics. First, there is an expanded discussion concerning LARW. This discussion includes a brief review of NRC's earlier *de minimis* regulatory position and the subsequent below regulatory concern policy statements. Second, additional letters prepared by the Advisory Committee on Reactor Safety, the predecessor of ACNW, were identified and were included in the discussion of past advisory committee reviews of the NRC LLW program found in the white paper. Third, for the purposes of completeness, a summary was prepared describing how DOE manages LLW from former defense programs. The white paper, now designated NUREG-1853 (and bearing the same title as the earlier white paper), is expected to be published in the summer of 2006.

Dr. Ryan also noted some agenda changes. Representatives from the Utah Department on Environmental Quality (Mr. Bill Sinclair) and the Washington State Department of Health (Mr. Mike Elsen) were scheduled to participate in the ACNW Working Group Meeting, but had to withdraw at the last minute. Mr. Todd Lovinger, the Executive Director of the LLW Forum, substituted for Mr. Sinclair. The ACNW Chairman reported that there had been a request to speak before the Committee and meeting participants from Mr. James Lieberman, representing the Talisman Consulting Group (Washington, DC).

I.C Session III: Industry Panel Discussion

As Dr. Ryan noted in his opening remarks on the first day of the Working Group Meeting, the Committee had asked the Working Group Meeting participants to consider in advance some questions that were thought to have a bearing on the issues of interest to the ACNW, as well as to staff from the NRC Office of Nuclear Material Safety and Safeguards (NMSS). Before the first panel discussion, Dr. Ryan briefly summarized those questions, which were attached to the meeting prospectus.

The industry panel included the following speakers:

- Mr. Mark Carver, representing the Entergy utility group
- Ms. Julie Clements, representing the U.S. Army Corps of Engineers (USACE)
- Dr. Joseph Ring, representing Harvard University
- Mr. Steve Romano, representing U.S. Ecology
- Mr. Todd Lovinger, representing the LLW Forum
- Mr. Henry Porter, representing the South Carolina DHEC

Dr. Ryan served as rapporteur for the panel discussions.

Summary of Panel Discussion

Mark Carver/Entergy.* Mr. Mark Carver, Radioactive Waste Coordinator at Entergy, was the first speaker in the Working Group Meeting's industry panel roundtable. Mr. Carver provided a utility perspective on current LLW management issues. The Entergy utility group operates a fleet of 10 nuclear power reactors in 6 States. Five of the reactors are sited in two States (Massachusetts and New York) that have no LLW Compact affiliation. Entergy's remaining five reactors are sited in four States (Arkansas, Louisiana, Mississippi, and Vermont) that belong to three different LLW Compacts, but there are no operating disposal sites within these compact systems. Consequently, Entergy relies on the Barnwell and Clive sites for LLW disposal services.

Mr. Carver noted that one of the impacts of the Sarbanes-Oxley Act of 2002[34] on publicly owned corporations was the provision to maintain accurate estimates of company liabilities when reporting on their overall financial status. He noted that, as applied to nuclear-based utilities, this provision has been interpreted to include maintaining information on radioactive waste disposal obligations. For this reason, and given the impending closure of Barnwell (to non-Compact States), Mr. Carver reviewed some of the near-term LLW management scenarios Entergy is considering to optimize the remaining time it has access to Barnwell, as well as several longer term initiatives (over the next 5 to 10 years) based on estimates of future LLW volumes. Concerning Class B and C wastes, he cited increasing hardware shipments to Barnwell, long-term storage, storage to decay, onsite disposal, activity averaging (over volume), and perpetual waste minimization programs as options. The speaker also acknowledged that both NEI and EPRI have LLW management initiatives underway that might provide other options for consideration. He also acknowledged that the company was seeking LLW management advice from foreign companies.

In closing his presentation, Mr. Carver noted that Entergy is not facing an immediate problem with the impending closing of Barnwell. Entergy and other LLW generators will continue to have access to a Class A disposal facility. For Class B and C wastes, Entergy can for some period of time potentially store such wastes on site, but that capacity is limited. Mr. Carver stated that unless the situation improves and new disposal sites are established, some type of Federal intervention might be needed.

Julie Clements/U.S. Army Corps of Engineers.* Ms. Julie Clements—a health physicist in the USACE Hazardous, Toxic, and Radioactive Waste Center of Expertise—was the second speaker in the industry panel roundtable. Her presentation focused on USACE experience with the disposal of various types of LARW. Ms. Clements provided background information on USACE and its mission in the environmental restoration area. She noted that the primary focus of USACE in that area is in the management of FUSRAP sites (for DOE) and the formerly used

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34 The Sarbanes-Oxley Act of 2002 includes provisions addressing audits, financial reporting and disclosure, conflicts of interest, and corporate governance at public companies. The Act also establishes new supervisory mechanisms, including the new Public Company Accounting Oversight Board, for accountants and accounting firms that conduct external audits of public companies.

defense sites (FUDS) program (a Department of Defense program for restoring FUDS sites). She also noted that USACE supports EPA efforts related to the Superfund program. All of these efforts take place under the auspices of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and as a result, USACE is one of the largest generators of LARW in the United States. Radionuclides commonly encountered include uranium, radium, thorium, and sometimes mill tailing [or AEA Section 11e.(2)] materials such as cesium-137 and strontium-90. Waste forms are mostly contaminated soils and building debris.

Next, Ms. Clements reviewed the framework through which USACE conducts its radiological assessments. The goal of these assessments is to determine how the site wastes are to be classified and, ultimately, treated and disposed of in a manner consistent with the applicable regulations. However, based on past USACE experience, the speaker believes that the current source-based radioactive waste classification system has many shortcomings and, among other things, results in the inefficient use of available 10 CFR Part 61 disposal space. To support this position, Ms. Clements summarized some lessons learned from a recent USACE site remediation project at a FUSRAP site in Maywood, New Jersey. Because the site is a former thorium mill tailings site, the residual waste material (primarily soils) is classified as AEA Section 11e.(2) material, but it assays radiologically as "source material," given that the uranium and thorium content in the soils is greater than 0.05 percent by weight. Ms. Clements also noted that the activity in the materials in question was at very low levels—only at about 25 percent of U.S. Ecology's waste acceptance criteria—and therefore USACE considered the Idaho site to be an acceptable disposal solution for the material in question. Consequently, USACE applied to the NRC for a 10 CFR 20.2002 exemption, which was later denied by the staff because USACE was not the site owner or licensee.

In reflecting on this example, Ms. Clements offered two recommendations for ACNW consideration. First, she suggested that the source-based waste classification system be abandoned in favor of a health- or risk-based system. Second, she recommended that there be a new general class of exempt waste of very low activity—that is, waste determined to be of negligible health risk and therefore exempt for disposal purposes. The speaker suggested that the exempt-waste concept was consistent with the recommendations of the National Council on Radiation Protection (NCRP), the International Atomic Energy Agency, and the Health Physics Society. Ms. Clements ended her talk by identifying some of the expected benefits to LLW management through implementation of the USACE recommendations.

Joseph Ring/Harvard University.* Dr. Joseph Ring, a radiation protection officer for Harvard University, was the third roundtable speaker. He focused on the management of radioactive waste by the academic and medical research communities. He reminded the audience that research institutions like Harvard University use both short-lived and long-lived radioactive materials. Short-lived materials, whose half-lives are less than 365 days, do not generally represent a management challenge as they can generally be stored on site before they are disposed (as municipal waste). Longer lived materials (including sealed sources) represent somewhat more of a challenge as they require access to facilities providing longer term disposal features (i.e, for Class B and C wastes). Such access is not always available, which can constrain the types of medical research an institution can perform, as well as the types of researchers the institution can attract by virtue of the radionuclides being used. For example, Dr. Ring briefly discussed management of the radioactive element technetium. Chemical

compounds containing technetium-99m are widely used in both pharmaceutical research and medical treatments. However, technetium-99m (half-life of about 6.02 hours) decays to technetium-99, which has a substantially longer half-life—about 212,000 years. This material cannot be stored indefinitely on site, and institutions that use such materials must rely on commercial disposal services. The speaker also noted that grant monies for research often do not consider waste disposal needs at the end of a project, and the fees and State surcharges for disposing of such wastes are not trivial. As to whether there are viable alternative research materials to some of the more common radiopharmaceuticals, Dr. Ring suggested that there were very few, and when they do exist, they can be more problematic than the radioactive materials for which they substitute. (As an aside, the speaker also expressed a concern related to the future increased availability of disused sources that are likely to be acquired from the wave of retiring researchers who were the first to use such materials.)

In summary, although some large research institutions like Harvard University may be better prepared to deal with such wastes, Dr. Ring observed that radioactive waste disposal still represents a significant financial burden for his institution and one which many smaller research institutions and medical establishments are less able to address. The speaker believes that the general lack of market competition in the radioactive waste disposal sector creates monopoly pricing (resulting from the lack of disposal sites). Dr. Ring expressed the view that, with the pending closure of Barnwell in 2008, the disposal situation is not likely to improve, especially for the disposal of Class B and C LLW.

As the former chairman of the Massachusetts LLW Management Board, Dr. Ring also provided his personal views on the effectiveness of the Low-Level Waste Policy Act of 1980, as amended (LLWPA). He believes that the Act has worked exceptionally well in drastically reducing the volume of LLW being generated. However, he also observed that, while there have been significant expenditures to site new facilities in this country, no new facilities have been developed. As the Act has not achieved its intended purpose, Dr. Ring suggested that it may need to be revised or repealed. As an alternative, he suggested the possibility of using a DOE facility (on Federal land) exclusively for the disposal of Class B and C wastes or, alternatively, disposing of those wastes at a DOE facility developed for the disposal of GTCC wastes. He suggested that any such facility, if not directly operated by the Government, could be managed by a third party on behalf of the Government.

Citing Ms. Clements' earlier talk, Dr. Ring also expressed the view that the existing commercial LLW classification system is overly complicated. He recommended that serious consideration be given to the development of a risk-based classification system and disposition (disposal) model. He made specific recommendations for improving the management of 10 CFR Part 61 types of LLW (e.g., Class A, B, and C LLW). He recommended that any revised model should harmonize radioactive waste management with the management of nonradioactive (chemical) wastes. In addition to the need to reexamine the management of 10 CFR Part 61 types of LLW, the speaker also alluded to the need to improve the management of LARW. He urged decisionmakers to consider the recommendations of NCRP Report Number 116, entitled "Limitation of Exposure to Ionizing Radiation," and permit the disposal of LARW and very low activity LLW in RCRA-approved facilities. He cited the State of Texas municipal waste disposal model as an example of an LARW exemption process that appears to be working. In addition to the aforementioned, Dr. Ring suggested that "clearance" factor into decommissioning

decisions as part of an NRC materials license along the lines of the recommendations of ANSI N13.12.[35]

In closing, Dr. Ring made two additional recommendations. First, he suggested that it would be useful to look into a national program to recycle sealed sources. Many of the devices being disposed of today can still be used rather than discarded. He also suggested that the long-term storage options being considered for LLW and LARW would not work well for universities and medical institutions. In addition to safeguards and security concerns, he noted that these organizations are usually strapped for discretionary funds, as well as free space.

Steve Romano/U.S. Ecology. The ACNW Chairman asked Mr. Romano if he wished to comment on any or all of the presentations and discussions that had taken place thus far at the Working Group Meeting. In response, Mr. Romano noted that one of the key themes repeated by a number of the invited speakers was the financially constrained environment in which many organizations and agencies with some type of LLW management responsibility were operating. The effect of such an environment was that these agencies and organizations could achieve less over any given period of time or spread the same amount of work out over a longer duration. Continuing with the notion of doing "more with less," Mr. Romano offered two broad recommendations for the Committee's consideration. The first was that more could be done by granting disposal exemptions. Without stating specifics, he noted that there was a long history of granting disposal exemptions for LARW and AEA types of materials with very low activities, and so, in his judgment, the precedent exists for greater use of this disposal option. He noted that past exemptions have been derived from health-based risk insights. Equally important was that regulators include input from the public (stakeholders) in their exemption decisions. Second, he also agreed with the need to move from source-based to risk-based definitions as a way of harmonizing the existing regulatory framework with hazardous chernical wastes.

For the higher end of the LLW spectrum (e.g., Class C and GTCC LLW), Mr. Romano suggested that although implementing 10 CFR 61.58 types of alternative concentration limits might be feasible for sites in arid geographical settings, he was not sure that alternative concentration limits would work well in humid environments where water, as a mobilizing agent, is more of a concern. Lastly, Mr. Romano also noted that he was not in favor of a storage program for sealed sources or other types of higher activity waste. He cited DOE efforts to recover sealed sources as an activity moving in the right direction and stated that more could potentially be done in this area.

Todd Lovinger/LLW Forum.* Mr. Lovinger is the Executive Director of the LLW Forum. In his opening remarks, he noted that the national organization he represents comprises many entities, including various stakeholders, such as Federal agencies, individual States, LLW Compact organizations, waste generators, and others. Consequently, he wished the meeting record to reflect that the views he was expressing were his own and not necessarily attributable to the organization.

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35 American National Standards Institute, "Surface and Volume Radioactivity Standards for Clearance. An American National Standard," McLean, ANSI/HPS N13.12, 1999 (Prepared in cooperation with the Health Physics Society.)

Mr. Lovinger began his presentation with some background on the LLW Forum, including when it was created, its mission and what it does, and who its members are. He noted that the organization was originally formed to implement the LLW Compact arrangements called for in the LLWPA. Today, the LLW Forum is an independent, not-for-profit private interest group. Its members and subscribers are the LLW Compacts themselves, affiliated and unaffiliated States, several Federal agencies, private industry subscribers, and others, most of which have some role or responsibility in the management of commercial LLW. As the Compacts have formed, the LLW Forum's role has expanded. It currently serves as a facilitator for its members as they review and discuss stakeholder issues of mutual interest, as well as for representing those views before external organizations. The speaker then referred to the LLW Forum's Discussion of Issues Statement, adopted by the LLW Forum on September 22, 2005, as its way of achieving some internal consensus on which issues should be considered.[36] Mr. Lovinger noted that the Discussion of Issues Statement serves two purposes. First, it provides a limited consensus view on certain LLW management issues. Second, it serves as an outline to frame discussions, such as the ones taking place at the ACNW meeting.

Returning to the Discussion of Issues Statement, Mr. Lovinger briefly identified and described each of the document's four consensus positions. These positions include the following:

(1) Commercial LLW is well regulated and managed safely.

(2) The current LLW management system is flexible and there is no immediate disposal crisis.

(3) It is important to consider political realities, economic consequences, and regulatory concerns when considering alternatives to (10 CFR Part 61 types of) LLW disposal.

(4) The Federal Government provides appropriate assistance to States and Compacts related to commercial LLW management.

In conclusion, Mr. Lovinger noted that the current system provides all States with disposa access for Class A, -B, and- C LLW. Although changing conditions may close off disposal access to Class B and Class C LLW and some Class LLW for a significant portion of the country, the speaker expressed the view that future solutions might alleviate or eliminate this situation. He also noted that, while the volume of Class B and C LLW is relatively small in comparison to Class LLW, it is important that (continued) disposal access for all LLW classes be preserved and developed. Mr. Lovinger cautioned that proposals for alternative disposal approaches need to be carefully analyzed from the perspective of all affected parties. In closing, Mr. Lovinger expressed his view that it was important for the ACNW (and others[37]) to

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36 The Discussion of Issues Statement was made available separately to the ACNW and meeting participants. It is also available on the Internet at http://www.llwforum.org.

37 The speaker was referring to a May 22, 2006, meeting hosted by the Southeast LLW Compact Commission. The intent of this meeting was to explore the feasibility of using Federal sites and/or Federal land for the disposal of commercial LLW. The meeting was sponsored by NEI, the Health Physics Society, the Rocky Mountain Low-Level Radioactive Waste Board, the CalRadForum, and the Southeast LLW Compact

look at ways of improving future access to LLW disposal without undoing the significant progress that has been made to date.

Henry Porter/DHEC. Mr. Henry Porter, the DHEC representative, was the fifth and final roundtable speaker. The ACNW Chairman also asked Mr. Porter if he wished to comment on any or all of the presentations and discussions that had taken place thus far at the Working Group Meeting. In response, Mr. Porter commented on the following issues:

- *GTCC LLW.* Although Barnwell has accepted some discrete GTCC-classified wastes in the past for disposal, some GTCC wastes are not acceptable at Barnwell or at other disposal facilities that accept Class B and Class C LLW. Consequently, until DOE decides how it will ultimately dispose of such wastes, commercial waste generators will continue to have to manage these wastes through interim storage.

- *Class B and Class C LLW.* As noted previously during the Working Group Meeting, the Barnwell disposal facility is scheduled to close to waste generators outside of the Southeast Compact in 2008. Mr. Porter reminded the audience that there would likely be an "urgency" in the near future for waste generators to locate an alternate disposal facility for these wastes.

- *Depleted uranium.* South Carolina is currently involved in the decommissioning of a former depleted uranium processing site. Although the site has been cleaned up and most of the depleted uranium has been removed, DHEC expects to encounter some waste classification issues (of the types discussed previously during the meeting) when it decides how to classify the remaining (in situ) wastes for final disposition. The speaker noted that it would be useful for the NRC to provide DHEC with some guidance on how to classify depleted uranium.

- *Extended LLW storage.* Based on earlier discussions with utility waste generators, DHEC believes that the generators will not have a problem in storing LLW for extended periods of time because they have the infrastructure in place and resources to do so. However, DHEC believes that nonutility waste generators are less prepared to meet this challenge and might welcome some guidance in this area. (The speaker suggested that one possible solution is to permit the utilities to receive such wastes.)

- *LARW and very low activity LLW.* The speaker noted that, in certain situations, DHEC thought it was appropriate to send some low-activity waste streams to a nonlicensed (municipal) facility only to learn that the facility operator may not always want to receive that waste. More could be done to ensure a consistent disposition approach for these wastes.

- *In situ disposal (10 CFR 20.2002 exemptions).* The speaker noted that this process works well for utilities and the types of commerce/industry that are expected to be around for long periods of time and for which additional decommissioning actions are likely to occur at some point in time.

Commission.

- *The NRC's 10 CFR Part 61 LLW regulation.* The speaker noted that with the exception of some (unspecified) improvements, the regulation has been generally workable in South Carolina. Some guidance would be useful in the area of managing LARW and very low activity LLW.

- *Use of RCRA facilities.* On the use of RCRA facilities for the disposal of LARW and very low activity LLW, the speaker observed that, in a humid environment, such facilities generate considerable amounts of contaminated leachate which itself has to be managed as some form of mixed hazardous waste. Consequently, the speaker advised caution in the use of RCRA facilities for managing LLW and recommended limiting their use to arid geographies where precipitation is low.

As is the case with all ACNW meetings, stakeholder organizations and interested members of the public had the opportunity to address the Committee with their views on the issues being discussed. Following the completion of the roundtable discussions and before the speakers responded to specific questions and comments from the ACNW members, the ACNW Chairman received one stakeholder request, from Mr. James Lieberman, to speak before the assembly.

James Lieberman/Talisman International.* Mr. Lieberman is an independent regulatory consultant specializing in radioactive waste management. He wished to speak to the ACNW and the assembled gathering on recommended approaches to risk-informing the management of 10 CFR Part 61 types of materials, LARW, and very low activity LLW. He provided the Members and meeting participants with copies of prepared remarks that he and another colleague (Dr. John Greeves) had recently presented at an October 2005 meeting of the Organization of Agreement States (OAS) and the Conference of Radiation Control Program Directors.[38] As a matter of introduction, Mr. Lieberman noted that although protective, he believed that the existing 10 CFR Part 61 regulation overregulates potential health risks, thereby creating unnecessary regulatory burdens. For example, Mr. Lieberman suggested that the performance objective for a human intruder scenario could be 25 millirem/year (mrem/yr) for the first 100 years postclosure. Thereafter, he suggested that the intruder dose could be limited to 100 mrem/yr, consistent with the public dose limit and the levels for restrictive release under the Commission's license termination rule at Subpart E of 10 CFR Part 20. His recommendation also included a provision that Government ownership of the disposal site would not be required, as currently is the case with NRC's 10 CFR Part 61 regulation.

Following the completion of these presentations, the group of panel speakers responded to specific questions and comments from the ACNW members.

ACNW Member Dr. Hinze. Dr. Hinze asked the panelists questions concerning LLW storage and possible reasons why there may be a lack of new disposal capacity. Each offered the following explanations:

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38 He initially made his presentation during a panel discussion entitled "Control of Solid Materials (NRC) and 'Low Activity' (EPA) Disposal Options" at the 2005 OAS Annual Meeting in San Diego, California, on October 6, 2005. At the ACNW May 2006 meeting, Mr. Lieberman conveyed his presentation materials to the Committee in a letter dated May 23, 2006, and this letter is included in the Working Group Meeting record.

- Mr. Porter suggested that financial assurance requirements for future, yet-to-be-defined LLW waste streams is a potential issue and might represent a disincentive to store LLW.

- Dr. Ring observed that Harvard University did have a decay-in-storage program for LLW containing radionuclides with half-lives of less than 1 year. However, the university's business model for managing these wastes generally favored minimizing the amount of LLW in storage and getting the waste off campus as soon as practical.

- Mr. Lovinger suggested that one of the reasons there is not more competition in the private sector to provide LLW disposal services could lie in economic theory. For example, he noted that LLW generators have been successful in greatly reducing the volume of waste that needs to be disposed of, resulting in a corresponding reduction in the amount of disposal capacity needed.[39] The speaker also cited the increasing use of RCRA facilities as a disposal alternative for very low activity LLW.

- Mr. Romano also acknowledged the use of RCRA facilities as a disposal alternative as one of the reasons there are no new 10 CFR Part 61 types of LLW facilities. In reference to interim storage, he suggested that the concept was fundamentally flawed as generators did not have financial resources sufficient to support both storage and disposal, especially when the ultimate goal in LLW management is disposal. He also observed that regulators in Ohio have developed interim storage regulations that the State has yet to use.[40]

ACNW Member Mr. Croff. Mr. Croff asked the panelists if any of them had views on what 10 CFR 61.58 alternative concentration limits might look like. The panelists expressed the following views:

- Basing his remarks on the South Carolina experience, Mr. Porter suggested it was necessary to examine how alternative waste form concentrations impact performance assessment results (i.e., dose outcomes). He also suggested that this is one additional area for which (new NRC) guidance might be useful, especially in defining the types of information that might be needed to support subsequent decisionmaking on case-by-case exemptions.

- Mr. Romano recommended reexamining the basic decisions and assumptions underlying the 10 CFR 61.55 tables for defining the respective waste classes. For example, he noted that the assumptions for the human intruder and farmer scenarios, while adequate for disposal in humid geographical settings, were overly conservative and did not make sense for arid geographical settings.

- Ms. Clements suggested that an alternative 10 CFR 61.58 concentration limit should have a "less-than-Class category" that would permit the exemption of certain LARW and

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39 Alluding to a classic supply-and-demand relationship.

40 Ohio Department of Health, "Radiation Generator and Broker Reporting Requirements—Assured Isolation Facility," Ohio Administrative Code — Rules of the Administrative Agencies, Chapter 3701:1-54, September 15, 2005.

very low activity LLW for disposal. To address potential stakeholder concerns, she recommended that such an exemption should also include the provision that the disposal site in question would not be released for other uses.

- Mr. Lovinger highlighted the need to take into account the feasibility and practicality of all potential recommendations when considering 10 CFR 61.58 alternative concentration limits, in order for any alternative system to be useful.

ACNW Member Dr. Weiner. Dr. Weiner had two questions for the panel:

- First, she asked if there were any additional views concerning Ms. Clements' earlier recommendation on a so-called "less-than-Class A category" for LLW. Mr. Porter observed that the precedent already exists for exempting from disposal certain LARW and very low activity LLW since some of these wastes are being disposed of in RCRA disposal facilities.

- Second, Dr. Weiner also had a specific question for Dr. Ring concerning the practicality of storing Class A B and C LLW until such time as it decays to Class A concentration levels. Dr. Ring repeated his earlier comment that the university's business model generally favored risk aversion and thus its intent was to minimize the amount of LLW in storage and dispose of the waste as soon as possible.

ACNW Member Dr. Clarke. Dr. Clarke had no questions for the panelists, but did suggest that it might be useful to compare and contrast the model for the characterization of hazardous chemical wastes with that of LLW to determine whether there are ways to improve the latter through the development of new guidance.

ACNW Member Dr. Ryan. As a segue to Dr. Clarke's observation, Dr. Ryan noted that regardless of the waste's source (origin), there are now several different, yet accepted, regulatory regimes relied on to provide for disposal. He indicated that understanding how the different regimes evolved may provide the insights needed to improve the management of the wastes.

ACNW Consultant Dr. Kocher. Dr. Kocher, the ACNW invited expert, had the following comments and observations to share with the Committee:

- *10 CFR Part 61 Class C concentration limits.* Dr. Kocher expressed the view that the 10 CFR 61.58 concentration limits for Class C wastes were based on the assumption that inadvertent human intrusion occurs at 500 years, with a probability of 0.1, rather than at 100 years with a probability of 1, as widely believed. He noted that this interpretation can be supported by examining the concentration limits for Class A LLW, which are 10 times less than those of Class C.

- *Branch Technical Position on Concentration Averaging and Encapsulation.*[41] As a former DOE contractor, Dr. Kocher expressed an (unofficial) department view that the NRC guidance document has more to do with waste handling and less to do with disposal. He suggested that, if the document were reexamined in the context of disposal, it might be possible to dispose of higher activity waste in a LLW disposal facility.

- *10 CFR Section 61.58 exemptions.* Dr. Kocher expressed the view that licensees should petition the NRC to seek 10 CFR 61.58 exemptions on these classification issues and should do so by defining intrusion scenarios properly on a site-specific basis. That being said, he did have two comments regarding the use of exemptions. He noted that the Nuclear Waste Policy Act Amendments of 1987 referenced Table 1 of 10 CFR 61.55. Because this particular requirement is "hard-wired" into law, Dr. Kocher expressed some scepticism regarding how much relief this provision might actually afford licensees.

- *10 CFR Part 30 and 10 CFR Part 40 exemptions.* Dr. Kocher noted that he completely favors the idea that any materials that satisfy those exemptions ought to be able to go to a RCRA landfill. However, he did express concerns about granting exemptions for 0.05-percent source material. As an example, he noted that large volumes of 0.05-percent thorium have an activity level of about 50 picocuries per gram, which is 50 times background radiation levels.

- *Use of RCRA facilities for alternative disposal.* Dr. Kocher's last observation was that RCRA disposal facilities are not designed for, nor is consideration given to, the potential for inadvertent human intrusion. This weakness should be recognized when considering the use of such facilities for the disposal of LARW and very low activity LLW.

At times during this discussion, Dr. Ryan questioned Dr. Kocher. Dr. Ryan observed that the central issue in regulatory exemptions and alternative disposal methods is the matter of concentration and quantity of radioactive material to be disposed of, and not one to the exclusion of the other. He also acknowledged that the coupled relationship between concentration and quantity of radioactive material ultimately factors into performance-based decisionmaking and acceptable risks.

Diane D'Arrigo/Nuclear Information and Resource Service. At the end of the first panel discussion, Ms. D'Arrigo posed her initial question to Mr. Carver. She asked him how the next generation of yet-to-be licensed nuclear power reactors intended to manage their LLW. He responded that his particular utility was currently examining that issue by looking at the waste generation points as well as the waste management points. As a point of clarification in his response, Mr. Carver noted that he believed that the NRC required an estimate of the amounts of LLW to be generated, but did not require a management plan for those wastes.

In her second question, Ms. D'Arrigo asked who would move to a risk-based or a risk-informed LLW classification system. She was particularly interested in understanding how the public

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41 U.S. Nuclear Regulatory Commission, "Branch Technical Position on Concentration Averaging and Encapsulation," Division of Waste Management, January 17, 1995.

(stakeholders) could participate in the decisionmaking. She noted that, in this area in particular, differing opinions exist on the risks of low-level radiation. Without citing any specific examples, Ms. D'Arrigo suggested that differing facts concerning the risks of low doses of radiation are not always presented, and she asserted that these facts often appear to be omitted from decisions.

In rebuttal, Dr. Ryan noted that no decisionmaking was taking place at this time on what changes might be needed to the NRC's LLW regulatory framework. He noted that, as a first step, the ACNW was attempting to identify and gather information on the key issues and to forward that information to the Commission for its consideration in the form of advice. In that regard, the ACNW Chairman alluded to the point that the Commission may not act on the Committee's advice. Dr. Ryan observed that the NRC's openness policy was working as intended, however, by permitting the public (stakeholders) to express their views on the issues under review and that Ms. D'Arrigo's views in this area were now a matter of the record for all to review.

In her final comment before the panel of invited experts and the ACNW, Ms. D'Arrigo stated that she would like to see the regulators (including the NRC) work toward preventing radiation exposure, rather than "...legalizing it and finding various different technical mechanisms to allow for increasing exposures, even though they may be deemed by the experts that generate the waste [to be] ...minimal..."

I.D Session IV: Perspectives on NRC Strategic Assessment

As he noted in his opening remarks on the first day of the Working Group Meeting, Dr. Ryan again made reference to the forthcoming NRC LLW strategic assessment effort. The second panel discussion aimed to promote discussion on the scope of issues the NRC staff should consider as part of that assessment. This panel included the following speakers:

- Mr. Scott Flanders, representing the NRC's DWMEP
- Dr. Judith Johnsrud, representing the Environmental Community
- Dr. Alan Pasternak, representing the CalRadForum
- Ms. Susan Jablonski, representing TCEQ
- Mr. Bill House, representing Chem-Nuclear Systems

Dr. Ryan served as rapporteur for the panel discussions.

Summary of Panel Discussion

Scott Flanders/NRC DWMEP. To set the stage for the panel discussions that were to follow, Mr. Flanders began the session by providing additional details on the staff's forthcoming LLW strategic assessment effort. The speaker noted that his presentation was intended as a continuation of Mr. Camper's earlier presentation. In summary, Mr. Flanders mentioned that a major objective of the assessment is to identify the suite of both potential industry actions, as well as specific staff actions and activities the NRC should undertake to improve the stability and reliability of the LLW regulatory framework. The speaker noted that the NRC staff, in addition to considering the thoughts and views of the ACNW Working Group Meeting

participants, intends to solicit stakeholder input by publishing a request for such input in the *Federal Register* in late summer 2006.[42]

Judith Johnsrud/the Environmental Community. Dr. Johnsrud is associated with the Sierra Club, a nationally based environmental public interest group. She is also a charter member of the Pennsylvania LLW Advisory Committee. Dr. Johnsrud noted that the views she was expressing were her own. In her opening remarks, she noted that the Commonwealth of Pennsylvania is a member of the Appalachian LLW Compact, and that the State of Texas is the designated host State for a LLW disposal facility for the Compact.[43] Although efforts to site a LLW disposal facility, consistent with the LLWPA, within the Commonwealth have failed, the speaker nevertheless expressed the view that current Federal and State LLW policies and legislation have served the Commonwealth well. Dr. Johnsrud voiced concerns about (unspecified) efforts at both the Federal and State level to weaken those policies.

This invited speaker also noted that her detailed comments were going to depart somewhat from the suggested Working Group questions that had been provided to meeting participants in advance. In summary, Dr. Johnsrud had two major comments/observations, which were as follows:

- First, she noted that the fundamental objective of radioactive waste management is to protect public health and safety. Dr. Johnsrud expressed the view that existing radiation standards have shortcomings because they focus on the "standard man" and do not focus on those members of the public for whom exposures to ionizing radiation would pose the greatest health risk—that is, pregnant women, those with impaired health, the very old and the very young, embryos, and fetuses. She recommended that the current standards, instead of focusing on gross genetic consequences, be revised to reflect the sensitivity of these other population groups to the effects of low(er) levels of radiation. In support of her argument, Dr. Johnsrud cited the unexplained positive correlations between nuclear facilities and high rates of certain cancers and leukemias. [As an aside, Dr. Ryan noted that the Committee intends to examine the human health effects to low doses of radiation later in the 2006 calendar year (CY) as a separate matter.]

- Second, the speaker stated that using alternative technologies, such as RCRA facilities, for the disposal of LLW is inappropriate. Dr. Johnsrud noted that radioactive tritium is now being reported in at least 50 percent of the groundwater adjacent to municipal landfills at levels in excess of the EPA drinking water standards. She expressed the view that the NRC should continue to require the disposal of LLW in a manner consistent with its long-standing defense-in-depth policy.

Alan Pasternak/CalRadForum. Dr. Pasternak is the Technical Director of the CalRadForum. He noted that his forthcoming comments were based in part on his earlier participation in the May 2006 meeting hosted by the Southeast LLW Compact Commission, as well as his

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42 The staff request for public comments was published in the *Federal Register* on July 7, 2006, Volume 71, page 38675.

43 Other members of the Appalachian LLW Compact include Delaware, Maryland, and West Virginia.

impressions thus far from the ACNW LLW Working Group Meeting. However, before making those comments, Dr. Pasternak provided comments that reinforced Mr. Womeldorf's earlier observations that there were no new initiatives at this time to site a new disposal facility within the State of California. Dr. Pasternak expressed the view that there was a lack of political will to do so within the State legislature, even though the State previously accepted the responsibility to be the host for a disposal facility within the Southwestern LLW Compact, consistent with the LLWPA. He noted that the Compact he represents has recently brought this lack of progress to the Governor of California's attention.[44]

Dr. Pasternak's three major recommendations to the ACNW included the following:

- First, as a long-term objective, the Government should build and operate a commercial LLW disposal facility on Federal lands. DOE or USACE would operate such a facility, which the NRC would license.

- Second, as an alternative to a Federally operated LLW disposal facility, all commercial LLW should be disposed of in a GTCC LLW disposal facility that DOE is required to develop.

- Third, in the short term, all commercial LLW should be sent to an existing DOE LLW disposal facility until either a Federally operated LLW disposal facility or a DOE GTCC facility is in operation.

Dr. Pasternak also noted that the CalRadForum had specific criticisms of the September 22, 2005, Discussion of Issues Statement, adopted by the LLW Forum's Board of Directors. The speaker suggested that the statement in question presents a far too optimistic picture of the current status of the national LLW program and offers no specific recommendations for moving forward. He offered to make that critique available to the ACNW for its information.[45] Again speaking for the CalRadForum, Dr. Pasternak expressed the following views:

- The existing NRC 10 CFR Part 61 is a good rule and does not need to be revised (in reference to the 10 CFR 61.55 waste classification tables).

- Disposal exemptions were appropriate for LARW and very low activity LLW.

- The DOE offsite, sealed-source recovery program is useful and should continue.

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44 The speaker was referring to a May 12, 2006, letter that the Southwestern LLW Compact Commission sent to California Governor Arnold Schwarzenegger critical of the lack of State interest on this matter. That letter is included as part of the Working Group Meeting record.

45 That critique, dated January 18, 2006, is also included as part of the Working Group Meeting record.

Dr. Pasternak concluded his remarks by citing the need to explore the recommendations made by the General Accounting Office in Appendix II, "Legislative Options," of its 2004 report on the status of the national commercial LLW management program.[46]

Susan Jablonski/TCEQ. Ms. Jablonski is a LLW technical advisor in the TCEQ Office of Permitting, Remediation, and Registration. Texas is the designated host State for a LLW disposal facility for the Texas LLW Compact.[47] In response to a frequently repeated comment concerning the lack of progress in the siting of new LLW disposal facilities, Ms. Jablonski informed the audience that the lack of progress in siting a LLW disposal facility in Texas was due, in her view, to political and policy issues rather than technical concerns. She also noted that TCEQ is also in the process of reviewing the WCS LLW license application for a new LLW disposal facility in Andrews County, as described earlier by Messrs. Dornsife and Kunihiro. Consequently, she did not speak about that ongoing review. Nevertheless, Ms. Jablonski did note that any recommendations to modify or amend 10 CFR Part 61 might have a deleterious effect on that review and any subsequent licensing action.

Ms. Jablonski's other comments included the following:

- Over the last 20 years, Texas has successfully relied on the exemption process to dispose of LARW and very low activity LLW in RCRA-approved facilities (at both humid and arid sites). TCEQ has thus far issued about 300 exemptions to generators in the State for wastes containing materials with half-lives of less than 300 days. (She encouraged the Commission and the NRC staff to visit TCEQ to learn more about how this exemption process works.)

- Like South Carolina's DHEC, TCEQ also has regulations that permit onsite disposal alternatives, which have been used with some success.

- TCEQ has concerns about the transparency of the 10 CFR 20.2002 exemption process and the consistency of licensing outcomes.

Bill House/Chem-Nuclear Systems.* Mr. House was the final speaker for this panel and had several observations to share with the ACNW. In his opening remarks, the speaker noted that the LLW disposal industry had been working successfully to clean up sites, minimize the volumes of waste being disposed of, and keep disposal costs under control. He reminded the audience that since 2000, Chem-Nuclear Systems has operated under an environment of economic regulation. In particular, Mr. House noted that the company he represents has kept disposal costs down by controlling its variable costs.[48] Although 34 States containing more than

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46 U.S. General Accounting Office, "Low-Level Radioactive Waste—Disposal Availability Adequate in the Short Term, But Oversight Needed to Identify Any Future Shortfalls," Washington, DC, GAO/RCED-04-604, June 2004.

47 The Texas LLW Compact also includes the State of Vermont.

48 The Budget and Control Board of the South Carolina Public Service Commission had been responsible for establishing the fees LLW generators are charged for using the Barnwell site, not Chem-Nuclear Systems as the site operator. The speaker noted that

50 nuclear power reactors will have no disposal access for Class B and C LLW after 2008, the speaker told the audience that the Barnwell site has ample remaining disposal capacity, and the operator is ready and willing to receive all non-Compact LLW before that deadline. Mr. House reported that Chem-Nuclear Systems is ready to work with generators to develop economic LLW disposal solutions before the closing of the site in 2008.

Mr. House ended his prepared remarks by identifying the following short-term actions that might merit continued attention:

- *Sealed-source tracking.* Mr. House suggested that one of the outcomes of this ongoing NRC rulemaking was an increased awareness among licensees that these devices are out there and a spike would likely occur in the need for safe disposal of sealed sources.

- *NRC Branch Technical Position on Concentration Averaging and Encapsulation.* Mr House identified the need for a potential amendment to that guidance to allow for the consideration of several layers of containment (i.e., barriers) to provide for a more robust LLW disposal container (with lower disposal costs). (This action would not be unlike the already cited "Barnwell Rule of 10" and would allow for the disposal of irradiated hardware from nuclear power reactors.)

After the prepared remarks, Dr. Ryan asked the panelists if they cared to comment on any of the talks before he opened up the session to specific questions and comments from the ACNW members.

- ***Ms. Jablonski.*** Ms. Jablonski had several comments. First, she noted that in addition to avoiding potential changes to 10 CFR Part 61, it would also be useful to avoid amendments to NRC guidance documents (e.g., NUREGs) intended to implement 10 CFR Part 61 at this time since TCEQ is using several of them as part of the WCS license application for a new LLW disposal facility. (In response to a request from the ACNW Chairman, Ms. Jablonski agreed to provide the Committee with a list of the NUREGs in question.) Second, in a related matter, she disputed a claim made earlier by Mr. Kunihiro that TCEQ was misapplying certain (unspecified) NRC NUREGs. In rebuttal, Ms. Jablonski expressed the view that as guidance documents per se, some

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this form of regulation has taken place at a time when disposal volumes are generally declining compared to rising disposal costs. Mr. House noted that Barnwell's operating costs consist primarily of two equally proportioned constituents:

- fixed costs that include taxes, fees, cost of the LLW license itself, and routine operating costs associated with site monitoring and maintenance

- variable costs associated primarily with the incremental increase in the cost of labor and equipment

He noted that Chem-Nuclear Systems' profit is factored into the fixed-cost side of the equation. The speaker also noted that in some years there are nonrecurring expenses referred to as irregular costs (such as one-time legal fees associated with litigation) that need to be accounted for in the cost structure.

professional judgment (and latitude) in their implementation is permissible. Next, in response to a question from the ACNW Chairman, Ms. Jablonski noted that the phrase "meritorious," as used earlier in the ACNW meeting to describe the TCEQ review of the WCS license application, should not be construed by the public to suggest that the Texas regulator has found the license application acceptable. Rather, she noted that the term in dispute was a legislative artifact reflecting the State's earlier expectation that several LLW license applications would have been submitted (instead of just the one from WCS) and screened by the State to determine which was the most acceptable for a rigorous technical review. She reiterated that TCEQ has not made any judgments on the technical merits of the WCS license application.

- ***Dr. Pasternak.*** Dr. Pasternak first provided a few additional details on the political history of the Ward Valley land transfer. Second, he stated that despite his unfavorable personal views on the lack of State and Federal support at the time for the failed California site, he was still in favor of a strong Federal role in establishing a national disposal site for commercial LLW.

- ***Dr. Johnsrud.*** Dr. Johnsrud had several additional comments. First, Dr. Johnsrud was not in favor of any actions that would lead to the generation of additional radioactive waste. Second, she was not in favor of establishing new classes for LLW, such as LARW or very low activity LLW. In fact, she noted that there was a need to bring NORM and technologically enhanced naturally occurring radioactive material (TENORM) wastes under regulatory control. Next, without providing specific details, she was generally critical of the NRC, other Federal agencies, and State authorities for not taking stakeholder (public) views into account as part of their regulatory decisionmaking. Lastly, she suggested that the States and municipalities need to have a stronger voice in establishing regulatory standards for local communities. In this regard, she suggested that it is appropriate for those standards to be more stringent than comparable Federal standards.

- ***Mr. Flanders.*** Mr. Flanders had several comments in response to these and other presentations over the course of the 2-day meeting. First, he noted that the staff was working to improve the transparency of the 10 CFR 20.2002 exemption process in response to a Commission request. He acknowledged the earlier difficulties encountered by USACE at its Maywood site. In response to a question from Dr. Ryan concerning a schedule, Mr. Flanders stated that the staff hopes to respond to the Commission with a proposal by the end of CY 2006 and with some guidance in CY 2007. In terms of 10 CFR 61.58 alternative concentration limits, Mr. Flanders asked what type of priority the NRC should assign to this area given that a State like Utah does not have such a provision in its regulation, yet is successfully disposing of a large spectrum of LLW types. The speaker noted that NUREG-1573[49] already provides guidance on the design and performance of engineered barriers that is considered useful in responding to the issue. In rebuttal, Dr. Ryan acknowledged that although that

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49 U.S. Nuclear Regulatory Commission, "A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities—Recommendations of NRC's Performance Assessment Working Group," Office of Nuclear Material Safety and Safeguards/Office of Nuclear Regulatory Research, NUREG-1573, October 2000.

may be the case, the appropriate response to Mr. Flanders' question in this area will not come from the Working Group Meeting participants but, more appropriately, from the forthcoming public comment process previously described by Mr. Flanders.

Mr. Flanders also had a followup clarification question for Mr. House. His question concerned concentration averaging of dissimilar metals and how it might be advantageous to the disposal of LLW. In response, Mr. House provided an example. He noted that Chem-Nuclear Systems is in the process of evaluating how a generator might dispose of some stainless steel and zirconium metals as part of a fuel pool cleanup. A strict regulatory interpretation requires that both metals be characterized separately. The niobium concentration of one metal is slightly above the Class C concentration limits. Based on this assay and the amount of metal in question, two LLW disposal shipments would be necessary. However, if the generator could average the concentrations of radioactivity in the two metals, then the activity of the volume of metal in question would meet Class C concentration limits and would be acceptable for disposal at the site in one shipment, at a savings to the generator. Similarly, if one looks at this example considering only curies, the quantities in two shipments would be no different than a single shipment in which there is a sufficient amount of that same metal to use the averaging rules and become a Class C disposal container.

- ***Mr. House.*** In reference to the NRC's request for stakeholders to identify areas for improving and/or amending existing staff guidance, Mr. House repeated his earlier comments and observations related to the NRC concentration averaging and encapsulation BTP.

- ***Dr. Kocher.*** Dr. Pasternak asked the ACNW consultant to comment on the acceptability of using existing DOE facilities to potentially dispose of commercial LLW. Dr. Pasternak noted that such facilities were already in operation, and, given the pending closure of the Barnwell site to States outside of the Compact in 2008, they might represent a reasonable disposal alternative to consider in the near term. In response, Dr. Kocher noted that as a hypothetical, it would be technically feasible to dispose of commercial LLW at a DOE facility since the two waste streams (commercial and DOE) were fundamentally the same and the department's regulations (although different from those of the NRC) were also intended to be protective of the public and the environment. However, Dr. Kocher observed that any response to this question is primarily one of policy (and politics) which, as Dr. Ryan later pointed out, was beyond the scope of inquiry of the ACNW Working Group Meeting.

Following the completion of these presentations, the group of panel speakers responded to specific questions and comments from the ACNW members.

ACNW Member Dr. Clarke. Dr. Clarke had some questions of clarification for Dr. Kocher concerning the potential use of DOE facilities for the disposal of commercial LLW—an issue previously raised by Dr. Pasternak. Specifically, he asked what types of facilities were being discussed--LLW landfills or RCRA disposal cells. In response, Dr. Kocher noted that he understood that the question had applied to waste suitable for LLW landfills.

ACNW Member Dr. Weiner. Dr. Weiner had the following questions for the panel:

- First, in a question directed to Ms. Jablonski, Dr. Weiner wanted to know if there were natural-resource issues (vis-à-vis mineral exploration) associated with the review of the Andrews County LLW license application given its relative proximity to the Waste Isolation Pilot Plant in adjoining New Mexico. Ms. Jablonski noted that this was a TCEQ concern given the known geological oil and gas potential of the area. She also alluded to unresolved TCEQ questions related to mineral rights on the WCS property, which further complicates the review of the WCS license application.

- In her second question, Dr. Weiner asked how the benefits derived from the medical use of radioactive materials are balanced against the siting of LLW disposal facilities. In responding for the panel, Dr. Johnsrud recognized the value and importance of nuclear medicine to society and suggested that some communities might be willing to accept such wastes for disposal, whereas those same communities might be less willing to accept LLW generated from other types of industry (i.e., electrical, defense).

ACNW Member Dr. Hinze. In reference to the staff's forthcoming NRC LLW strategic assessment, Dr. Hinze had a question for Mr. Flanders concerning the scope of that effort. Noting that the Barnwell site is scheduled to close sometime in 2008 to non-Compact States, he asked whether the scope of the LLW strategic assessment was intended to include the Barnwell closing scenario. In response, Mr. Flanders noted that, in the near term, the NRC staff intends to evaluate whether there is a need to revise guidance on LLW storage well before the closing of that site. This would be achieved as part of the agency's forthcoming request for public comments on the strategic assessment. Based on his observations from the ACNW Working Group Meeting, Mr. Flanders suggested that this may be more of an issue for nonutility LLW generators than for the utilities.

ACNW Member Dr. Ryan. Dr. Ryan questioned statements that had been made at this meeting and elsewhere concerning a complete lack of or dwindling amounts of LLW disposal capacity and suggested that these statements are not truly accurate. He noted that there is adequate disposal capacity. The question is simply one of the cost of that capacity.

ACNW Member Mr. Croff. Mr. Croff had no followup questions for the panelists.

I.E Additional Comments and Questions

Mr. Camper. In reference to 10 CFR 20.2002, Mr. Camper wished to clarify for the audience a few points with respect to this provision of the NRC's regulation because of the considerable discussion about it over the course of the Working Group Meeting. He reminded the audience that this provision in NRC's regulations does not provide disposal exemptions per se. He quoted text from the regulation, which states that "... a licensee or an applicant for a license may apply to the Commission for approval of proposed procedures not otherwise authorized in the regulations...." He also noted that there is no implied or explicit dose constraint associated with 10 CFR 20.2002. Based on feedback from the NRC's Office of General Counsel, the dose limit being referred to by this requirement should be interpreted to mean the 100 mrem/yr limit to a member of the public generally allowed by 10 CFR Part 20, taking into account the ALARA standard. That said, Mr. Camper noted that the staff has not approved a 10 CFR 20.2002 disposal approach that even closely approximates that number. He reported that when the staff

has approved of disposal in RCRA facilities, the dose evaluation has been on the order of a few millirem.

Historically, the NRC may have authorized the onsite disposal of small quantities of low-activity radioactive materials at existing NRC-licensed facilities. The NRC's regulations under 10 CFR 20.302 allowed these authorizations at the time. Since 1997, the industry has gravitated away from that practice because of the implementation of the license termination rule, which has a 25 mrem/yr dose limit and ALARA. Mr. Camper noted that, administratively, a 10 CFR 20.2002 request within the Office of Nuclear Reactor Regulation is processed via a letter back to the licensee; in NMSS, the staff processes such requests via license amendments.

Ms. D'Arrigo asked how many such requests have been received, approved, and disapproved. In response, Messrs. Flanders and James Kennedy (of NMSS) referred her to SECY-06-0056, "Improving Transparency in the 10 CFR 20.2002 Process," dated March 9, 2006, which contains statistics on all 10 CFR 20.2002 requests (amounting to about 20) that have been received by the staff over the last 6 years. **(Note:** As a point of clarification to the meeting transcript, it should be noted that the NRC staff approved a 10 CFR 20.2002 disposal request for Big Rock Point.) Later, Ms. D'Arrigo also made a similar request with respect to a summary of information on how many 10 CFR 61.58 requests for alternative concentration limits have been made to the NRC. In response, Messrs. Flanders and Derek Widmayer (of the ACNW staff) and Dr. Lohaus indicated that they were not aware of any 10 CFR 61.58 requests ever being made. Nor were they aware of any NRC documentation (or system) that would keep track of such requests. Mr. Porter, representing DHEC, noted that South Carolina has requirements similar to 10 CFR 61.58 for the disposal of "discrete quantities" of radioactive material and the State has reviewed about one request per year for the last 5 years.

Ms. D'Arrigo. On a different subject, Ms. D'Arrigo reported that her organization intends to oppose any attempt to risk-inform the management of LLW, LARW, and any other low-activity radioactive waste streams. The reasons she gave were "...due to the experience on the reactor side that risk-informing has actually led to relaxation in protections and also due to the concern that all of the risks are not being fully evaluated and that those who are doing the evaluation have a bias or a tendency not to be looking at it in a fully objective way or not balancing the concern of the public for concerns about low-dose-radiation health effects...."

She also noted that many organizations and environmental groups, including the Sierra Club, have policies supporting a redefinition of LLW that would exclude radioactive materials that remain hazardous longer than the current 100-year institutional control period.

Ms. D'Arrigo also criticized the National Academy of Sciences (NAS) 2006 report on LARW. Dr. Ryan reminded her that the ACNW is not responsible for that report and that she should direct her comments on it to the NAS.

Brian Hearty/USACE. Mr. Hearty reminded the Committee that most of the legacy LARW that USACE is cleaning up at its CERCLA sites is not licensed. As Ms. Clements noted earlier, USACE has little regulatory guidance to direct it in these efforts. Short of case-by-case (10 CFR 20.2002) reviews by the NRC, USACE looks to promulgated rules and standards to define acceptable cleanup levels. Mr. Hearty suggested that this is a new area for regulations.

I.F Summary of ACNW Members' and Consultants' Observations

The ACNW Working Group Meeting ended with a summary of Committee impressions and observations from the 2-day session that would potentially be included in a letter to the Commission. The ACNW will discuss a specific letter report at its July 2006 meeting.

II. NATIONAL ACADEMY OF SCIENCES REPORT ON THE MANAGEMENT OF CERTAIN TANK WASTES AT U.S. DEPARTMENT OF ENERGY SITES

[Latif Hamdan was the Designated Federal Official for this part of the meeting.]

A 5-member NAS team briefed the ACNW Committee on the findings of a NAS congressionally-mandated study of radioactive wastes stored in tanks at three DOE sites: Savannah River, Hanford, and Idaho. The NAS team included the NAS committee chairman (Professor Frank Parker), two NAS committee members (Dr. Anne Smith and Mr. Milton Levenson), and two NAS staff members (Drs. Kevin Crowley and Micah Lowenthal). Professor Parker was the briefing lead. He explained that the study was conducted under Section 3146 of the National Defense Authorization Act for fiscal year (FY) 2005 (NDAA), by a 21-member NAS committee ("Committee on the Management of Certain Radioactive Waste Streams Stored in Tanks at Three Department of Energy Sites"), which included one member who also is a member of the ACNW Committee (Mr. Allen Croff). Professor Parker described the tank waste at the three DOE sites covered by the study, highlighted similarities and differences among the sites, and discussed major study findings and recommendations including site-specific findings and recommendations as well as a "watch list" of significant issues that DOE will have to resolve with "deliberate speed" (see summaries below).

Mr. Levenson provided additional insights. He noted that (1) a member of Congress and two senior staffers from the U.S. Senate showed up at the first NAS committee meeting to let the committee know how important they thought the study is; (2) manpower and time limitations precluded looking beyond the main assignment; (3) DOE already has acted on some of the recommendations in the report; and (4) the question of how clean is clean enough goes beyond the tanks. How should the quantity of waste left in a tank be related to how much waste is left on the entire site? What should be done about the leaks that have taken place? Even if cleaning up the tank to a pristine state were possible, does it make sense to do so in the middle of a large area of contaminated ground?

Dr. Smith made the observation that the NAS Committee focus revolved initially around meeting the performance objectives through performance assessment and improving the performance assessment. The report conveys that the necessary risk-informed decisions will have to consider a broader set of issues that go beyond the construct of the performance assessment.

The NAS team also responded to questions from the ACNW members and staff and an ACNW consultant. DOE staff attending the briefing provided additional information with regard to DOE's actions that have been undertaken in response to the NAS report.

Summary of Findings on the National Academy of Sciences' Report

- DOE's overall approach for management and disposal of tank wastes is workable, but important technical and programmatic challenges remain.
- DOE is at the beginning of its tank waste campaign. Only 2 of the 246 tanks at the three sites have been cleaned out and filled with grout, and none have a permanent cover.
- There is no unique answer to the question of how clean is clean enough. The definition of clean enough depends on a range of technical and nontechnical factors.
- There is still time to develop tools and processes to address problems.
- DOE's current knowledge of tank waste characteristics is adequate for retrieving waste from tanks at all three sites. DOE needs to know the waste composition in greater detail for processing purposes and to confirm site compliance with performance objectives.
- DOE has dramatically improved the technical quality and public transparency of its performance assessments and decision-support documents over the past year.
- DOE is just beginning to develop plans for the post-closure monitoring of closed tank farms and associated disposal sites.

Summary of the Major Recommendations in the National Academy of Sciences' Report

- DOE should pursue a more risk-informed approach that will lead to better decisions and reduce programmatic risk.
- DOE should initiate a targeted, aggressive, collaborative research program to develop and deploy needed innovative technologies for tank waste retrieval, treatment, closure, and disposal. The Committee recommends a 5–10 year effort with at least $10 million/year but prefers $50 million/year for this research and development.
- DOE should decouple its schedule for tank waste retrieval from its schedule for tank closure for those tanks that still contain significant amounts of radioactive material after initial waste retrieval was completed.
- DOE should continue to seek transparent, independent peer review of critical data and analyses used to support decisions about tank waste retrieval, processing, and disposal even if review is not required under the NDAA.
- DOE now should develop conceptual plans for a post-closure monitoring program. It also should include provisions for monitoring its tank closures and disposal facilities (e.g., build sensors). Note that this does not mean that a plan should be complete or fixed as plans should evolve. A vision for monitoring needs to be in place to guide the sites as DOE constructs enclosures and inserts sensors at appropriate times and locations.

Summary of Site-specific Findings and Recommendations in the National Academy of Sciences' Report

- Savannah River Site
  - The NAS committee has serious reservations about aspects of DOE's plans for tank closure, including the point of compliance and assumptions about exposure scenarios and waste inventories remaining after tank cleanup.
  - The NAS committee is concerned that the schedule for tank closure and the tank space crisis may lead to increased use of the relatively inefficient deliquification, deactivation, and adjustment (DDA) treatment process, which could lead to onsite disposal of additional radioactive material.
  - To reduce the quantities of radionuclides to be disposed of onsite, DOE should develop alternatives or enhancements to the DDA process to solve its tank space problems.
- Hanford Site
  - The NAS committee has reservations about DOE's plans to use bulk vitrification as a secondary process for treating low-activity waste for onsite disposal.
  - DOE should arrange for a transparent, independent, technical review of the bulk vitrification process to assess its performance and safety.
- Idaho Site
  - DOE is making good progress in tank cleanup and closure.

Summary of Watch List Items in the National Academy of Sciences' Report

The significant issues that DOE will have to resolve with deliberate speed include the following:

- Remediation of plugged and leaking underground pipes and interwall spaces in double-walled tanks;
- Disposition of calcine bin waste at the Idaho site;
- Regulatory approvals for the offsite disposal of some Hanford tank waste and Idaho sodium-bearing waste;
- Its philosophy and methodology for post-closure monitoring; and
- Its plans for carrying out long-term stewardship, including how the Federal Government will maintain control "in perpetuity" at sites unsuitable for unrestricted release.

The ACNW will consider the results of the NAS study and information obtained from this briefing when submitting technical advice to the Commission with regard to the standard review plan (SRP) for waste determinations (WDs) and related activities.

III. NRC STANDARD REVIEW PLAN FOR WASTE DETERMINATIONS

[Latif Hamdan was the Designated Federal Official for this part of the meeting.]

Representatives from NRC's DWMEP in NMSS briefed the Committee. The DWMEP team, who included Ryan Whited, Christianne Ridge, and David Esh, presented the status of staff activities related to the development of an SRP for WDs.

Mr. Whited presented background information on and the status of the SRP development effort. He explained that the SRP was rooted in the passage of the National Defense Authorization Act of 2005 (NDAA) in October 2005 and provided a brief account of WD activities by the NRC staff since that time. He noted that the Commission approved the implementation plans for the NDAA, which include development of the SRP. Mr. Whited discussed the purpose of the SRP, indicated that a draft SRP was nearly complete, and walked through the draft SRP outline and content. He also pointed out that the ACNW recommendations included in a December 2005 letter to the Commission were addressed and have been reflected in the draft SRP.

Dr. Ridge addressed the topic of radionuclide removal, including radionuclide inventories, the selection of highly radioactive radionuclides and radionuclide removal technologies, and the practicality of additional removal—often addressed by DOE as a cost-benefit analysis. She made two general points: (1) the tenor of the NRC staff review may change depending on whether the WD is submitted before or after the removal activities, and (2) the term "removal" refers to both the removal of the waste from the tanks as well as the removal of radionuclides from the waste. She discussed the range of radionuclide removal technologies that should be evaluated, the factors affecting the choice of such technologies, the potential sources of data and data uncertainty with regard to the waste and radionuclide inventory, and the approaches and criteria to be considered in the selection of highly radioactive radionuclides and for evaluating the basis used for determining that radionuclides have been removed to the maximum extent practical. NRC will review the radionuclide selection by evaluating DOE's technical basis and the results of the performance assessment (PA). Evaluating the basis for determining that radionuclides have been removed to the maximum extent practical, will include reviewing the basis for this determination by DOE, as well as other factors such as the dose estimates including uncertainty in the dose estimates and their impacts, economic factors, costs, benefits, and risks considerations among others.

Dr. Esh noted that the SRP provides guidance on concentration averaging which is consistent with the principles in 10 CFR Part 61 and the 1995 Branch Technical Position. His presentation was largely focused on PA. He discussed the PA approach. Dr. Esh indicated that the PA is expected to use the analysis approach to demonstrate compliance with 10 CFR Part 61. He explained that the PA review will use a risk-informed, performance-based approach and that the level of detail in the PA review procedures strikes a balance between flexibility and uniformity. He described the review procedures and criteria for what he characterized as the main elements of the PA: scenario selection and receptor groups, general technical review procedures, specific technical review procedures (i.e., climate and infiltration, engineered

barriers, source-term/near-field release, radionuclide transport, and biosphere characteristics and dose assessment), computational models and codes, uncertainty and sensitivity analyses, evaluation of model results, and ALARA analysis. He added that the PA emphasizes the need for adequate model support and that the SRP recognizes that there may model validation issues. He briefly addressed inadvertent intrusion. Dr. Esh indicated that the inadvertent intruder and the intruder protection system should be based on site-specific information to the extent possible.

Dr. Esh concluded that the SRP will facilitate risk-informed and performance-based WD reviews; that the review areas take into account existing NRC guidance, staff experience from completed WD reviews, and ACNW recommendations; and that staff looks forward to ACNW comments on the draft SRP.

The DWMEP team responded to questions from the ACNW members and an ACNW consultant. In an answer to an ACNW question, Dr. Esh identified the long-term performance of engineered barriers and the source term as probably the most important drivers of performance in a humid climate such as the Savannah River and West Valley sites. In a semi-arid climate such as the Hanford and Idaho sites, the engineered barriers are not as important as they are in humid environments. Instead, the source term and the natural barrier such as the thickness and hydrologic properties of the unsaturated zone beneath the site are important. He also mentioned erosion as an important performance factor at the West Valley site.

Other DWMEP staff in the audience included Mr. Scott Flanders and Mr. Mark Thaggard. They clarified the staff's response to some of the questions by the Committee members.

The Committee complimented the staff on completing a tough task in a short time and indicated that it anticipates a forthcoming review copy of the draft SRP. The Committee will review the draft SRP after it is issued and provide staff with review comments to be addressed later in a followup briefing.

IV. REVIEW OF INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION DRAFT REPORT, "THE SCOPE OF RADIOLOGICAL PROTECTION REGULATIONS" (OPEN)

[Neil Coleman was the Designated Federal Official for this part of the meeting.]

The Committee was briefed by Dr. Donald Cool, NMSS, who gave an overview of a draft International Commission on Radiological Protection (ICRP) report entitled "The Scope of Radiological Protection Regulations." The ICRP report recommends criteria for defining the radiation exposure scenarios that can and need be subject to radiation protection regulations. The document also describes the regulatory concepts of exclusion and exemption, along with their applications. Exclusion refers to the identification of radiation exposure scenarios that do require legislation because these exposure cannot be controlled by any reasonable means. Examples of recommended exclusions include cosmic radiation at ground level and radionuclides of natural origin in the human body. Exemption refers to the identification of exposure scenarios that are within the scope of legislation but do not require regulation because their application is not warranted.

The staff commented that the draft ICRP report is complex, difficult to interpret, and confusing in places. The draft report does not resolve important issues such as the discontinuity of transportation levels with exemption levels of bulk materials and the discontinuity of controls for natural versus artificial materials. The draft report appears inconsistent with ICRP's philosophy of establishing a constraint for an exposure scenario and applying "optimization." The ICRP report would not be useful as guidance for radiation protection in the United States. The staff anticipates that the revised ICRP draft recommendations will be available for public comment in early June 2006. The staff plans on attending the upcoming Nuclear Energy Agency (NEA) North American Workshop in ICRP Recommendations, to be held in Rockville, MD, during August 28–29, 2006.

During this meeting, the Committee prepared and finalized a letter to the Commission on this topic. The Committee believes the draft ICRP document does not add value to the radiation protection programs in the United States, especially those promulgated by the Commission for NRC licensees and Agreement State licensees. The Committee believes that the draft ICRP document in its present form is not useful for further consideration without substantial revision and alignment with other draft ICRP guidance documents.

V. OVERVIEW OF NRC SPENT FUEL STORAGE PROGRAM (OPEN)

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

Representatives of the Spent Fuel Project Office (SFPO) in NMSS briefed the Committee on the status of SFPO's work. SFPO is responsible for the licensing and inspection of spent fuel storage casks and facilities, certification and inspection of transportation casks, coordination with Government stakeholders, and public outreach on storage and transportation activities. There are currently 42 licensed independent spent fuel storage installations (ISFSIs) in the United States and announced plans for an additional 14 ISFSIs. SFPO is addressing the technical challenges associated with the transportation of high-burnup fuel and burnup credit. SFPO is increasing its public outreach effort and continuing to respond to the Nation's need for fuel storage capacity and changes in fuel management strategy. This briefing was for the Committee's information. No Committee action is planned.

SFPO is organized into two divisions: the first has the responsibility for inspection and licensing, and the second has the responsibility for technical reviews. SFPO has carried out more than 40 spent fuel facility and cask system reviews, 50 quality assurance program reviews, 20 inspections, and 80 transportation packaging reviews. After September 11, 2002, SFPO has completed first-of-a-kind security reviews for a number of critical facilities. SFPO has worked with NAS on issues related to the recent NAS report on transportation safety. SFPO has collaborated with other agencies on international activities related to transportation and storage. There are currently 42 licensed independent spent fuel storage installations (ISFSIs) in 26 States, with announced plans for 14 additional ISFSIs, 15 approved storage cask designs, and 8 approved dual-purpose cask designs. The number of ISFSIs has grown over time. The trend is toward general license installations.

The SFPO reviews and approves Type B and fissile transportation packages, preforms related inspections, and provides technical support to the Department of Transportation. There have

been 1,400 shipments of spent fuel in NRC-approved packages since 1979 with no package failures.

SFPO is currently addressing the technical challenges associated with the transport of high burnup fuel and the application of burnup credits. The staff is developing interim staff guidance documents for the treatment of air oxidization (related to cask storage in an air environment) and the accepted uses of computational modeling. SFPO will continue to monitor changes in the National strategy for spent fuel management and address relevant issues and challenges. DOE is working to purchase data from the French which can be use in addressing the application of burnup credit. Applications for cask license extensions are expected and will need to be addressed. In the near future, DOE expects to complete the development of performance specifications for transportation, aging, and disposal (TAD) canisters. DOE then will issue its specifications for the new TAD canisters. NRC will evaluate license applications for TAD designs under NRC's current requirements.

The meeting adjourned at 11:00 A.M. on Friday, May 26, 2006.

APPENDIX A

III. Finding of No Significant Impact

The NRC staff has prepared this EA in support of the proposed license amendment to release the subject facilities for unrestricted use and terminate the license. On the basis of the EA, the NRC has concluded that there are no significant environmental impacts from the proposed action, and the license amendment does not warrant the preparation of an environmental impact statement. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

IV. Further Information

Documents related to this action, including the application for amendment and supporting documentation, are available electronically at the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/adams.html.* From this site, you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession numbers for the documents related to this Notice are:

1. NRC, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," NUREG–1496, July 1997 (ML042310492, ML042320379, and ML042330385).
2. Gile, Jay D., U.S. Environmental Protection Agency's Western Ecology Division, Cessation of Licensed Activities and Request for License Termination, November 30, 2004 (ML043620316, ML043620322, ML043620325, ML043620321).
3. Gile, Jay D., Environmental Protection Agency's Western Ecology Division, NRC Form 314 Certificate of Disposition of Materials, December 1, 2004 (ML043620317).
4. McBride, Kathy, Environmental Protection Agency's Western Ecology Division, NRC Form 314 (Certificate of Disposition of Materials) Retraction Memo, December 14, 2005 (ML060110330).
5. Burr, Dave, Environmental Protection Agency's Western Ecology Division, Decommissioning Audit Response, Addendum to the Final Status Survey Report, Certificate of Disposition of Materials and Request for License Termination, December 27, 2005 (ML060110298, ML060110337, ML060110472, ML060110496).
6. NRC Inspection Report 030–05976/05–001, January 10, 2006 (ML060120525).
7. Burr, Dave, Environmental Protection Agency's Western Ecology Division, EPA Comments on the draft Environmental Assessment, March 29, 2006 (ML060890410).
8. Schlapper, Beth A., Memorandum to Docket File 030–05976, State of Oregon Telephone Response Of No Comment For Comments On The Draft Environmental Assessment, March 29, 2006 (ML060880514).

If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) Reference staff at 1–800–397–4209, 301–415–4737, or by e-mail to *pdr@nrc.gov.*

These documents may also be viewed electronically on the public computers located at the NRC's PDR, O 1 F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. The PDR reproduction contractor will copy documents for a fee.

Dated at Arlington, Texas this 19th day of April, 2006.

For the Nuclear Regulatory Commission.

D. Blair Spitzberg,

Chief, Fuel Cycle & Decommissioning Branch, Division of Nuclear Materials Safety, Region IV.

[FR Doc. E6–7163 Filed 5–10–06; 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 170th meeting on May 23–26, 2006, Room T–2B3, 11545 Rockville Pike, Rockville, Maryland.

The schedule for this meeting is as follows:

Tuesday, May 23, 2006

ACNW Working Group Meeting on Low-Level Radioactive Waste (LLW) Management Issues

8:30 a.m.–8:40 a.m.: Greeting and Introductions (Open)—The ACNW Chairman, Dr. Michael Ryan, will state the purpose and objectives for this Working Group Meeting. He will also provide an overview of the planned technical sessions for Day 1 and introduce invited panelists and speakers.

Purpose of ACNW Working Group Meeting. The purposes of this ACNW Working Group Meeting are to:

—Obtain current information on commercial LLW management practices.
—Identify emerging LLW management issues and concerns.
—Solicit stakeholder views on what changes to the regulatory framework for managing LLW should be recommended for Commission consideration.
—Solicit stakeholder views on actions the NRC can take to ensure a stable, reliable and adaptable regulatory framework for effective LLW management.
—Identify specific impacts, both positive and negative, of potential staff activities.

8:40 a.m.–9:40 a.m.: Existing LLW Licensee Operational Experience and Perspective (Open)—The Committee will hear presentations by representatives of Chem-Nuclear Systems, LLC and EnergySolutions, LLC.

9:40 a.m.–10:40 a.m.: Alternative Disposal Options and Practices (Open)—The Committee will hear presentations by Waste Control Specialists and U.S. Ecology—American Ecology.

11 a.m.–11:30 a.m.: NRC's Current LLW Program: Challenges (Open)—The Committee will hear a presentation by a NRC staff representative regarding the current LLW program.

11:30 a.m.–12:30 p.m.: NRC's 10 CFR Part 61: Historical Perspective (Open)—The Committee will hear presentations from former NRC staff regarding the development of NRC's LLW regulatory framework.

2 p.m.–3:30 p.m.: State/Compact Disposal Experience (Open)—The Committee will hear presentations from representatives of the Southwestern Low-Level Radioactive Waste Commission and the South Carolina Department of Health and Environmental Control.

3:30 p.m.–4 p.m.: LLW Definitions and Decommissioning Experience (Open)—The Committee will hear a presentation by a representative from the Nuclear Energy Institute.

4 p.m.–4:30 p.m.: New License Application Perspectives (Open)—The Committee will hear a presentation by a representative from Waste Control Specialists, LLC.

4:30 p.m.–5:30 p.m.: Stakeholder and Public Comments (Open).

Wednesday, May 24, 2006

8:30 a.m.–8:40 a.m.: Greeting and Introductions (Open)—Dr. Ryan will provide an overview of the planned technical sessions for Day 2 and introduce the invited panelists and speakers.

8:40 a.m.–11 a.m.: Industry Roundtable Discussion (Open)—Scheduled participants are expected to include representatives from Entergy,

the U.S. Army Corps of Engineers, the South Carolina Department of Health and Environmental Control, Harvard University, and U.S. Ecology—American Ecology.

12:30 p.m.–3 p.m.: Panel Discussion Concerning NRC's LLW Strategic Assessment (Open)—Scheduled participants are expected to included representatives from the Washington State Department of Health, the NRC staff, Chem-Nuclear Systems, the Texas Council on Environmental Quality, and the California Radioactive Materials Management.

3 p.m.–4:30 p.m.: Stakeholder and Public Comments (Open).

4:30 p.m.–5 p.m.: Closing Remarks (Open)—By Dr. Kyan.

5 p.m.–5:30 p.m.: ACNW Working Group Meeting Impressions –Discussion of Letter Report (Open)—The Committee will discuss the impressions of the Working Group Meeting and proposed ACNW letters.

Thursday, May 25, 2006

8:25 a.m.–8:30 a.m.: Opening Remarks by the ACNW Chairman (Open)—The ACNW Chairman will make opening remarks regarding the conduct of the meeting.

8:30 a.m.–10:30 a.m.: National Academy of Sciences (NAS) Report on the Management of Certain Tank Wastes at U.S. Department of Energy (DOE) Sites (Open)—Representatives of the NAS staff and an NAS Committee will brief the ACNW on the findings of a Congressionally-mandated study of radioactive waste streams stored in tanks at three DOE sites.

10:45 a.m.–12:15 p.m.: NRC Standard Review Plan (SRP) for Waste Determinations (Open)—NMSS representatives will update the Committee on progress in the development of the SRP to be used by the NRC staff to review DOE waste determinations.

1:30 p.m.–3 p.m.: Review of International Commission on Radiological Protection (ICRP) Draft Report, "The Scope of Radiological Protection Regulations" (Open)—Briefing by and discussions with representatives of the NRC staff regarding the ICRP draft report for comment titled, "The Scope of Radiological Protection Regulations."

3:15 p.m.–5:30 p.m.: Discussion of Draft Letters and Reports (Open)—The Committee will discuss proposed ACNW letters.

Friday, May 26, 2006

10 a.m.–10:10 a.m.: Opening Remarks by the ACNW Chairman (Open)—The ACNW Chairman will make opening remarks regarding the conduct of the meeting.

10:10 a.m.–11:45 a.m.: Overview of NRC Spent fuel Storage Program (Open)—NMSS representatives will provide an overview of NRC spent fuel storage program.

11:45 a.m.–4 p.m.: Discussion of Draft Letters and Reports (Open)—The Committee will discuss proposed ACNW letters.

4 p.m.–4:30 p.m.: Miscellaneous (Open)—The Committee will discuss matters related to the conduct of ACNW activities and specific issues that were not completed during previous meetings, as time and availability of information permit. Discussions may include future Committee Meetings.

Procedures for the conduct of and participation in ACNW meetings were published in the **Federal Register** on October 11, 2005 (70 FR 59081). 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. Michael R. Snodderly (Telephone 301–415–6927), between 8:15 a.m. and 5 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. Snodderly 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. Snodderly.

ACNW meeting agenda, meeting transcripts, and letter reports are available through the NRC Public Document Room (PDR) at *pdr@nrc.gov*, or by calling the PDR at 1–800–397–4209, or from the Publicly Available Records System 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).

Video Teleconferencing 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: May 4, 2006.

Andrew L. Bates,

Advisory Committee Management Officer.

[FR Doc. E6-7161 Filed 5-10-06; 8:45 am]

BILLING CODE 7590-01-P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Nuclear Waste; Meeting on Planning and Procedures; Notice of Meeting

The Advisory Committee on Nuclear Waste (ACNW) will hold a Planning and Procedures meeting on May 26, 2006, Room T–2B3, 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:

Friday, May 26, 2006—8:30 a.m.–9:30 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. Michael R. Snodderly (Telephone: 301/415–6927) between 8:15 a.m. and 5 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 8:15 a.m. and 5 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: May 3, 2006.

Michael R. Snodderly,

Acting Branch Chief, ACRS/ACNW.

[FR Doc. E6–7162 Filed 5–10–06; 8:45 am]

BILLING CODE 7590–01–P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–53750; File No. SR–Amex–2006–33]

Self-Regulatory Organizations; American Stock Exchange LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change and Amendment No. 1 Thereto Relating to Section 141 of the Company Guide

May 2, 2006

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (the "Act"),[1] and Rule 19b–4 thereunder,[2] notice is hereby given that on April 11, 2006, the American Stock Exchange LLC ("Amex" or "Exchange") filed with the Securities and Exchange Commission (the "Commission") the proposed rule change as described in Items I and II below, which Items have been prepared by the Exchange. The Exchange filed this proposal as a "non-controversial" proposed rule change pursuant to Section 19(b)(3)(A)(iii) of the Act[3] and Rule 19b–4(f)(6) thereunder,[4] which renders the proposed rule change effective upon filing with the Commission.[5] On April 12, 2006, Nasdaq filed Amendment No. 1 to the proposed rule change.[6] The Commission is publishing this notice to solicit comments on the proposed rule change, as amended, from interested persons.

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b–4.

[3] 15 U.S.C. 78s(b)(3)(A)(iii).

[4] 17 CFR 240.19b–4(f)(6).

[5] The Exchange requested the Commission to waive the five-day pre-filing notice requirement and the 30-day operative delay, as specified in Rule 19b–4(f)(6)(iii). 17 CFR 240.19b–4(f)(6)(iii).

[6] In Amendment No. 1, Nasdaq made minor revisions to Section 141 of the Amex *Company Guide* to reflect changes to set forth in File No. SR–Amex–2005–124, Securities Exchange Act Release No. 53410 (March 7, 2006), 71 FR 12744 (March 13, 2006).

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to correct Section 141 of the Amex *Company Guide* so that annual fees in connection with Closed-End Fund issuers may not be deferred, waived, or rebated (in all or part).

The text of the proposed rule change is available on the Amex's Web site at *http://www.amex.com*, at the principal office of the Amex, and at the Commission's Public Reference Room.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of those statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant parts of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and the Statutory Basis for, the Proposed Rule Change

1. Purpose

According to the Exchange, the purpose of the proposal is to correct Section 141 of the Amex *Company Guide* to properly reflect the fact that annual fees (in all or part) for Closed-End Funds may not be deferred, waived, or rebated in the discretion of the Board. As a result, Section 141 will now provide that the Board of Governors of the Exchange or its designee may, in its discretion, defer, waive, or rebate all or any part of the applicable annual listing fee for stock issues.

The Exchange previously adopted in File No. SR–Amex–2004–70[7] the ability of the Board of Governors or its designee, in its discretion, to defer, waive, or rebate all or any part of the applicable annual listing fees, except in the case of issues listed under Sections 106 and 107 of the Amex Company Guide and Rule 1200 (Trust Issued Receipts); and Closed-End Funds. As part of an amendment to File No. SR–Amex–005–127, the Exchange inadvertently omitted Closed-End Funds from the class of issuers whose annual fees cannot be deferred, waived, or rebated. Accordingly, in this rule filing, the Exchange seeks to correct this error so that only stock issues may, in the discretion of the Board of Governors, be deferred, waived, or rebated.

[7] See Securities Exchange Act Release No. 50170 (August 26, 2004), 69 FR 54750 (September 2, 2004).

2. Statutory Basis

The Exchange believes that the proposed rule change, as amended, is consistent with Section 6(b)[8] of the Act in general and furthers the objectives of Section 6(b)(5)[9] in particular in that it is designed to prevent fraudulent and manipulative acts and practices, promote just and equitable principles of trade, remove impediments to and perfect the mechanisms of a free and open market and a national market system, and, in general, protect investors and the public interest.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change, as amended, will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

No written comments were solicited or received with respect to the proposed rule change, as amended.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

The foregoing proposed rule change, as amended, has become effective pursuant to Section 19(b)(3)(A) of the Act[10] and Rule 19b–4(f)(6) thereunder[11] because the proposed rule change: (1) Does not significantly affect the protection of investors or the public interest; (2) does not impose any significant burden on competition; and (3) does not become operative for 30 days from the date of filing, or such shorter time as the Commission may designate if consistent with the protection of investors and the public interest pursuant to Section 19(b)(3)(A) of the Act[12] and Rule 19b–4(f)(6)[13] thereunder.

The Exchange has requested that the Commission waive the five-day pre-filing notice requirement and the 30-day

[8] 15 U.S.C. 78f(b).

[9] 15 U.S.C. 78f(b)(5).

[10] 15 U.S.C. 78s(b)(3)(A).

[11] 17 CFR 240.19b–4(f)(6).

[12] 15 U.S.C. 78s(b)(3)(A).

[13] 17 CFR 240.19b–4(f)(6).

APPENDIX B

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

May 4, 2006

AGENDA
170th ACNW MEETING
MAY 23-26, 2006

TUESDAY, MAY 23, 2006, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

ACNW WORKING GROUP MEETING ON LOW-LEVEL RADIOACTIVE WASTE (LLW) MANAGEMENT ISSUES – DAY 1 (OPEN)

1) 8:30 - 8:40 A.M. **Greeting and Introductions** (MTR/MPL)
The ACNW Chairman, Dr. Michael Ryan, will state the purpose and objectives for this Working Group Meeting. He will also provide an overview of the planned technical sessions for Day 1 and introduce the invited panelists and speakers

Purpose of ACNW Working Group Meeting. The purposes of this ACNW Working Group Meeting are to:

- Obtain current information on commercial LLW management practices.
- Identify emerging LLW management issues and concerns.
- Solicit stakeholder views on what changes to the regulatory framework for managing LLW should be recommended for Commission consideration.
- Solicit stakeholder views on actions the NRC can take to ensure a stable, reliable and adaptable regulatory framework for effective LLW management.
- Identify specific impacts, both positive and negative, of potential staff activities.

SESSION I: CURRENT LLW PROGRAM STATUS

2) 8:40 - 9:40 A.M. **Existing LLW Licensee Operational Experience and Perspective**
Bill House/Chem-Nuclear Systems, LLC
Tye Rogers/EnergySolutions, LLC

3) 9:40 - 10:40 A.M. **Alternative Disposal Options and Practices**
Bill Dornsife/Waste Control Specialists (Texas)
Steve Romano/U.S. Ecology — American Ecology

10:40 - 11:00 A.M. ***BREAK***

4) 11:00 - 11:30 A.M. **NRC's Current LLW Program: Challenges**
Larry Camper/NRC Division of Waste Management and Environmental Protection

5) 11:30 - 12:30 P.M. **10 CFR Part 61: Historical Perspective on NRC's LLW Program**
Paul Lohaus/NRC (retired)
Malcolm Knapp/NRC (retired)

12:30 - 2:00 P.M. ***LUNCH***

SESSION II: CURRENT FRAMEWORK FOR MANAGING LLW AND OPERATIONAL ISSUES

6) 2:00 - ~~3:30~~ P.M. **State/Compact Disposal Experience**
Don Womeldorf/Southwestern Low-Level Radioactive Waste Commission
Henry Porter/South Carolina Department of Health and Environmental Control

7) ~~3:30~~ - ~~4:00~~ P.M. **LLW Definitions and Decommissioning Experience**
Ralph Anderson/Nuclear Energy Institute

Break

8) 4:00 - ~~4:30~~ P.M. **New License Applicant Perspectives**
Dean Kunihiro/Waste Control Specialists, LLC

9) ~~4:30~~ - 5:30 P.M. **Stakeholder and Public Comments**

~~5:30~~ P.M. **Adjourn Day 1**

letter Reports

WEDNESDAY, MAY 24, 2006, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

ACNW WORKING GROUP MEETING ON LOW-LEVEL RADIOACTIVE WASTE (LLW) MANAGEMENT ISSUES – DAY 2 (OPEN)

SESSION III: INDUSTRY PANEL DISCUSSION

10) 8:30 - ~~8:40~~ A.M. **Greeting and Introductions** (MTR/MPL)
The ACNW Chairman Dr. Ryan will provide an overview of the planned technical sessions for Day 2 and introduce the invited panelists and speakers.

11) ~~8:40~~ - ~~11:00~~ A.M. **Industry Roundtable Discussion**
Moderator: Michael Ryan/ACNW
Panel Members:
* Mark Carver/Entergy (Mississippi)
Julie Clements/U.S. Army Corps of Engineers
Joseph Ring/Harvard University 9:30 – 9:35a
Steve Romano/U.S. Ecology — American Ecology
Todd Lovinger LLW Forum
~~Bill Sinclair/Utah Department on Environmental Quality~~
Henry Porter/South Carolina Department of Health and Environmental Control

Public Comments

~~11:00~~ - 12:30 P.M. ***LUNCH***

Break

* 10-minute break to correct technical problem.

SESSION IV: PERSPECTIVES ON NRC STRATEGIC ASSESSMENT

12) ~~12:30~~ - ~~3:00~~ P.M. **Panel Discussion**
Moderator: Michael Ryan/ACNW
Panel Members:
~~Mike Elsen/Washington State Department of Health~~
Scott Flanders/NMSS DWMEP
Bill House/Chem-Nuclear Systems, LLC
Susan Jablonski/Texas Council on Environmental Quality
Alan Pasternak/California Radioactive Materials Management Forum (Cal Rad Forum)
Judith Johnsrud/Sierra Club

13) ~~3:00~~ - 4:30 P.M. **Stakeholder and Public Comments**

14) ~~4:30~~ - 5:00 P.M. **Closing Remarks**: Dr. Ryan.

15) ~~5:00~~ - ~~5:30~~ P.M. **ACNW Working Group Meeting Impressions– Discussion of Letter Report**
Discussion of possible ACNW letter report.

~~5:30~~ P.M. **Adjourn Day 2**

THURSDAY, MAY 25, 2006, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND – DAY 3 (OPEN)

16) ~~8:25~~ - ~~8:30~~ A.M. **Opening Remarks by the ACNW Chairman** (Open) (MTR/JTL)
The Chairman will make opening remarks regarding the conduct of today's sessions.

17) ~~8:30~~ - ~~10:30~~ A.M. **National Academy of Sciences (NAS) Report on the Management of Certain Tank Wastes at U.S. Department of Energy (DOE) Sites** (Open) (AGC/LSH)
Members of the NAS Staff and the cognizant NAS Committee will brief the ACNW on the findings of a Congressionally-mandated study of radioactive waste streams stored in tanks at three DOE sites.

~~10:30~~ - 10:45 A.M. ***BREAK***

18) 10:45 - ~~12:15~~ P.M. **NRC Standard Review Plan (SRP) for Waste Determinations** (Open) (AGC/LSH)
NMSS representatives will update the Committee on progress in the development of the SRP to be used by the NRC staff to review DOE waste determinations.

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

1:35 2:35

19) ~~1:30~~ - ~~3:00~~ P.M. **Review of International Commission on Radiological Protection (ICRP) Draft Report, "The Scope of Radiological Protection Regulations"** (Open) (MTR/NMC)
Briefing by and discussions with representatives of the NRC staff regarding the ICRP draft report for comment titled, "The Scope of Radiological Protection Regulations". 2001

Representatives of the ICRP, nuclear industry and members of the public may provide their views, as appropriate.

2:35 - 2:45
~~3:00~~ - ~~3:15~~ P.M. ***BREAK***

20) ~~3:15~~ - 5:30 P.M. **Discussion of Draft ACNW Letter Reports** (Open) (All)
2:45
Discussion of proposed ACNW reports on the following:

20.1) Additional Recommendations Related to RES Programs (MTR/DAW/RPS) 3:30 - 3:50 On Hold

Done 5/24 4:00 - 4:15 ~~20.2)~~ ACNW Working Group Meeting on Draft Final Guidance to Implement NRC's License Termination Rule (JHC/MPL)

Done 20.3) Recent Developments Related to Modeling the Igneous Activity in the Yucca Mountain Region (WJH/NMC) 4:45

Done 20.4) ICRP Draft Report, "The Scope of Radiological Protection Regulations" (MTR/NMC) 3:30

~~5:30~~ P.M. **Adjourn Day 3**
3:55

FRIDAY, MAY 26, 2006, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

21) 10:00 - 10:10 A.M. **Opening Remarks by the ACNW Chairman** (Open) (MTR/JTL)
The Chairman will make opening remarks regarding the conduct of today's sessions.

22) 10:10 - ~~11:45~~ A.M. **Overview of NRC Spent Fuel Storage Program** (Open) (AGC/RPS)
1:30
NMSS representatives will provide an overview of this NRC program. Brief.

23) 11:45 - 4:00 P.M. **Discussion of Draft ACNW Letter Reports** (Open) (All)
Continued discussion of proposed ACNW reports on:

Dropped 23.1) Additional Recommendations related to RES Programs (MTR/DAW/RPS)

5:45 Done 23.2) ACNW Working Group Meeting on Draft Final Guidance to Implement NRC's License Termination Rule (JHC/MPL)

3:30 Done 23.3) Recent Developments Related to Modeling the Igneous Activity in the Yucca Mountain Region (WJH/NMC)

23.4) ACNW Working Group Meeting on LLW Management Issues (MTR/MPL)

23.5) NAS Report on the Management of Certain Tank Wastes at DOE Sites (AGC/LSH)

23.6) NRC SRP for Waste Determinations (AGC/LSH)

23.7) Overview of NRC Spent Fuel Storage Program (AGC/RPS

24) 4:00 - 4:30 P.M. **Miscellaneous** (Open)
The Committee will discuss matters related to the conduct of ACNW activities and specific issues that were not completed during previous meetings, as time and availability of information permit. Discussions may include future Committee Meetings.

4:30 P.M. Adjourn

NOTES:

- Presentation time should not exceed 50 percent of the total time allocated item. The remaining 50 percent of the time is reserved for discussion.
- **Fifty (50) hard copies and one (1) electronic copy of the presentation materials should be provided to the ACNW in advance of the briefing.**
- 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. Michael R. Snodderly at 301-415-6927 between 8:00 a.m. and 5:00 p.m. prior to the meeting.

APPENDIX C: MEETING ATTENDEES

170TH ACNW MEETING
MAY 23-26, 2006

ACNW MEMBERS

Michael Ryan, Chairman
Allen Croff, Vice Chairman
James Clarke
William Hinze
Ruth Weiner

ACNW CONSULTANT

Howard Larson
David Kocher

ACNW STAFF

John Larkins
Neil Coleman
Antonio Dias
John Flack
Latif Hamdan
Michele Kellon
Richard Savio
Michael Snodderly
Ashok Thadani
Derek Widmayer

INVITED EXPERTS

D. Womeldorf, Southwester LLRW Commission
D. Kunihiro, Waste Control Specialists
J. Johnsrud, Sierra Club
P. Lohaus, Self
J. Clements, U. S. Army Corps of Engineers
J. Lieberman, Talisman International, LLC
B. House,
T. Rogers, Energy Solutions

ATTENDEES FROM THE NUCLEAR REGULATORY COMMISSION

MAY 23, 2006

S. Flanders	NMSS
T. Carter	NMSS
C. Craig	NMSS
N. Jensen	OGC
E. O'Donnell	RES
P. Reed	RES
M. Tokar	NMSS
D. Sollenberger	STP
J. Kennedy	NMSS
K. Compton	NMSS
L. Camper	NMSS

ATTENDEES FROM THE NUCLEAR REGULATORY COMMISSION (CONT'D

MAY 24, 2006

M. Tokar	NMSS
P. Reed	RES
D. Sollenberger	STP
M. Thaggard	NMSS
R. Johnson	NMSS
A. Campbell	NMSS

MAY 25, 2006

B. Leslie	NMSS
A. Ridge	NMSS
M. O'Shaughnessy	NMSS
D. Esh	NMSS
L. Camper	NMSS
C. Barr	NMSS
X. Yin	NMSS
A. Turner	NMSS
J. Mitchell	RES
D. Cool	NMSS
K. Compton	NMSS

MAY 26, 2006

None

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

MAY 23, 2006

E. Kunihiro	Waste Control Specialists
W. Bixby	DURATEK
G. Peterson	Department of Energy (DOE)
T. McDaniel	U.S. Army corps of Engineers (USACE)
H. Porter	SCDHEC
S. Jablonski	State of Texas
J. Joyce	DOE
J. Starmer	Terranear PMC
J. S. Bland	Chesapeake Nuclear Services
M. Mobley	Southeast Compact Comm.
S. Kowalewski	Southwest Compact Comm.
J. Wallace	Alaron Corporation
D. Darrigo	NIRS
P. Retallich	Clean Harbors Env. Svcs. Inc.
P. Grana	General Accounting Office

APPENDIX C
170TH ACNW MEETING
MAY 23-26, 2006

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

MAY 23, 2006 (Cont'd)

E. von Tiesenhausen	Clark County, NV
D. Schultheisz	Environmental Protection Agency (EPA)
K. Haynes	SECC
A. Pasternak	CAL RAD Forum
M. Letourneau	DOE
R. Janati	PADEP & Appalachian Compact
D. Earley	Southwest Compact Comm.
J. Ring	Harvard University
K. Yhip	Southern Calif. Edison
B. Hearty	USACE
H. Honerlah	USACE
C. Didign	Maryland Dept. of the Environment
E. Hammersberg	Maryland Dept. of the Environment
G. Dixon	DOE
F. Butterfield	EPA

via Teleconference

K. Rosenberg	Savannah River
L. Liehman	Hanford

MAY 24, 2006

S. Kowalewski	Southwestern Compact
C. Didign	Maryland Dept. of the Environment
R. Janati	PADEP & Appalachian Compact
G. Peterson	DOE
M. O'Mealia	Nevada
D. D'Arrigo	NIRS
J. Ring	Harvard University
E. von Tiesenhausen	Clark County, NV
B. Hearty	USACE
T. McDaniel	USACE
D. Schulthiesz	EPA
T. Buckner	Southeast Compact Comm.
K. Haynes	Southeast Compact Comm.
K. Hyip	Southern Calif. Edison
J. Wallace	Alaron Corp.
S. Jablonski	State of Texas
D. Earley	SWLLWC
A. Pasternak	CAL RAD Forum

APPENDIX C
170TH ACNW MEETING
MAY 23-26, 2006

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

MAY 25, 2006

E. von Tiesenhausen	Clark County, NV
M. Wartle	Weapons Complex Monitor
J. Wreathall	JW Co./TWWG

via Teleconference

K. Rosenberg	Savannah River

MAY 26, 2006

E. von Tiensenhausen	Clark County, NV
D. Fowler	Central Midwest Compact Comm.

APPENDIX D: FUTURE AGENDA

The Committee approved the following topics for discussion during its 171st meeting, scheduled for June 6–7, 2006:

- Overview of Commercial Spent Nuclear fuel Reprocessing
- Nuclear Regulatory Commission's Spent Nuclear Fuel Reprocessing Regulation
- Overview of the Application of NRC Regulations to Spent Nuclear fuel Reprocessing
- Discussion of Proposed White Paper on Spent Nuclear Fuel Reprocessing
- Discussion of Matters Related to the Conduct of ACNW Activities and Specific Issues That Were Not Completed During Previous Meetings
- Election of ACNW Officers

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
1-15	**ACNW Working Group Meeting on Low-Level Radioactive Waste Management Issues**

1. Barnwell Low-Level Radioactive Waste Disposal Facility, presented by Bill House, Chem-Nuclear Systems, LLC **[Viewgraphs]**
2. Energy Solutions Clive Disposal Facility, presented by Tye Rogers EnergySolutions **[Viewgraphs]**
3. Low Activity Waste Disposal At Waste Control Specialists, presented by William Dornsife, Waste Control Specialists (Texas) **[Viewgraphs]**
4. Alternative Disposal Options & Practices, presented by Steve Romano, American Ecology Corp./U.S. Ecology Inc. **[Viewgraphs]**
5. NRC's LLW Program, presented by Larry Camper, NMSS **[Viewgraphs]**
6. 10 CFR Part 61, Historical Perspectives on NRC's LLW Program, presented by Paul Lohaus, (NRC retired) **[Viewgraphs]**
7. Strategic Assessment and Rebaselining 1995--1997, presented by Malcolm Knapp (NRC retired), **[Viewgraphs]**
8. ACNW Presentation—May 23, 2006, presented by Don Womeldorf, Southwester Low-Level Radioactive Waste Commission **[Handout]**
9. ACNW Working Group, May 2006, presented by Henry Porter, South Carolina Department of Health & Environmental Control **[Viewgraphs]**
10. Enhancements to Safe and Economical Disposition of Low-Level Radioactive Waste (LLRW), presented by Ralph Andersen, Nuclear Energy Institute (NEI) **[Viewgraphs]**
11. Licensing a Low Level Radioactive Waste Disposal Facility...an Applicant's Perspective, presented by Dean Kunihiro, Waste Control Specialists **[Viewgraphs]**
12. Entergy — Utility Perspective on the LLRW Strategic Outlook, presented by Mark Carver, Mississippi **[Viewgraphs]**

MEETING HANDOUTS

AGENDA ITEM NO.	DOCUMENTS
1-15 (cont'd)	**ACNW Working Group Meeting on Low-Level Radioactive Waste Management Issues (Cont'd)**
	13. US Army Corps of Engineers' LARW Disposal Experiences, presented by Julie Clements, US Army Corps of Engineers **[Viewgraphs]**
	14. Radioactive Waste, an Academic and Medical View, presented by Joseph Ring, Ph.D., CHP, Harvard University **[Viewgraphs]**
	15. LLRW Disposal Under the Compact System and Issues for Consideration in Evaluating Alternative Options, presented by Todd Lovinger, LLW Forum, Inc. **[Viewgraphs]**
	16. LLRW Disposal Issues, presented by Jim Lieberman & John Greeves. Talisman International, LLC **[Viewgraphs]**
	17. NRC's LLW Program, presented by Scott Flanders, NMSS **[Viewgraphs]**
	18. Letter dated May 16, 2006, from William B. House, Chem-Nuclear Systems, LLC, to Michael T. Ryan, Ph.D., C.H.P., USNRC Advisory Committee on Nuclear Waste, transmitting a table containing occupational exposure information for truckdrivers who transported radioactive shipments for Chem-Nuclear Systems from 1976 to 1994 **[Handout]**
	19. Basic Factors About Commercial LLRW, Disposal at Federal Facilities. A Roundtable Discussion, presented by Bill House, Chem-Nuclear Systems, LLC **[Viewgraphs]**
	20. Radbench Low Level Radioactive Waste Data Collected ro GAO - 2005, presented by Sean Bushart, Electric Power Research Institute (EPRI) **[Viewgraphs]**
17	**National Academy of Sciences Report on the Management of Certain Tak Wastes at U.S. Department of Energy Sites**
	21. Tank Waste, Retrieval, Processing, and On-Site Disposal at Three Department of Energy Sites, Final Report, presented by Frank Parker, Vanderbilt University **[Viewgraphs]**
18	**NRC Standard Review Plan for Waste Determinations**
	22. Standard Review Planf or Activities Related to Waste Determinations. presented by Ryan Whited, Christianne Ridge, and David Esh **[Viewgraphs]**

MEETING HANDOUTS

AGENDA ITEM NO.	DOCUMENTS
19	**Review of International Commission on Radiological Protection Draft Report, "The Scope of Radiological Protection Regulations"**
	23. ICRP Draft Report: The Scope of Radiological Protection Regulation. presented by Don Cool, NMSS **[Viewgraphs]**
22	**Overview of NRC Spent Fuel Storage Program**
	24. Spent Fuel Project Office, presented E. William Brach, SFPO **[Viewgraphs]**
	25. Map of Current and Potential Independent Spent fuel Storage Installations

APPENDIX E
170TH ACNW MEETING
MAY 23-26, 2006

MEETING NOTEBOOK CONTENTS

TAB NUMBER (S)	DOCUMENTS
	Agenda,170th ACNW Meeting, June 6–7, 2006, dated May 4, 2006
	Color Code - 170th ACNW Meeting, dated May 10, 2006
1-15	**ACNW Working Group Meeting on Low-Level Radioactive Waste Management Issues**
	1. Status Report - Attachment 1, Agenda - Attachment 2, ACNW 206 Working Group Meeting on LLW Management Issues: Questions for WGM Participants
17	**National Academy of Sciences Report, "Management of Certain Tank Wastes at U.S. Department of Energy Sites**
	2. Agenda 3. Status Report
18	**NRC Standard Review Plan for Waste Determinations**
	4. Agenda 5. Status Report - Attachment 1 - SRP Development Time Line - Attachment 2 - SRP Annotated Outline - Attachment 3 - ACNW's December 9, 2005, Letter to Chairman Diaz
19	**Review of International Commission on Radiological Protection Draft Report, "The Scope of Radiological Protection Regulations"**
	6. Status Report
22	**Overview of NRC Spent Fuel Storage Program**
	7. Status Report