LLW notes

Volume 31 Number 5 September/October 2016

***U.S. Nuclear Regulatory Commission (NRC)***

# Release of SECY-16-0106 Request for Commission Approval to Publish Final Rule re Low-Level Radioactive Waste Disposal (10 CFR Part 61)

On October 3, 2016, the U.S. Nuclear Regulatory Commission (NRC) published SECY-16-0106, which seeks Commission approval to publish a final rule in the *Federal Register* that would amend Title 10 of the Code of Federal Regulations (10 CFR) Parts 20, "Standards for Protection Against Radiation," and Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste."

Subsequently, at the request of the Subcommittee on Radiation Protection and Nuclear Materials of the Advisory Committee on Reactor Safeguards (ACRS), NRC published the staff's draft final Part 61 guidance document (Guidance for Conducting Technical Analyses for 10 CFR Part 61) to support a public meeting with the full ACRS that is scheduled for November 3, 2016. In addition, NRC published a redline/ strikeout version of the draft final rule language.

In releasing the documents, NRC stresses that the comment period on this rulemaking is closed and that the staff is not soliciting comments on the draft final guidance and the draft final rule language.

The draft final rule language is with the Commission for their review. It is not final until the Commission votes.

*The proposed final Part 61 final rule and associated documents are available on the NRC website at http://www.nrc.gov/about-nrc/ regulatory/rulemaking/potential-rulemaking/uw-streams.html. For additional information regarding the ACRS meeting, please see related story in this issue.*

*(Continued on page 32)*

In This Issue

## COPYRIGHT POLICY

The Low-Level Radioactive Waste Forum, Inc. is dedicated to the goals of educating policy makers and the public about the management and disposal of low-level radioactive wastes, and fostering information sharing and the exchange of views between state and compact policy makers and other interested parties.

As part of that mission, the LLW Forum publishes a newsletter, news flashes, and other publications on topics of interest and pertinent developments and activities in the states and compacts, federal agencies, the courts and waste management companies. These publications are available to members and to those who pay a subscription fee.

Current members are allowed to distribute these written materials to a limited number of persons within their particular organization (e.g., compact commissioners, state employees, staff within a federal agency, employees in a commercial enterprise.) It has become clear, however, that there will be instances where members and subscribers wish to share LLW Forum materials with a broader audience of non-members.

This Copyright Policy is designed to provide a framework that balances the benefits of a broad sharing of information with the need to maintain control of published material.

1. LLW Forum, Inc., publications will include a statement that the material is copyrighted and may not be used without advance permission in writing from the LLW Forum.

2. When LLW Forum material is used with permission it must carry an attribution that says that the quoted material is from an LLW Forum publication referenced by name and date or issue number.

3. Persons may briefly summarize information reported in LLW Forum publications with general attribution (e.g., the LLW Forum reports that . . .) for distribution to other members of their organization or the public.

4. Persons may use brief quotations (e.g., 50 words or less) from LLW Forum publications with complete attribution (e.g., *LLW Forum Notes,* May/June 2002, p. 3) for distribution to other members of their organization or the public.

5. Members and subscribers may with written approval from the LLW Forum's officers reproduce LLW Forum materials one time per year with complete attribution without incurring a fee.

6. If persons wish to reproduce LLW Forum materials, a fee will be assessed commensurate with the volume of material being reproduced and the number of recipients. The fee will be negotiated between the LLW Forum's Executive Director and the member and approved by the LLW Forum's officers.

# Low-Level Radioactive Waste Forum, Inc.

*LLW Notes*
Volume 31, Number 5 September/October 2016
Editor and Writer: Todd D. Lovinger
Layout and Design: Rita Houskie, Central Interstate Low-Level Radioactive Waste Compact


*LLW Notes* is published several times a year and is distributed to the Board of Directors of the Low-Level Radioactive Waste Forum, Inc. — an independent, non-profit corporation. Anyone — including compacts, states, federal agencies, private associations, companies, and others — may support and participate in the LLW Forum, Inc. by purchasing memberships and/or by contributing grants or gifts. For information on becoming a member or supporter, please go to our website at www.llwforum.org or contact Todd D. Lovinger — the LLW Forum, Inc.'s Executive Director — at (754) 779-7551.



Directors that serve on the Board of the Low-Level Radioactive Waste Forum, Inc. are appointed by governors and compact commissions. The LLW Forum, Inc. was established to facilitate state and compact implementation of the Low-Level Radioactive Waste Policy Amendments Act of 1985 and to promote the objectives of low-level radioactive waste regional compacts. The LLW Forum, Inc. provides an opportunity for state and compact officials to share information with each another and to exchange views with officials of federal agencies and other interested parties.

## Table of Contents




LLW FORUM, INC.

Low-Level Radioactive Waste Forum, Inc.
2657 Bayview Drive
Ft. Lauderdale, FL 33306
(754) 779-7551
FAX (754) 223-7452
EMAIL llwforuminc@aol.com
INTERNET www.llwforum.org


**Key to Abbreviations**

| | |
|---|---|
| U.S. Department of Energy | DOE |
| U.S. Department of Transportation | DOT |
| U.S. Environmental Protection Agency | EPA |
| U.S. Government Accountability Office | GAO |
| U.S. Nuclear Regulatory Commission | NRC |
| Naturally-occurring and accelerator-produced radioactive material | NARM |
| Naturally-occurring radioactive material | NORM |
| Code of Federal Regulations | CFR |

***Low-Level Radioactive Waste Forum, Inc.(LLW Forum)***

# LLW Forum to Hold Fall 2016 Meeting

***Saratoga Springs, New York***
***November 7-8, 2016***

The fall 2016 Low-Level Radioactive Waste Forum (LLW Forum) meeting will be held at the Embassy Suites by Hilton Saratoga Springs Hotel on November 7-8, 2016.

The New York State Energy and Research Development Authority (NYSERDA) is sponsoring the meeting.

*The meeting documents—including a draft agenda, meeting bulletin and registration form—have been posted to the LLW Forum's web site at www.llwforum.org.*

**Attendance**

Officials from states, compacts, federal agencies, nuclear utilities, disposal operators, brokers/ processors, industry, and other interested parties are invited and encouraged to attend.

The meeting is an excellent opportunity to stay up-to-date on the most recent and significant developments in the area of low-level radioactive waste management and disposal. It also offers an important opportunity to network with other government and industry officials and to participate in decision-making on future actions and endeavors affecting low-level radioactive waste management and disposal.

**Agenda Topics**

The following is a list of agenda topics for the meeting:

- panel session re decommissioning lessons learned, considerations and planning;
- GAO-16-330 report titled, *Nuclear Security: NRC Has Enhanced the Controls of Dangerous Radioactive Materials, but Vulnerabilities Remain*, and NRC response to the GAO audit and investigation, actions to date and path forward;
- overview and next steps re NRC's byproduct material financial assurance scoping study;
- emergency protective action protocol and transition from to a keyhole approach involving sheltering and/or evacuation of the public during a nuclear power plant incident;
- Radiological Operatives Support Specialist (ROSS): integrating health physics into emergency response and shelter/evacuation assessment for radiological terrorism;
- implementation of changes to North Dakota's radiologic health and solid waste management rules regarding Technologically Enhanced Naturally Occurring Radioactive Material (TENORM);
- survey results re alternative technologies for irradiators and other radioactive sources and devices;
- U.S. Nuclear Regulatory Commission (NRC) regulatory activities and updates including Part 61 rulemaking initiative; low-activity waste scoping study; and, strategic assessment for the low-level waste branch;
- implementation of new Part 37 requirements and review of cyber-security for nuclear-related issues;
- U.S. Environmental Protection Agency (EPA) activities and updates including public comments and next steps re the 40 CFR Part 190 Advanced Notice of Proposed Rulemaking (ANPR);
- updating of the Protective Actions Guides and Planning Guidance for Radiological Incidents;
- background, overview, waste considerations and path forward re U.S. Department of

Energy (DOE) Separations Process Research Unit Decommissioning Project;
- management and disposition of Greater-than-Class C Waste, transuranic waste and spent fuel;
- DOE activities and updates;
- updates and activities re the Waste Control Specialists commercial and federal low-level radioactive waste disposal facility in Andrews County, Texas; and,
- updates and activities re the Clive low-level radioactive waste disposal facility in Tooele County, Utah.

**Location and Dates**

The fall 2016 LLW Forum meeting will be held on Monday, November 7 (9:00 am – 5:00 pm) and Tuesday, November 8 (9:00 am – 1:00 pm) at:

Embassy Suites by Hilton Saratoga Springs
86 Congress Street
Saratoga Springs, New York 12866

Located in the heart of downtown Saratoga Springs, the Embassy Suites is walking distance to the Saratoga Heritage Area Visitor's Center,

*(Continued on page 6)*

# Save the Date Notice for Spring 2017 LLW Forum Meeting

***Embassy Suites Downtown Hotel in Denver, Colorado***
***April 24-25, 2017***

Please mark your calendars for the spring 2017 meeting of the Low-Level Radioactive Waste Forum (LLW Forum), which will be held at the Embassy Suites Downtown/Convention Center Hotel in Denver, Colorado from April 24-25, 2017.

**Meeting Logistics**

This will be a one and one-half day meeting beginning at 9:00 a.m. on Monday and concluding at 1:00 p.m. on Tuesday.

The meeting is being co-sponsored by the Rocky Mountain Low-Level Radioactive Waste Board and the Midwest Interstate Low-Level Radioactive Waste Compact Commission.

Meeting registration and the hotel block information will be released in late 2016.

**Attendance**

Officials from states, compacts, federal agencies, nuclear utilities, disposal operators, brokers/ processors, industry, and other interested parties are encouraged to attend the spring 2017 LLW Forum meeting.

LLW Forum meetings are an excellent opportunity to stay up-to-date on the most recent and significant developments in the area of low-level radioactive waste management and disposal. They also offer an important opportunity to network with other government and industry officials and to participate in decision-making on future actions and endeavors affecting low-level radioactive waste management and disposal.

**Background**

The LLW Forum is a non-profit organization of representatives appointed by Governors and compact commissions that seeks to facilitate state and compact implementation of the Low-Level Radioactive Waste Policy Act of 1980 and its 1985 amendments, as well as to promote the objectives of regional low-level radioactive waste disposal compacts.

The LLW Forum meets twice per year—once in the spring and once in the fall—at different

locations throughout the country. LLW Forum members take turns sponsoring the meetings.

*If you have questions or require additional information, please contact Todd D. Lovinger, Esq.—Executive Director of the LLW Forum and Project Director of the Disused Sources and Part 61 Working Groups (DSWG/P61WG)—at (754) 779-7551 or at LLWForumInc@aol.com.*

*(Continued from page 5)*

Congress Park, the Canfield Casino, and Broadway for its restaurants and shopping.

**Registration**

All persons must pre-register for the meeting and pay any associated registration fees in order to be allowed entry. Registration forms are needed in order to ensure that you receive a meeting packet and name badge. Accordingly, interested attendees are asked to please take a moment to complete and return the registration form at your earliest convenience.

The meeting is free for up to two individuals representing members of the LLW Forum. Additional and non-member registration is $500, payable by check only to the "LLW Forum, Inc." (Credit card payments are not accepted.)

**Transportation and Directions**

Saratoga Springs is a 30-minute drive from the Albany International Airport. A taxi from the airport to the hotel is a minimum estimated charge of $50/each way. Driving directions from both airports can be found at http://embassysuites3.hilton.com/en/hotels/new-york/embassy-suites-by-hilton-saratoga-springs-ALBESES/maps-directions/index.html. Parking at the hotel is free.

*For additional information, please contact Todd D. Lovinger, the LLW Forum's Executive Director, at (754) 779-7551 or go to* www.llwforum.org.

***LLW Forum/Disused Sources Working Group***

# Disused Sources Working Group to Meet

***Saratoga Springs, New York***
***November 8-9, 2016***

On November 8-9, 2016, immediately following the conclusion of the fall 2016 meeting of the Low-Level Radioactive Waste Forum (LLW Forum), the Disused Sources Working Group (DSWG) will meet in Saratoga Springs, New York.

**Agenda Items**

During the meeting, among other things, the DSWG will:

- review stakeholder comments on educational materials for current and prospective licensees of radioactive sources and devices that are being developed in conjunction with the CRCPD's E-34 Committee; and,

- provide an overview of the working group's activities to date and receive input from organizational representatives of the Conference of Radiation Control Program Directors (CRCPD), the Organization of Agreement States (OAS) and the Health Physics Society (HPS) to identify areas of agreement and open a dialogue about the path forward.

The fall 2016 DSWG meeting will be open to DSWG members and invited guests.

*For additional information and ongoing updates, interested stakeholders are encouraged to go to the DSWG web site at www.disusedsources.org.*

**Educational Materials**

The DSWG, in conjunction with CRCPD's E-34 Committee, is developing educational materials—including letters and brochures—for prospective and current licensees of radioactive sealed sources and devices. Once finalized, the DSWG will make these materials available to state and federal agencies, as well as other interested stakeholders.

The DSWG gave oral and/or poster presentations on the educational materials at:

- the HPS annual meeting in Spokane, Washington from July 17-21, 2016; and,
- the OAS annual meeting in Denver, Colorado from August 21-25, 2016.

**Background**

The LLW Forum is a non-profit organization of representatives appointed by Governors and compact commissions that seeks to facilitate state and compact implementation of the Low-Level Radioactive Waste Policy Act of 1980 and its 1985 amendments, as well as to promote the objectives of regional low-level radioactive waste disposal compacts.

In September 2011, the LLW Forum formed the Disused Sources Working Group (DSWG) to develop recommendations from the states and compacts for improving the management and disposition of disused sources.

*For additional information about the DSWG, please contact Project Director Todd D. Lovinger, Esq at (754) 779-7551 or at LLWForumInc@aol.com.*

***Appalachian Compact/State of West Virginia***

# Nuclear Gauge Reported Stolen in West Virginia

A West Virginia company has notified the U.S. Nuclear Regulatory Commission (NRC) that a portable moisture-density gauge containing sealed sources of radioactive material has been stolen.

Thrasher Engineering of Bridgeport, West Virginia reported that the device was stolen early on Saturday (September 10, 2016) from a technician's truck while it was parked in Beaver, West Virginia.

**Background**

Surveillance video acquired by local police shows an individual parking a white pickup truck next to the truck holding the gauge and then transferring the device to his or her vehicle. The gauge was apparently locked by two different means, as required by NRC regulations.

The gauge holds small amounts of cesium-137 and americium-241. It is used to make measurements by projecting the radiation from the two radioactive sources into the ground and then displaying the reflected radiation on a dial on its top.

Stored in a robust, yellow transportation case when not in use, the gauge consists of a shielding container with a plunger-type handle protruding from the top. As long as the radioactive sources are in the shielded position, the gauge would present no hazard to the public. However, any attempt to tamper with the radioactive sources in the device could subject the person to radiation exposure.

Handling of the unshielded sources outside their container would carry a risk of potentially dangerous radiation exposure.

**Recovery Sought**

Anyone seeing the gauge should leave it alone and report its location to the NRC's Operations Center at (301) 816-5100 or the Raleigh County, West Virginia Sheriff's Office at (304) 255-9300. The NRC Operations Center is staffed 24 hours a day and accepts collect calls.

An NRC inspector will be sent to the company's offices to gather more information on the loss of the gauge.

Law enforcement authorities are investigating the theft. The West Virginia Department of Health and Human Resources (DHHR) has been notified about the loss of the gauge.

*For additional information, please contact Diane Screnci at (610) 337-5330 or Neil Sheehan at (610) 337-5331.*

***Central Midwest Compact***

# Central Midwest Compact Commission Holds Annual Meeting

On September 27, 2016, the Central Midwest Interstate Low-Level Radioactive Waste Compact Commission (CMCC) held its annual meeting beginning at 10:00 a.m. EDT/9:00 a.m. CDT.

The meeting was held at the Kentucky Radiation Health Branch offices located at 275 E. Main Street in Frankfort, Kentucky.

The following items were on the tentative meeting agenda:

- Call to Order
- Adoption or Modification of the Agenda
- Election of Officers
- Adoption of Minutes from the Previous Meeting—April 26, 2016
- Executive Session
- First Public Comment Period
- Reports
  - Chairman & Host State Report
  - Executive Assistant Report
- Acceptance of Auditor's Report
- Adoption of Fiscal Year 17 Budget
- Acceptance of Annual Report
- CMCC Annual Report Discussion
  - Kentucky Input
  - Illinois Input
- Discussion/Review of the CMCC Regional Management Plan
  - Kentucky Comments
  - Illinois Comments
- Clinton and Quad Cities Possible NPP Shutdown—Actions Required by the CMCC When/If Decommissioning Occurs
- Kentucky Update on Maxey Flatts and Paducah Gaseous Diffusion Plant
- Other Business
  - Unfinished Business
  - New Business
- Second Public Comment Period
- Next Scheduled Meeting or Announcement of Special Meeting
- Adjournment

Interested stakeholders were able to participate via videoconference at locations in both Kentucky and Illinois, as well as by teleconference.

*For additional information, please contact Joseph Klinger, Chairman of the Central Midwest Interstate Low-Level Radioactive Waste Compact Commission, at (217) 836-3018 or go to http://www.cmcompact.org.*

***Northwest Compact/State of Utah***

# Utah Waste Management and Radiation Control Board Meets

In September and October 2016, the Utah Waste Management and Radiation Control Board (Board) held regularly scheduled meetings in Salt Lake City, Utah.

The meetings, which were open to the public, were held in Conference Room 1015 of the Department of Environmental Quality (DEQ) Board Room on the first floor of the Multi Agency State Office Building in Salt Lake City, Utah.

**September 2016 Meeting**

The following items, among others, were on the agenda for the September 8, 2016 Board meeting:

I. Call to Order

II. Approval of Meeting Minutes for the August 15, 2016 Board Meeting *(Board Action Item)*

III. Underground Storage Tanks Update

IV. Underground Storage Tank Rules

  A. Approval to Proceed with Formal Rulemaking and 30-Day Public Comment Period for Changes to the Underground Storage Tank Rules R311-200, R311-201, R311-202, R311-203, R311-206 and R311-212 *(Board Action Item)*

V. X-Ray Program

  A. Exemption Request for the Sensus SRT-100 Machine from the Requirements of R313-30-3(3), R313-30-3(4), R313-30-3(5) and R313-30-3(6) *(Board Action Item)*

VI. Report to Legislature

  A. Review of Comments and Final Approval of the Evaluation of Closure, Post-Closure and Perpetual Care for Hazardous and Radioactive Waste Treatment and Disposal Facilities, Report to Legislature *(Board Action Item)*

VII. Other Business

  A. Miscellaneous Information Item

  B. Scheduling of Next Board Meeting

VIII. Adjourn

**October 2016 Meeting**

The following items, among others, were on the agenda for the October 13, 2016 Board meeting:

I. Call to Order

II. Introduction of Nathan Rich—New Board Member

III. Approval of Meeting Minutes for the September 8, 2016 Board Meeting *(Board Action Item)*

IV. Underground Storage Tanks Update

V. Administrative Rules

  B. Final Adoption of Repeal of Rule R313-27, Medical Use Advisory Committee *(Board Action Item)*

VI. Used Oil Program

B. Approval to Proceed with Formal Rulemaking and 30-Day Public Comment Period for Used Oil Rules, R315-15-13 *(Board Action Item)*

VII. X-Ray Program

A. Request for Exclusion from Certain Requirements of R313-28-31(5) *(Board Action Item)*

VIII. Other Business

C. Miscellaneous Information Item

D. Scheduling of Next Board Meeting

IX. Adjourn

**Background**

The Board—which is appointed by the Utah Governor with the consent of the Utah Senate—guides development of Radiation Control policy and rules in the state.

The Board holds open meetings ten times per year at locations throughout the state. A public comment session is held at the end of each meeting.

*Copies of the Utah Waste Management and Radiation Control Board meeting agendas and packet information can be found at http://www.deq.utah.gov/boards/waste/meetings.htm.*

*For additional information, please contact Rusty Lundberg, Deputy Director of the Division of Waste Management and Radiation Control at the Utah Department of Environmental Quality, at (801) 536-4257 or at rlundberg@utah.gov.*

# Utah Seeks Comment re Exemption Request from Sensus Healthcare

The Director of the Utah Division of Waste Management and Radiation Control is seeking public comment on a request from Sensus Healthcare, the manufacture of the SRT-100, for an exemption from certain provisions of the Utah Administrative Code applicable to the use of external beam radiation devices by dermatologists in superficial radiation therapy for the treatment of non-melanoma skin cancers.

**Overview**

In particular, Sensus is requesting exemption from the following provisions of the Utah Administrative Code:

- R313-30-3(3), *Training for External Beam Radiation Therapy Authorized Users;*
- R313-30-3(4), *Training for Radiation Therapy Physicist;*
- R313-30-3(5), *Qualifications of Operators;* and,
- R313-30-3(6), *Written Safety Procedures and Rules.*

The basis for this request is that the current rules were written at a time when most radiation therapy machines in use were for treatment of tumors within the body, whereas the Sensus machine is for superficial treatment of non-melanoma skin cancers. Sensus believes that the training requirements place an undo cost burden on the dermatologist using the SRT-100 with no health benefit.

**Public Comment**

On September 9, 2016, the Waste Management and Radiation Control Board granted a 90-day exemption for use of the Sensus SRT-100 by a local dermatologist.

**Proposed Requirements** Prior to taking final action on the exemption request, the Board will consider public comment on the exemption request as well as public comment on the following proposed requirements that will be imposed on all users of the Sensus SRT-100 should the Board grant the exemption:

- Sensus shall conduct training of dermatologists to allow them to be the Authorized User of the SRT-100;
- training shall be conducted using the training materials and duration described in the Sensus July 28, 2016 exemption request to the Director (DRC-2016-008950);
- Sensus shall document the training by forwarding a Certificate of Training to the Director for each person trained;
- Sensus shall notify the Director whenever a SRT-100 unit is sold in Utah; and,
- facilities using SRT-100 units will be responsible for having an annual survey of the unit done by a Utah Registered Qualified Expert (QE).

**Comment Period** Public comment period began on September 29, 2016 ended on October 30, 2016. The proposed exemption would be valid until the Board adopts rules covering the training requirements for units such as the Sensus SRT-100.

*More information related to the exemption request can be found at http://www.deq.utah.gov/NewsNotices/notices/waste/index.htm#phacp.*

*For additional information, please contact Ralph Bohn, Manager of the Planning/Technical Support Section, Division of Waste Management and Radiation Control, Utah Department of Environmental Quality, at (801) 536-0212 or at rbohn@utah.gov.*

***Southeast Compact***

# Scott Kirk Named 2017 Hodes Award Recipient

The Southeast Compact Commission for Low-Level Radioactive Waste Management has selected Scott Kirk, Director of Regulatory Affairs for BWX Technologies, as the recipient of the 2017 Richard S. Hodes, M.D. Honor Lecture Award—a program that recognizes an individual, company, or organization that has contributed in an innovative way to improving the technology, policy, or practices of low-level radioactive waste management in the United States.

In naming the award recipient, the Southeast Compact Commission announcement stated in part as follows:

> Mr. Kirk is being recognized for his innovative efforts in solving LLRW management challenges in the United States by:
>
> - Conceiving and perfecting the idea of placing very low activity LLRW in a near-surface landfill based on a performance assessment that showed the predicted dose did not exceed regulatory limits;
> - Proposing a near-surface disposal option for Greater than Class C (GTCC) waste that is currently under consideration by the US Nuclear Regulatory Commission (NRC) and the State of Texas; and

- Submitting an application to the NRC to construct and operate a consolidated interim storage facility for spent nuclear fuel.

In addition, the Commission commends Mr. Kirk for his contribution to the professionalism of health physics and radiation safety programs at the Texas Low-Level Radioactive Waste Disposal Compact's regional disposal facility in Andrews County, Texas.

Mr. Kirk's efforts have improved radiation health and safety and provided additional economical and safe disposal and storage options for LLRW, GTCC waste, and spent reactor fuel. His creative work clearly exemplifies the spirit and commitment that the Hodes Award is intended to recognize.

As the award recipient, Kirk will present a lecture during the 2017 Waste Management conference in Phoenix, Arizona. The conference is sponsored by WM Symposia and will be held from March 5 - 9, 2017 at the Phoenix Convention Center. A specific time is reserved on Monday (March 6, 2017) for the lecture and the presentation of the award.

**Background**

Dr. Richard S. Hodes was a distinguished statesman and a lifetime scholar. He was one of the negotiators of the Southeast Compact law, in itself an innovative approach to public policy in waste management. He then served as the chair of the Southeast Compact Commission for Low-Level Radioactive Waste Management from its inception in 1983 until his death in 2002.

Throughout his career, Dr. Hodes developed and supported innovation in medicine, law, public policy, and technology. The Richard S. Hodes, M.D. Honor Lecture Award was established in 2003 to honor the memory of Dr. Hodes and his achievements in the field of low-level radioactive waste management.

**Past Recipients**

The following individuals and entities are past recipients of the Richard S. Hodes, M.D. Honor Lecture Award:

- W.H. "Bud" Arrowsmith (2004);
- Texas A & M University Student Chapter of Advocates for Responsible Disposal in Texas (2004 *honorable mention*);
- William Dornsife (2005);
- California Radioactive Materials Management Forum (2006);
- Larry McNamara (2007);
- Michael Ryan (2008);
- Susan Jablonski (2009);
- Larry Camper (2010);
- Christine Gelles (2011);
- Lawrence "Rick" Jacobi (2012);
- James Kennedy (2013);
- Energy*Solutions*, the Utah Department of Environmental Quality (UDEQ), the Conference of Radiation Control Program Directors (CRCPD), and the U.S. Department of Energy's (DOE) Global Threat Reduction Initiative (2013 *honorable mention*);
- Electric Power Research Institute (2014);
- Energy*Solutions* and the UDEQ (2015);and,
- Louis F. Centofanti (2016).

**The Award**

The Richard S. Hodes Honor Lecture Award—established in March, 2003—is awarded to an individual, company, or organization that contributed in a significant way to improving the technology, policy, or practices of low-level radioactive waste management in the United States.

The award recipients are recognized with a special plaque and an invitation to present a lecture about the innovation during the annual international Waste Management

Symposium. The 2017 symposium is sponsored by the University of Arizona and will be held in Phoenix, Arizona in the spring of 2017 .

A special time is reserved during the Symposium for the lecture and the award presentation. The Southeast Compact Commission will provide the award recipient a $5,000 honorarium and will pay travel expenses and per diem (in accordance with Commission Travel Policies) for an individual to present the lecture.

**Criteria**

The Richard S. Hodes Honor Lecture Award recognizes innovation industry-wide. The award is not limited to any specific endeavor—contributions may be from any type of work with radioactive materials (nuclear energy, biomedical, research, etc.), or in any facet of that work, such as planning, production, maintenance, administration, or research. The types of innovations considered include, but are not limited to:

- conception and development of new approaches or practices in the prevention, management, and regulation of radioactive waste;
- new technologies or practices in the art and science of waste management; and,
- new educational approaches in the field of waste management.

The criteria for selection include:

1. *Innovation*. Is the improvement unique? Is it a fresh approach to a standard problem? Is it a visionary approach to an anticipated problem?
2. *Safety*. Does the practice enhance radiation protection?
3. *Economic*s. Does the approach produce significant cost savings to government, industry or the public?
4. *Transferability*. Is this new practice applicable in other settings and can it be replicated? Does it increase the body of technical knowledge across the industry?

*For additional information, please contact the Southeast Compact Commission at (919) 380-7780 or at secc@secompact.org.*

# Southeast Compact Commission's Administrative Committee Holds Teleconference Meeting

On September 6, 2016, the Administrative Committee of the Southeast Compact Commission for Low-Level Radioactive Waste Management held a teleconference meeting beginning at 10:00 a.m. ET.

**Overview**

The teleconference began with an Executive Session to discuss the renewal of a contract with the Executive Director to continue employment and then reconvened to consider any recommendation to the Commission regarding the renewal of that contract.

**Agenda**

The following was the agenda for the Administrative Committee meeting:

- Introduction and Remarks (Donna Hodges, Chair)
- Public Comment Pertaining to Agenda Items Only (Public)
- Approval of Minutes from June 22, 2016 (Committee Members)

- Consideration of Renewal of the Contract with the Executive Director to Continue Employment (Committee Members)
- Other Business (Committee Members)
- Public Comment (Public)
- Adjourn

*For additional information, please contact the Southeast Compact Commission at (919) 380-7780 or at secc@secompact.org.*

***Southeast Compact/State of Tennessee***

# TVA's Watts Bar Unit 2 Achieves Commercial Operation

***First New U.S. Nuclear Reactor in 20 Years***

On October 19, 2016, the Tennessee Valley Authority's (TVA's) Watts Bar Unit 2 officially entered commercial operation after successfully completing an extensive series of power ascension tests and reliably operating at full power for more than three weeks, becoming the nation's first new nuclear generation in 20 years.

"TVA's mission is to make life better in the Valley by providing reliable, low-cost energy, protecting our area's natural resources and working to attract business and growth—all priorities simultaneously supported by the completion of Watts Bar Unit 2," said Bill Johnson, TVA President and CEO. "Watts Bar Unit 2 is a key part of our commitment to produce cleaner energy without sacrificing the reliability and low cost that draws both industry and residents to our area."

According to TVA, the $4.7 billion capital construction project was completed on budget. The unit now moves to working asset status.

**Overview**

In announcing the milestone, TVA notes that the Watts Bar Unit 2 has already provided consumers across the Valley with more than 500 million kilowatt/hours of carbon-free energy during testing. It now joins six other operating TVA nuclear units to supply more than one third of the region's generating capacity and meeting the electric needs of more than 4.5 million homes.

Watts Bar, Sequoyah and Browns Ferry nuclear stations have also contributed to reducing TVA's carbon emissions by 30 percent since 2005. According to TVA, the reduction will rise to 60 percent by 2020.

"Nuclear power remains the only source of carbon-free energy that is available 24 hours a day, seven days a week," said Joe Grimes, TVA Executive Vice President of Generation and Chief Nuclear Officer. "TVA believes that Watts Bar Unit 2, and other nuclear units like it across the Valley and the nation, represents a vital investment in our clean energy future."

**Background**

In 1973, TVA—one of the nation's largest public power providers—began building two reactors that combined promised to generate enough power to light up 1.3 million homes. TVA suspended plans for the Watts Bar Unit 2 reactor in the late 1980s. The Watts Bar Unit 1 reactor, however, eventually went live in 1996. In 2007, TVA resumed construction on Watts Bar Unit 2.

TVA is a corporate agency of the United States that provides electricity for business customers and local power distributors serving more than 9 million people in parts of seven southeastern states. TVA receives no taxpayer funding, deriving virtually all of its revenues from sales of

electricity. In addition to operating and investing its revenues in its electric system, TVA provides flood control, navigation and land management for the Tennessee River system and assists local power companies and state and local governments with economic development and job creation.

***Southwestern Compact***

# Southwestern Compact Commission Hosts 73rd Meeting

On October 7, 2016, the Southwestern Low-Level Radioactive Waste Commission hosted its 73rd meeting beginning at 9:00 a.m. PDT at the Hyatt Regency in Sacramento, California.

The following topics, among others, were on the meeting agenda:

- call to order;
- roll call;
- welcome and introductions—announce retirement of Commissioner Godwin, introduce Brian Goretzki of Arizona;
- statement regarding due notice of meeting;
- reports, status and/or activity;
  - Commission Chair;
  - Executive Director;
  - licensing agency;
  - license designee; and,
  - party states;
- presentation by Chris Shaw of WCS;
- update on sealed sources—QalTek;
- exportation actions;
  - ratification of approved petitions;
  - amend "Policy of the Southwestern Low-Level Radioactive Waste Commission Regarding Exportation of Various Low-Level Radioactive Waste Streams" to extend effective date;
  - amend "Requirements for Exportation Petitions for Low-Level Radioactive Waste Disposal" to extend effective date; and,
  - review petitions for Energy*Solutions* and WCS for 2017.
- Executive Session pursuant to CA Gov. Code §11126(a)(1) to discuss staff performance evaluations;
- review and approve Executive Director's and Counsel's contracts;
- review and approve financial audit report;
- review and approve letter of intent for 2016 audit;
- review and approve Annual Governor's Report;
- amend fiscal year 2016-17 budget;
- approve fiscal year 2017-18 budget;
- adopt fee schedule;
- public comment;
- election of officers;
- future agenda items;
- next meeting; and,

- adjournment.

Members of the public were invited to attend the meeting and comment on specific agenda items as the Commission considered them. The total public comment time on each agenda item was limited to 15 minutes. Written material was also accepted. A 15-minute public comment period was provided near the end of the meeting at which time members of the public were invited to bring before the Commission issues relating to low-level radioactive waste but which were not on the agenda.

*For additional information, please contact Kathy Davis, Executive Director of the Southwestern Compact Commission, at (916) 448-2390 or at swllrwcc@swllrwcc.org.*

***Southwestern Compact/State of North Dakota***

# North Dakota Ratifies TENORM Rules

On August 9, 2016, the Advisory Council to the North Dakota Department of Health (NDDH) voted unanimously to ratify new rules allowing the disposal of up to 50 picocuries of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) waste from oil and gas production in specially permitted landfills.

The rules were scheduled to go into effect in January 2016. However, after two environmental watchdog groups sued the NDDH, a district court held that proper notice was not provided for an August 2015 public meeting. Thereafter, the NDDH scheduled the new hearing for August 9, 2016, at which the rules were unanimously ratified.

**NDDH Rule**

In late 2013, NDDH promulgated a draft rule based on suggested state regulations developed by the Conference of Radiation Control Program Directors (CRCPD). The draft rule, among other things, allowed for the disposal of up to 50 picocuries of TENORM waste from oil and gas production in specially permitted landfills. In addition, the draft rule established requirements for waste hauler licensing, applicant background and criminal history checks, specific record keeping requirements, and RSO training requirements for certain license types.

North Dakota rules require that at least one public hearing be held for the draft rules, including a 30-day notice before the hearing and a 30-day comment period. NDDH held three public hearings on the draft rule and extended the comment period to 80 days.

At a public meeting on August 12, 2015, the NDDH approved new rules allowing the disposal of up to 50 picocuries of TENORM waste from oil and gas production in specially permitted landfills. The Dakota Resource Council and the North Dakota Energy Industry Waste Coalition, however, sued NDDH over the new rules. A district court ruled that proper notice was not provided for the August 2015 meeting.

After the August 2016 meeting, local news media reported that the Advisory Council's attorney planned to ask a district court judge for a summary judgment to end the lawsuit, but the plaintiffs' attorney reportedly intends to continue the suit.

The NDDH currently has two applications pending for the licensing of radioactive disposal facilities in the state, with a third application having been shelved.

**TENORM Study**

In November 2014, the Environmental Science Division of the Argonne National Laboratory (Argonne) released a report titled, *"Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota."* (See *LLW Notes*, January/February 2015, pp. 1, 19-23.)

The report documents the results of a radiological dose and risk assessment of the disposal of TENORM wastes in permitted industrial waste and special waste landfills in North Dakota. The NDDH requested that Argonne conduct the assessment to ensure that any possible rule changes regarding the handling and disposal of TENORM are protective of human health and the environment.

*Copies of the North Dakota TENORM and other DOE reports produced after 1991, as well as some pre-1991 documents, may be obtained via DOE's SciTech Connect online at http://www.osti.gov/scitech/.*

*For additional information, please contact Dale Patrick of the NDDH at (701) 328-5188 or at dpatrick@nd.gov.*

***Texas Low-Level Radioactive Waste Disposal Compact Commission***

# Texas Compact Commission Holds September 2016 Meeting

On September 29, 2016, the Texas Low-Level Radioactive Waste Disposal Compact Commission (Texas Compact Commission) held a regularly scheduled meeting in Burlington, Vermont.

The meeting began at 9:30 a.m. EDT/8:30 a.m. CDT. It was held in the Green Mountain Ballroom Salons (BC) at the Hilton Burlington Hotel, which is located at 60 Battery Street in Burlington, Vermont.

*The formal meeting agenda is available on the Texas Compact Commission's web site at www.tllrwdcc.org.*

**Agenda**

The following is an abbreviated overview of the agenda for the Texas Compact Commission meeting. Persons interested in additional detail are directed to the formal agenda themselves.

- call to order;
- roll call and determination of quorum;
- introduction of Commissioners, elected officials and press;
- public comment;
- Vermont Governor Peter Shumlin will address the Commission;
- discussion by Entergy Vermont Yankee regarding the closure and decommissioning of the Vermont Yankee nuclear power plant;

- consideration of and possible action on applications and proposed agreements for importation of low-level radioactive waste from Tennessee Valley Authority; RAM Services; Qal-Tek; Alaron Veolia; PG & E; SNC – Plant Vogtle; Duke – Brunswick; Duke – Brunswick (irradiated hardware); and, Dominion Kewaunee;

- consideration of and possible action on petitions and proposed orders for exportation of low-level radioactive waste from Triad Isotopes and the University of Vermont;

- receive reports from Waste Control Specialists LLC (WCS) about recent site operations and any other matter WCS wishes to bring to the attention of the Texas Compact Commission;

- receive reports from Texas Compact Commission committees including the Rules Committee (as Chaired by Commissioner Morris) and the Capacity Committee (as Chaired by Commissioner Weber);

- consideration and possible action to authorize the Chair to evaluate and potentially select alternative and/or additional service providers for IT and website related activities—initial scope will include maintenance of present website, evaluation of alternative platforms and implementation of workflow automation tools with an initial budget not to exceed $5,000;

- Chairman's report on Texas Compact Commission activities including reporting on fiscal matters to be taken by the compact and addressing personnel matters;

- report from Leigh Ing, Executive Director of the Texas Compact Commission, on her activities and questions related to Texas Compact Commission operations;

- discussion and possible changes of dates and locations of future Texas Compact Commission meetings in 2016 and 2017; and,

- adjourn.

**Background**

The Texas Compact Commission may meet in closed session as authorized by the Texas Open Meetings Act, Chapter 551, Texas Government Code. Texas Compact Commission meetings are open to the public.

*For additional information, please contact Texas Compact Commission Executive Director Leigh Ing at (512) 305-8941 or at* leigh.ing@tllrwdcc.org.

***Nuclear Power Plants and Other NRC Licensees***

# News Briefs for Nuclear Power Plants Across the Country

The following news briefs provide updates on recent activities, enforcement actions and general events at nuclear power plants and other licensees around the country. The briefs are organized by compact and state.

*For additional information, please contact the referenced facility or licensee.*

**Atlantic Compact/States of New Jersey and South Carolina**

**William States Lee Site** On October 5, 2016, the U.S. Nuclear Regulatory Commission conducted a mandatory hearing on an application for Combined Licenses to build and operate two new reactors at the William States Lee site in South Carolina. The public hearing marked the final step in the agency's Part 52 reactor licensing process. "My fellow Commissioners and I look forward to carefully evaluating whether the available safety and environmental review evidence supports the necessary regulatory findings for the licenses," said NRC Chair Stephen Burns. "The complex job of reviewing these applications is a critical part of our regulatory and safety mission." The Commission's hearing included testimony and exhibits from applicant Duke Energy Carolinas, as well as NRC staff, on the question of whether the staff's review adequately supports the findings necessary to issue the licenses. Duke is applying for permission to build and operate two AP 1000 reactors at the site, which is located near Gaffney in Cherokee County, South Carolina. Duke submitted the application on December 12, 2007. The NRC certified the 1,100-megawatt AP1000 design in 2011. The NRC's Advisory Committee on Reactor Safeguards (ACRS) independently reviewed aspects of the application that concern safety, as well as the staff's final safety evaluation report. The committee provided the results of its review to the Commission on December 14, 2015. The NRC completed its environmental review and issued the final impact statement for the proposed William States Lee reactors in December 2013. *Additional information on the certification process is available on the NRC website at www.nrc.gov. For additional information, please contact Scott Burnell of the NRC at (301) 415-8200.*

**Tetra Tech EC, Inc.** On October 11, 2016, NRC announced that the agency has issued a confirmatory order to Tetra Tech EC Inc. of Morris Plains, New Jersey. The order confirms actions the company is required to implement under an agreement reached with the NRC. The actions are intended to address a violation involving falsified soil sample records by technicians at the Hunters Point Naval Shipyard in California and are in addition to steps already taken by the company. The settlement with Tetra Tech was achieved under the NRC's alternative dispute resolution (ADR) process, which was initiated at the request of the company. Tetra Tech was contracted by the Department of the Navy to assist with the regulatory free-release and closure of the radiologically impacted buildings and sites at the shipyard. The NRC has jurisdiction over the northeast portion of the shipyard, but is not overseeing decommissioning of the site. NRC oversight involves ensuring that contractors with NRC service provider licenses, such as Tetra Tech, are conducting remediation activities safely. The violation involves the failure by Tetra Tech to make surveys that were reasonable to evaluate concentrations and potential radiological hazards of residual radioactivity. Specifically, a radiation control technician and a radiation task supervisor deliberately falsified soil sample records by taking soil samples from areas not designated as part of the target area and by completing forms with

inaccurate information on a number of occasions in late 2011 through mid-2012. The falsified records that were the subject of NRC's investigation were identified by the Navy prior to any buildings or land being released. Tetra Tech took actions to correct the issue and prevent recurrence, including re-sampling of suspect areas. In July 2016, NRC issued a notice of violation and proposed a $7,000 civil penalty. In response, Tetra Tech informed the agency that they were interested in the use of the Alternative Dispute Resolution (ADR) session to resolve the matter. ADR is a process in which a neutral mediator with no decision-making authority assists the parties in reaching an agreement or resolving any differences regarding a dispute. On September 7, 2016, an ADR mediation session took place. The ADR session led to an agreement that is detailed in the confirmatory order issued by the NRC. Tetra Tech has agreed to discuss the facts and lessons learned from this event with its employees who are engaged in licensed activities within 180 days, emphasizing the importance of not engaging in willful activities in violation of NRC's regulations; provide refresher training on NRC requirements to all Tetra Tech employees engaged in licensed activities within 270 days—a copy of the training documents must be submitted to the NRC and the refresher training must be conducted annually for a period of five years; conduct an independent third-party assessment of all areas involving NRC-licensed activities to assess Tetra Tech's safety culture within 360 days including, within 120 days from completion of the assessment, an evaluation of the results by Tetra Tech and the taking of appropriate corrective actions; use a third party (for a period of three years) to perform quality assurance reviews of work performed at Hunters Point; and, send copies of the notice of violation and confirmatory order to the Navy and the California State Department of Public Health to assure they are fully informed of the NRC's actions. In consideration of Tetra Tech's actions, the NRC has agreed to withdraw the proposed civil penalty. *A copy of the confirmatory order will be posted on the enforcement page of the NRC's website. For additional information, please contact Dianne Screnci at (610) 337-5330 or Neil Sheehan at (610) 337-5331.*

**Westinghouse Fuel Fabrication Facility** On September 27, 2016, NRC staff held a public meeting in Columbia, South Carolina to discuss the results of an Augmented Inspection Team review of the unexpected accumulation of an excessive amount of uranium-bearing material in a component of the Westinghouse fuel fabrication facility. The meeting was open to the public and NRC staff was available to answer questions after the meeting. In May 2016, during an annual maintenance shutdown, plant employees discovered an unexpected accumulation of uranium-bearing material in a scrubber system, which is designed to remove unwanted material from a number of plant processes. There were no actual safety-related consequences as a result of the accumulation, but the potential for such consequences may have existed. After an in-house analysis showed the amount of uranium was much higher than anticipated, the NRC launched the inspection to review the issue. During the NRC inspection, the company committed to the temporary shutdown of affected systems in the facility; the performance of a root cause analysis investigation of the event; and, a review and revision of the facility's safety culture program. The facility also committed to updating maintenance and management procedures; installing physical modifications to the scrubber system; retraining of personnel operating and maintaining the system; reviewing other potentially affected systems; and, retaining an external nuclear criticality safety expert to oversee such functions. *For additional information, please contact Roger Hannah at (404) 997-4417 or Joey Ledford at (404) 997-4416.*

**Central Interstate Compact/State of Kansas**

**Wolf Creek Nuclear Generating Station** On September 21, 2016, NRC staff met with officials from the Wolf Creek Nuclear Operating Company to discuss a preliminary finding regarding the

licensee's failure to adequately maintain emergency diesel generators at the Wolf Creek nuclear power plant located near Burlington, Kansas. NRC officials answered questions from the public after the business portion of the meeting. Emergency diesel generators are used to supply power to safety-related systems in the event of a loss of off-site power. NRC requires that Wolf Creek have emergency diesel generators that must be tested monthly to ensure operability. During a test, one emergency diesel generator started as required, but failed three hours into a 24-hour run because of a faulty electrical component. The issue did not pose an immediate safety concern because other means existed to supply emergency power to vital plant equipment had it been needed. Repairs have been made to the emergency diesel generator and a preventive maintenance strategy has been developed. The issue is described in an NRC inspection report. The NRC evaluates regulatory performance at commercial nuclear plants with a color-coded process that classifies inspection findings as green, white, yellow or red in order of increasing safety significance. The NRC has preliminarily determined that the inspection finding has low to moderate (white) safety significance, which may require additional inspections, regulatory actions and oversight. No decision on the final safety significance of the finding or any additional NRC actions were made at the conference. *For additional information, please contact Victor Dricks at (817) 200-1128.*

**Central Midwest Compact/State of Illinois**

**LaSalle Nuclear Plant** On October 19, 2016, NRC announced that the agency has renewed the operating licenses of the LaSalle County Station nuclear power plant (Units 1 and 2) for an additional 20 years. The LaSalle plant has two boiling-water reactors. It is located in Marseilles, Illinois--approximately 11 miles southeast of Ottawa. The renewed licenses authorize the reactors to operate through April 17, 2042 for Unit 1 and through December 16, 2043 for Unit 2. The operator, Exelon Generation Company, submitted the renewal application on December 9, 2014. The NRC staff's review of the application proceeded on two tracks. A safety evaluation report was issued on June 2, 2016. A supplemental environmental impact statement was issued on August 26, 2016. The ACRS also reviewed the staff's work. Renewal of LaSalle's operating licenses brings to 85 the number of commercial nuclear power reactors with renewed licenses (two of those have since permanently shut down). Applications for an additional 10 renewals are currently under review. *Information about these reviews can be found on the NRC website at www.nrc.gov. For additional information, please contact David McIntryre at (301) 415-8200.*

**Midwest Compact/States of Ohio and Wisconsin**

**Davis-Besse Nuclear Station** On September 2, 2016, NRC announced that the agency has issued a Confirmatory Order to FirstEnergy Nuclear Operating Co. (FENOC). The company has committed to a series of actions following an investigation that concluded that a licensed operator at the Davis-Besse Nuclear Power Station deliberately failed to provide complete and accurate medical information as is required by the NRC. The order stems from a settlement reached under the NRC's ADR, requested by plant-owner FENOC to address the violations identified in the NRC's investigation. The ADR process involves mediation facilitated by a neutral third party to assist the NRC and a licensee to reach an agreement regarding an enforcement action. The NRC determined that on multiple occasions between February 2013 and July 2014, a licensed operator failed to comply with requirements for medical qualifications, which are a condition of the NRC's reactor operator license, and deliberately provided inaccurate medical information to the Davis-Besse facility. As a result of the operator's actions, the plant provided the NRC with false medical records violating the agency's requirement for complete and accurate information. As a result of the ADR meeting, the

company agreed to reinforce knowledge of and compliance with requirements for medical qualifications and completeness and accuracy of information with plant operators at Davis-Besse and across the FENOC fleet; complete an effectiveness review of those actions; revise existing procedures on updating operators' medical records; communicate about this issue across the nuclear industry; and, update the NRC on the status of those actions by the dates noted in the order. Prior to the NRC's offer to engage in ADR, FirstEnergy had already taken several actions to address the causes of the violations which included addressing the situation with the licensed operator in question; making sure licensed operators at Davis-Besse understand requirements for maintaining medical qualifications and medical reporting; reinforcing expectations and requirements in this area with Davis-Besse and FENOC management; conducting an independent survey to verify the effectiveness of these communication efforts; and, completing a review of corrective actions to identify potential trends in medical reporting. "Even though this incident had no actual impact on the safe operation of the facility, the NRC order emphasizes our expectation that nuclear plants must have strong programs to ensure operators fully understand NRC requirements for retaining their medical qualifications and providing complete and accurate information," said NRC Region III Deputy Regional Administrator Darrell Roberts. "An NRC reactor operator license comes with great responsibility for maintaining plant and public safety." The plant is located in Oak Harbor, Ohio—approximately 21 miles east southeast of Toledo. *A copy of the Confirmatory Order will be available on the NRC's website at www.nrc.gov. For additional information, please contact Viktoria Mitlyng at (630) 829-9662 or Prema Chandrathil at (630) 829-9663.*

**La Crosse Nuclear Plant** On September 14, 2016, the NRC announced that the agency is requesting comments on the license termination plan and a partial site release request for the La Crosse Boiling Water Reactor nuclear power plant. On September 20, 2016, NRC held a public meeting in La Crosse, Wisconsin to discuss the plan and the request. During the meeting, NRC staff discussed the plan and took comments on both documents. The agency accepted written comments through October 28, 2016. The license termination plan provides site radiological information, the planned demolition and decommissioning tasks, and the planned final radiological surveys and data needed to allow termination of the plant's NRC license. The partial site release request asks that areas of the La Crosse site that have been demonstrated to not be impacted by the operation of the nuclear plant be released for unrestricted use and removed from the plant's licensed area. LaCrosse*Solutions* assumed La Crosse's license from the Dairyland Power Cooperative in June 2016 for the purpose of completing decommissioning. La Crosse permanently shut down in 1987. All spent fuel at the site has been moved into dry storage. Decommissioning is scheduled to be complete in 2018. LaCrosse*Solutions* submitted both the plan and the request on June 27, 2016. The documents explain how LaCrosse*Solutions* will meet NRC criteria for unrestricted release of the property. *For additional information, please contact David McIntryre at (301) 415-8200. Technical questions may be addressed to the Project Manager, Marlayna Vaaler at (301) 415- 3178 or via e-mail at marlayna.vaaler@nrc.gov.*

**Northwest Compact/State of Wyoming**

**Power Resources, Inc.** On October 3, 2016, NRC announced that the agency has issued a Confirmatory Order to Power Resources, Inc., of Casper, Wyoming documenting actions that the company has agreed to take to ensure it maintains complete and accurate records of radiation surveys of personnel exiting its facilities. The order formalizes commitments company officials made to the NRC following an investigation of activities at the company's North Butte facility in Campbell County, Wyoming. The NRC preliminarily determined that a former operations

supervisor falsified a record of exit surveys that was supposed to be conducted on September 12, 2013. In fact, the surveys required by NRC regulations were not conducted. The company requested the ADR process to resolve differences with the NRC concerning the issue and to discuss corrective actions. The process uses a neutral mediator with no decision-making authority to assist the NRC and its licensees in coming to an agreement. Following a meeting with company officials on September 22, 2016, the NRC issued a Confirmatory Order documenting actions to which the company has agreed including that Power Resources will conduct annual meetings among key management, radiation safety officers, facility managers and other appropriate technical personnel to emphasize the importance of compliance with NRC regulations and ensure the accuracy of records; ensure that it has a qualified member of its health physics staff available at any of its facilities when equipment is being released from a radiologically controlled area to an unrestricted area; and, provide additional training for new employees and supplemental annual refresher training. *For additional information, please contact Victor Dricks at (817) 200-1128.*

**Southeast Compact/State of Florida**

**Levy County Site** On October 20, 2016, NRC announced that the agency has cleared the way for the agency's Office of New Reactors to issue two Combined Licenses (COLs) for Duke Energy's Levy County site in Florida. Based on the mandatory hearing on Duke's application, the Commission found the staff's review adequate to make the necessary regulatory safety and environmental findings. Following the Commissioners' direction, the NRC staff will work to issue the COLs promptly. The licenses will authorize Duke Energy Florida to build and operate two AP1000 reactors at the site, near Inglis in Levy County. The staff will impose conditions on the license, including specific actions associated with the agency's post-Fukushima requirements for mitigation strategies and spent fuel instrumentation, as well as a pre-startup schedule for implementing post-Fukushima aspects of the new reactors' emergency preparedness plans and procedures. Progress Energy Florida (now Duke Energy Florida) submitted its COL application for Levy County on July 30, 2008. The ACRS independently reviewed those aspects of the Levy County application that concern safety. The committee provided the results of its review to the Commission on December 7, 2011 and provided the results of its review of several exemption requests on April 18, 2016. The NRC completed its environmental review and issued the final environmental impact statement for the proposed Levy County reactors in April 2012. The NRC certified the amended 1,100-megawatt AP1000 design in 2012. *Additional information on the certification process is available on the NRC website at www.nrc.gov. For additional information, please contact Scott Burnell at (301) 415-8200.*

**Michigan**

**Fermi 2 Nuclear Plant** On September 16, 2016, NRC announced that the agency has published its final review detailing the environmental impacts of renewing the operating license of the Fermi 2 nuclear power plant in Michigan. The supplemental environmental impact statement contains the NRC staff's conclusion that the impacts would not preclude renewing the plant's license for an additional 20 years. Fermi 2 is a boiling-water reactor located in Newport, Michigan—approximately 25 miles northeast of Toledo, Ohio. It is currently licensed to operate through March 20, 2025. The operator, DTE Electric Company, submitted the renewal application April 30, 2014. The report is Supplement 56 to NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants. The NRC published a draft version of the report in November 2015 for public comment. The final report includes the staff's responses to the comments. *The Fermi 2 license renewal application and general information about reactor license renewal are*

*available on the NRC website at www.nrc.gov. For additional information, please contact Scott Burnell at (301) 415-8200.*

**Puerto Rico**

**International Cyclotron** On August 30, 2016, the NRC announced that the agency is proposing a $14,000 civil penalty for a Puerto Rico firm for its failure to perform decommissioning activities associated with its cyclotron. International Cyclotron of Hato Rey, Puerto Rico, operated the device to produce radionuclides used to provide nuclear medicine treatments to patients. On December 19, 2011, NRC issued an order to the company requiring that it provide financial assurance for the decommissioning of the cyclotron facility within 60 days or suspend all NRC-licensed activities. The firm did not provide the necessary financial assurance but did halt the licensed activities as of February 17, 2012. International Cyclotron submitted a letter to the NRC on March 22, 2014 stating its intention to begin decommissioning of the facility as soon as possible, but certainly prior to April 18, 2014. To date, however, the company has taken no steps to initiate decommissioning activities, despite NRC regulations requiring such work be completed within 24 months. Furthermore, the firm's owner has not responded to an NRC letter issued on June 13, 2016 that described apparent violations related to the failure to decommission the facility in a timely manner. As a result, the NRC is proposing a Severity Level III violation and $14,000 fine for International Cyclotron. "The NRC's overriding interest is to ensure that the company meets its obligation to decommission the facility and that any radioactive materials used or generated during the cyclotron's operation are properly disposed of or transferred," NRC Region I Administrator Dan Dorman said. "As such, the agency will consider not taking enforcement action if International Cyclotron properly disposes of or transfers the materials within 30 days and submits within 60 days a plan and schedule for completing decommissioning." Should the company fail to complete the actions, the NRC will impose the civil penalty and consider daily fines until the facility is successfully decommissioned. The site does not pose a safety concern for the public because any radioactive contamination is contained within the facility. *For additional information, please contact Dianne Screnci at (610) 337-5330 or Neil Sheehan at (610) 337-5331.*

***Congress***

# Senators Express Concern in Response to GAO Audit on Source Security

By letter dated August 22, 2016, U.S. Senator Dianne Feinstein expressed concern to U.S. Nuclear Regulatory Commission (NRC) Chair Stephen Burns regarding the findings in a July 2016 U.S. Government Accountability Office (GAO) report titled, "Nuclear Security: NRC Has Enhanced the Controls of Dangerous Radioactive Materials, but Vulnerabilities Remain." NRC Chair Burns responded by letter dated October 7, 2016. In his letter, Chair Burns provides assurances that NRC takes its obligations related to the licensing of radioactive materials seriously and outlines actions that the agency has taken in response to the GAO audit report.

Senator Charles Schumer expressed similar concerns to NRC Chair Burns in a letter dated October 2, 2016. Senator Schumer also issued a press release titled, "Explosion that Shook NYC Highlights Real Risk of a 'Dirty Bomb' in NYC; Shocking Fed Report Shows How Almost Anyone Can Use Loophole to Purchase Radioactive Material Required to Carry Out Attack in Major City; Senator Urges Nuke Agency to Overhaul Check System Putting NY'ers at Risk."

**Overview**

**Senator Feinstein's Letter** In her August 2016 letter, Senator Feinstein expresses concern regarding "how easy it can be for a person to obtain a license to acquire radioactive materials that could be used to make 'dirty bombs.'" The letter requested that NRC Chair Burns respond with the steps NRC will take to secure radioactive materials licenses and provide answers to eight questions.

**NRC Chair Burns' Response** "The NRC takes its obligation to ensure the security of licensed radiological material very seriously," states NRC Chair Burns in his October 2016 response to Senator Feinstein. "The NRC has taken a number of actions to address GAO's recommendations and to continually ensure that the requirements for the protection of radioactive material are effective and suitable for the materials being protected."

Chair Burns response notes that "the NRC has two substantial efforts currently underway that, when complete, will provide information that will help determine the details of any future steps and enable the scheduling of those activities" including that:

- the NRC will be reporting to Congress in December 2016 the results of the agency's program review of 10 CFR Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material," and,

- the NRC staff will report to the Commission in 2017 on options to address the recommendations made by the GAO audit report.

Detailed responses to Senator Feinstein's questions are enclosed with Chair Burns' response letter.

**Senator Schumer's Letter** Senator Schumer's October 2016 letter expresses concern about NRC's process for licensing the purchase of Category 3 radioactive material and the possibility that unauthorized users could obtain it. "I urge the Commission to consider suspending licenses for Category 3 radioactive material until these licenses are monitored by the NRC in a National Source Tracking System (NSTS)," states Senator Schumer. "The recent attack in New York City underscores the critical need to ensure that this highly dangerous material is purchased only for legitimate and authorized use."

*For additional information and direct links to the letters and press release, please visit the Resources Page of the Disused Sources Working Group (DSWG) web site at www.disusedsources.org.*

**Background**

**GAO Audit** GAO-16-330, which was issued on July 15, 2016, concludes that NRC and Agreement States have taken several steps to help ensure that radioactive materials licenses are granted only to legitimate organizations and that licensees can only obtain such materials in quantities allowed by their licenses. (See *LLW Notes*, July/August 2016, pp. 1, 18-20.) However, GAO also determined that NRC and Agreement States have not taken some measures for better controlling Category 3 quantities of radioactive material—such as tracking and agency license verification—that leave vulnerabilities.

GAO-16-330 recommends that NRC take the following three actions: (1) take the steps needed to include Category 3 sources in the NSTS and add Agreement State Category 3 licenses to the WBL as quickly as reasonably possible; (2) at least until such time that Category 3 licenses can be verified using the LVS, require that transferors of Category 3 quantities of radioactive materials confirm the validity of a would-be purchaser's radioactive materials license with the appropriate regulatory authority before transferring any Category 3 quantities of licensed materials; and, (3) as part of the ongoing efforts of NRC working groups meeting to develop enhancements to the

pre-licensing requirements for Category 3 licenses, consider requiring that an on-site security review be conducted for all unknown applicants of Category 3 licenses to verify that each applicant is prepared to implement the required security measures before taking possession of licensed radioactive materials.

**NRC Response** In a memo dated July 29, 2016, in response to the GAO audit report, NRC Commissioner Jeff Baran proposed that NRC staff revisit the question of whether and how to track Category 3 sources. On October 18, 2016, NRC issued a Staff Requirements Memorandum (SRM) that directs agency staff to submit a notation vote paper to the Commission that includes the following seven items: (1) an evaluation of the pros and cons of different methods of requiring transferors of Category 3 sources to verify the validity of a transferee's license prior to transfer; (2) an evaluation of the pros and cons of including Category 3 sources in the NSTS; (3) an assessment, based on these evaluations, of these and any additional options that the staff identifies for addressing the source accountability recommendations made by the GAO; (4) a vulnerability assessment which identifies changes in the threat environment between 2009 and today that argue in favor of or against expansion of the NSTS to include Category 3 sources; (5) a regulatory impact analysis of the accrued benefit and costs of the change, to include impacts to the NRC, Agreement States, non-Agreement States, and regulated entities; (6) a discussion of potential regulatory actions that would not require changes to NRC regulations that arose from or were considered by the staff working groups—including changes to guidance, training, and other program improvements such as more closely monitoring the implementation of the staff recommendations using the Integrated Materials Performance Evaluation Program (IMPEP) process; and, (7) any other factors arising from the staff's currently ongoing assessment that the staff concludes would bear on the Commission's deliberation on the proposed change. (See related story, this issue.)

The SRM states that the NRC staff's evaluations for the notation vote paper "should begin after completion of the ongoing broader evaluation of the overall source protection and accountability strategy for sources due to the Congress at the end of this year." It further states that the results of the assessment of the security requirements in 10 CFR Part 37 should be used to inform the NRC staff's evaluation and that, in conducting these evaluations, the staff "should assess the risks posed by the aggregation of Category 3 sources into Category 2 quantities and consider the current views of our Agreement States partners." The staff's evaluation and notation vote paper are due to the Commission within 10 months of the issuance of the SRM.

*Links to GAO-16-330, Commissioner Baran's memo and the SRM in response thereto can be found on the Resources Page of the DSWG web site at www.disusedsources.org.*

***Advisory Committee on Reactor Safeguards (ACRS)***

# ACRS Subcommittee Discusses Proposed Part 61 Final Rule

The Subcommittee on Radiation Protection and Nuclear Materials of the Advisory Committee on Reactor Safeguards (ACRS) met from 1:00 p.m. to 5:00 p.m. on October 18, 2016. The meeting, which was open to the public, was held in Room T–2B3 of the U.S. Nuclear Regulatory Commission (NRC) headquarters in Rockville, Maryland.

**Overview**

The Subcommittee discussed the proposed final rule 10 CFR Part 61, ''Low-Level Radioactive Waste Disposal'' and associated guidance. The Subcommittee heard presentations by and held discussions with the NRC staff and other interested persons regarding this matter. The Subcommittee gathered information, analyzed relevant issues and facts, and formulated proposed positions and actions, as appropriate, for deliberation by the full Committee.

**Action Item**

During the meeting, the subcommittee requested that the NRC make publicly available the agency's draft final Part 61 guidance document (Guidance for Conducting Technical Analyses for 10 CFR Part 61) to support a public meeting with the full ACRS that is scheduled for November 3, 2016.

Accordingly, NRC staff has made the draft document publicly available in ADAMS (Accession No. ML14357A072). In addition, NRC staff has made a redline/strikeout version of the draft final rule language available in ADAMS (Accession No. ML16293A112).

In releasing the documents, NRC stresses that the comment period on this rulemaking is closed and that the staff is not soliciting comments on the draft final guidance and the draft final rule language. The draft final rule language is with the Commission for their review.

*The proposed final Part 61 final rule and associated documents are available on the NRC website at http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams.html. For additional information regarding the proposed final Part 61 rule, please see related story in this issue.*

*For additional information on the ACRS meeting, please see 81 Federal Register 68,474 (October 4, 2016). Detailed meeting agendas and meeting transcripts are available on the NRC web site at http://www.nrc.gov/reading-rm/doc-collections/acrs.*

***National Academies of Sciences (NAS)***

# NAS Hosts LLW Management and Disposition Workshop

On October 24-25, 2016, the Nuclear and Radiation Studies Board, Division on Earth and Life Studies, of the National Academies of Sciences, Engineering and Medicine hosted a low-level radioactive waste management and disposition workshop.

The workshop was held at the Keck Center of the National Academies, which is located at 500 Fifth Street NW in Washington, DC.

**Overview**

The U.S. Department of Energy's Office of Environmental Management (DOE-EM) is responsible for the cleanup of the sites used by the federal government for nuclear weapons development and nuclear energy research. DOE-EM cleanup involves retrieval, treatment, storage, transportation, and disposition of hundreds of different radioactive and hazardous solid and liquid wastes.

Low-level radioactive waste—which is defined by exclusion as waste that does not meet the statutory definitions for spent nuclear fuel, high-level radioactive waste, or transuranic waste—is physically and chemically diverse, ranging from lightly contaminated soils and building materials to highly irradiated nuclear reactor components. It is the most volumetrically significant waste stream (millions of cubic meters) being generated by the cleanup program.

The workshop considered similarities between successful case studies, in which unique disposition pathways have been developed to address low-level radioactive wastes, and explored ways to extend these similar characteristics to problematic wastes—i.e., low-level radioactive wastes currently without a clear disposition pathway.

Specifically, the workshop explored:

- the key physical, chemical, and radiological characteristics of low-level radioactive waste that govern its safe and secure management (i.e., packaging, transport, storage) and disposition, in aggregate and for individual waste-streams; and,

- how key characteristics of low-level waste are incorporated into standards, orders, and regulations that govern the management and disposition of low-level radioactive waste in the United States and in other major waste-producing countries.

**Agenda**

The following was the agenda for the workshop:

Monday—October 24, 2016

9:00 a.m. Welcome

John Applegate, Organizing Committee Chair
Executive Vice President for University Academic Affairs, Indiana University

Jenny Heimberg, Study Director
Nuclear and Radiation Studies Board, the National Academies

Opening Remarks
Douglas Tonkay
Director, Office of Waste Disposal, Office of Environmental Management, Department of Energy (DOE)

9:15 a.m. Workshop Background and Objective
John Applegate, Organizing Committee Chair

20 minute presentation, 10 minutes for questions

Session One: The Scope of the LLW Challenge

9:45 a.m. Categories and Characteristics of Low-Level Waste panel discussion, 75 minutes

Moderator:
Nina Rosenberg, Organizing Committee Member Program Director, Nuclear Nonproliferation and Security, Los Alamos National Laboratory
10 minute overview

Each of three panelists will be given 10 minutes to outline the variety of low-level radioactive wastes, followed by a 35-minute moderated, full-panelist discussion.

Miklos (Mike) Garamszeghy
Design Authority and Manager, Technology Assessment & Planning Nuclear Waste Management Organization (NWMO), Canada

Lisa Edwards
Electric Power Research Institute (EPRI)

Daniel B. Shrum
Senior Vice President Regulatory Affairs, Energy*Solutions*

Questions for panelists:
What are the greatest challenges that have you observed in the management of low-level radioactive waste? What key technical criteria and/or waste characteristics are most important to consider?

*11:00 a.m. Break*

11:15 a.m. Regulations, standards, orders, and guidance criteria – 75 minute panel discussion

Moderator:
Larry Camper, Organizing Committee Member
Nuclear Safety Consultant, Talisman International LLC; US Nuclear Regulatory Commission (NRC), *retired*

Andrew Orrell
Section Head for Waste and Environmental Safety, International Atomic Energy Agency (IAEA)

Thomas Magette
Managing Director, PricewaterhouseCoopers Advisory Services, LLC

Frank DiSanza, *invited*
Federal Project Director for Waste Management at Nevada National Security Site

Each of three panelists will be given 10 minutes to answer a set of questions, followed by a 35-minute moderated discussion.

Questions for the panelists:
What are the health, environmental safety, and security bases that led to the generally applicable standards and regulations in your line of work?
What are the strengths and weaknesses of the respective approaches?

*12:30 p.m. Lunch*

Session Two: Lessons Learned in Establishing LLW Disposition Pathways

1:30 p.m. Case Studies of Successful Low-Level Waste Disposal Solutions

Moderator: Rebecca Robbins, Organizing Committee Member
Predisposal Unit Head, IAEA

United States Case Studies

Consolidated Edison Uranium Solidification Project (CEUSP) Case Study

Greg Lovato
Deputy Administrator, Nevada Division of Environmental Protection

Separations Process Research Unit (SPRU) Tank Waste Sludge Case Study
Melanie Pearson-Hurley, DOE-EM Headquarters Site Liaison for the SPRU Project

What were the key characteristics of the waste stream that affected management decisions for waste processing, transportation, storage and disposal?
Why did it work? Lessons learned for management from each example.
- waste characteristics (technical)
- management practices (process)
- regulatory structure (manageable, predictable, consistent)

Were there instances in which it almost did not work? What were the obstacles to successful waste management and disposal?
- waste characteristics
- management practices
- regulatory structure

*2:30 p.m. Break*

2:45 p.m. Case Studies of Successful Low-Level Waste Disposal Solutions *(continued)*

Moderator: Rebecca Robbins, Organizing Committee Member (see above questions)

International Case Studies

Canada, Licensing a Low-Level Waste Facility
Mike Garamszeghy, NWMO

France, VLLW and ILLW Facilities
Gérald Ouzounian, Director, International Division, ANDRA

3:45 p.m. Full Workshop Discussion
Key characteristics of LLW and challenging LLW streams: Initial discussions John Applegate, Organizing Committee Chair

4:45 p.m. Wrap-Up
John Applegate, Organizing Committee Chair

*5:00 p.m. Adjourn*

Tuesday—October 25, 2016

9:00 a.m. Welcome
John Applegate, Organizing Committee Chair
Jenny Heimberg, Study Director

9:10 a.m. Committee presents common themes (characteristics and methodologies)
Group discussion of the common themes
30 minutes with 30 minutes for discussion

*10:10 a.m. Break*

Section Three: Applying Common Themes to Problem Cases

10:25 a.m. Moderator: John Applegate, Organizing Committee Chair

Description of the Problem Case Studies by Experts

1. Greater-than-Class C (GTCC) and Transuranic (TRU); commercial, > 100 nCi/gm
   Lawrence R. Jacobi, Jr., *invited*
   Principal Consultant, Jacobi Consulting
2. Sealed Sources
   Temeka Taplin,
   National Nuclear Security Administration
3. Clearance or Exempt Waste & Low Activity Waste (e.g., lowest 10% Class A waste)
   Lisa Edwards
   Senior Program Manager, Electric Power Research Institute (EPRI)
4. Incident Waste
   Will Nichols
   Principal Engineer and Group Manager, INTERA
5. Depleted Uranium (DU)
   Scott Kirk
   Director of Regulatory Affairs, BWXT

10:50 a.m. Break-Out session
Evaluating the Usefulness of Common Themes Applied to Problem Cases
Organizing committee members and study director to each lead a breakout group, each group with an expert in a particular WWP category.

Each group will be encouraged to think about the challenges of one particular waste stream in light of previous remarks.

- What are the characteristics of the wastes?
- What are the challenges to disposal?
- How might the proposed methodology or approaches be applied to this WWP category?

*12:00 p.m. Lunch*

1:00 p.m. Summary of Morning Session by Each Group Lead—15 minutes each

Session Four: Concluding Discussion

*2:15 p.m. Break*

2:30 p.m. Full Workshop Discussion
Moderator: John Applegate, Organizing Committee Chair

What have we learned? Do we have the pieces here for an integrated solution/system for WWP LLRW?
Is there information missing that keeps us from developing an integrated solution?

4:00 p.m. Concluding Remarks/Reactions from Agencies
Douglas Tonkay; *Others (to be determined)*

4:15 p.m. Wrap-Up
John Applegate, Organizing Committee Chair

*4:30 p.m. Adjourn*

*For additional information about the meeting, please go to http://dels.nas.edu/Upcoming-Workshop/Level-Radioactive-Waste-Management/AUTO-6-58-82-D?bname=nrsb.*

*(Continued from page 1)*

**Summary**

The final 10 CFR Part 61 rule would do the following:

- revise the existing technical analysis for protection of the general public to include either a 1,000-year compliance period or a 10,000-year compliance period depending on the quantities of long-lived radionuclides that have been or plan to be disposed at the site;
- add a new technical analysis for the protection of inadvertent intruders that would include a compliance period and a dose limit;
- add a new post-10,000-year performance period analysis for disposal sites that have low-level radioactive waste containing significant quantities of long-lived radionuclides;
- add a new requirement to update the technical analyses at site closure;
- add a new requirement to develop site-specific criteria for the future acceptance of low-level radioactive waste for disposal based on the results of the technical analyses, the existing low-level radioactive waste classification requirements, or a combination of both;
- add a new description of safety case and a new requirement to identify defense-in-depth protections and describe their capabilities; and,
- facilitate implementation and better align the requirements with current safety standards.

SECY-16-01016 states that "[t]hese amendments ensure that the … [low-level radioactive waste] streams that are significantly different from those considered during the development of the existing 10 CFR Part 61 regulations will be disposed of safely and meet the performance objectives for land disposal of … [low-level radioactive waste]."

**Discussion**

The staff is proposing amendments to 10 CFR Part 61 to:

- require low-level radioactive waste disposal licensees and license applicants to conduct updated and new technical analyses, as well as develop site-specific low-level radioactive waste acceptance criteria;
- add new definitions and concepts; and,
- introduce amendments to facilitate implementation and better align the requirements with current health and safety standards (i.e., 10 CFR Part 20 requirements).

The technical analyses required by the amendments would include:

- an updated analysis to demonstrate protection of the general population (i.e., performance assessment), which would use a defined compliance period;
- a new analysis to demonstrate protection of inadvertent intruders (i.e., inadvertent intruder assessment), which would also use a defined compliance period; and,
- a new performance period analysis, to evaluate how the disposal system could mitigate the risk from the disposal of significant quantities of long-lived radionuclides after the compliance period.

The technical analyses would also need to be periodically reviewed and updated (e.g., at each renewal, with any application to amend the license for closure, and as necessary to update waste acceptance criteria). In addition, the rule would add a new description of safety case and incorporate a new requirement to identify

defense-in-depth protections and describe their capabilities.

**Tiered Approach re Compliance Period and Performance Period** In SECY-13-0075, the staff recommended a compliance period of 10,000 years followed by a performance period covering timeframes after 10,000 years. A performance period analysis would only be required if a site contained significant quantities of long-lived radionuclides. During the compliance period, the licensee would demonstrate compliance with the performance objectives, and during the performance period, the licensee would demonstrate how the facility design would mitigate any long-term impacts. In the performance period analysis, the licensee would also communicate the uncertainties associated with disposing of long-lived radionuclides. The performance period analysis was to be used to identify the need to limit the disposal of certain wastes to ensure proper management of the uncertainties. In SRM-SECY-13-0075, the Commission directed the staff to publish the proposed rule with a compliance period of 1,000 years, a "protective assurance period" from 1,000 to 10,000 years with a dose goal of 5 milliSieverts (mSv) per year (500 millirem (mrem) per year), and a performance period that extended beyond 10,000 years after site closure. That SRM also directed the staff to assign a compatibility category of Category B to the most significant provisions of the rule.

In response to NRC's request for public comment on the proposed rule, a number of commenters indicated that the tiered approach presented in the proposed rule appeared more complicated than necessary and recommended using something simpler. In addition, many individuals expressed concerns that the proposed approach was reducing health and safety protections. These comments appeared to stem from the perception that the 5 mSv (500 mrem) per year dose goal associated with the proposed protective assurance period was significantly higher than the 0.25 mSv (25 mrem) annual dose limit during the compliance period. Some commenters also stated that it would be unreasonable to impose additional specific requirements on owners of land disposal facilities that exclusively disposed of traditional low-level radioactive waste (i.e., waste that did not include significant quantities of long-lived radionuclides). These commenters expressed concerns that all operators were being lumped together and that the proposed rule was not differentiating between the various disposal sites. In light of these comments, the staff is now recommending a simpler approach tailored to the waste that will be disposed. The approach in the final regulation is comprised of only a compliance period and a performance period. However, the compliance period would be either 1,000 years or 10,000 years, depending upon the inventory and concentration of long-lived radionuclides disposed of at the land disposal facility. A performance period analysis is only necessary if the licensee uses a 10,000-year compliance period (i.e., significant quantities of long-lived radionuclides have been or will be disposed at the land disposal facility). This approach is site-specific and will consider the inventory and risk posed by the waste to a member of the public, which is consistent with an ACRS recommendation that the timeframe for the analysis be a "site-specific time span derived from a performance assessment."

**Threshold Values for Determining Presence of Significant Quantities of Long-Lived Radionuclides** In the proposed rule, the NRC had included a Table A in § 61.13 of the rule language to designate what were considered to be threshold values for determining if significant quantities of long-lived radionuclides were present at the site, thus requiring performance period analyses. Commenters expressed concern with the technical basis for the table. As a result, the staff re-evaluated the table and determined that while the table is useful with respect to examining impacts associated with § 61.42 (i.e., inadvertent intruder assessment), it may not always provide sufficient protection with respect to § 61.41 (i.e., performance assessment).

Because of this, the staff has moved the proposed Table A to the associated guidance and instead is requiring that if a licensee opts to use a 1,000-year compliance period, the licensee must include a technical rationale as to why the longer 10,000-year timeframe is not necessary. This technical rationale may consist of a simple evaluation of the inventory to demonstrate that the performance objectives would not be exceeded or use other criteria that is found acceptable by the regulator. Licensees may still use Table A as part of their rationale, but must demonstrate that the selected concentrations provide adequate protection for their site, or they may develop other concentration or quantity limits using site-specific factors. The development of the technical rationale is not expected to be burdensome and if it becomes overly complex, the licensee should consider using the longer compliance period. Acceptable approaches for determining the duration of the compliance period are discussed in greater detail in NUREG-2175. Not imposing a single numeric timeframe for the compliance period allows licensees for sites that do not have significant quantities of long-lived radionuclides to limit their performance assessments to 1,000 years, and requires only licensees for sites with significant quantities of long-lived radionuclides to prepare analyses for the 10,000-year period. Included in this approach is a requirement that licensees limit doses to 0.25 mSv (25 mrem) to any member of the public during the compliance period, independent of the time frame chosen, thus addressing stakeholder concerns with respect to the perceived relaxation of standards regarding the dose goal that was associated with the proposed protective assurance period. This approach also aligns with the current regulations of two Agreement States, Texas and Utah, where licensees have indicated that they would like to potentially receive large quantities of depleted uranium for disposal at their sites.

**Compatibility Categories** The staff also received a significant number of comments regarding the compatibility category for many of the rule changes. Most commenters expressed concerns that compatibility Category B, as proposed, limited flexibility of the Agreement States and would, in fact, reduce the levels of protection currently provided by the Agreement States. The Agreement State requirements are, in some cases, already more stringent than those included in the proposed rule. After consideration of the comments, the staff is recommending that the compatibility category be designated Category C for

- the definition of "compliance period;" and,
- § 61.58, which relates to waste acceptance criteria, characterization methods, and certification program.

These changes will allow Agreement States with already operating land disposal facilities, which all currently require a compliance period longer than 1,000 years, the flexibility to continue to use much of their existing regulatory system. In addition, this approach should also reduce implementation costs for the Agreement States and their licensees, while allowing them to maintain an equivalent or more conservative regulatory system.

**Backfit Analysis** Some commenters asserted that the rule changes would result in financial impacts to licensees where facilities were licensed under regulations other than 10 CFR Part 61 (e.g., uranium enrichment facilities), and therefore the NRC should have conducted a backfit evaluation. The staff has reviewed the issue and determined that because 10 CFR Part 61 does not contain a backfit provision and given that the backfit rule has never required the NRC to analyze costs to parties that may experience "passed along" costs (i.e., those costs experienced by entities not directly subject to the rule changes; for example, impacts to waste generators affected by a rule on the licensing of land disposal facilities), a backfit evaluation is not required.

**Grandfathering** Some commenters claimed that existing operating sites should be "grandfathered"

under § 61.1(a). The staff has reviewed the commenters stated basis for "grandfathering" and determined that the language referred to by commenters in § 61.1(a) (i.e., "Applicability of the requirements in this part to Commission licenses for waste disposal facilities in effect on the effective date of this rule will be determined on a case-by-case basis") was included in the original rule (i.e., the 1982 promulgation of 10 CFR Part 61) in order to facilitate an easy transition for low-level radioactive waste disposal facilities already in existence in 1982 to a new regulatory scheme. In 1982, low-level radioactive waste disposal was regulated through requirements in 10 CFR Part 20. The changes made by this rule build upon the existing regulatory requirements found in 10 CFR Part 61 by expanding the types of analyses required and defining the scope of such analyses, but do not create a new regulatory scheme. In order to avoid future confusion, the staff is removing the associated phrasing in § 61.1(a) from the regulations in the final rule.

**Classification of Depleted Uranium** Other commenters also requested that the current rule be deferred until depleted uranium was classified under the existing waste classification system, while other commenters stated classification was unnecessary. Under the original 10 CFR Part 61, depleted uranium falls into a default categorization of Class A low-level radioactive waste because, at the time of the original promulgation of the regulations, there was no expectation that significant quantities of depleted uranium would be disposed of at commercial low-level radioactive waste land disposal facilities. Because the assumption is no longer true, the commenters indicated that depleted uranium should be reclassified before this current rulemaking is completed, with the expectation that depleted uranium would no longer be classified as Class A low-level radioactive waste if it were categorized using the methodologies used during the original promulgation of 10 CFR Part 61. The staff reviewed this matter and concluded that this rulemaking should allow for the safe disposal of depleted uranium and other radionuclides regardless of their classification, and therefore recommends completing the rulemaking without first re-evaluating the classification of depleted uranium. In addition, in the SRM to SECY-13-0001, dated March 26, 2013, the Commission directed the staff to provide a Commissioners' Assistants note regarding the need to update the waste classification tables through rulemaking after the current 10 CFR Part 61 rulemaking is completed.

**Defense-In-Depth Analysis** Some commenters expressed concern about the intended complexity of the defense-in-depth analysis required by § 61.13(f) in the proposed rule. Although the staff intended that this analysis be a qualitative summary of the other technical analyses required in § 61.13, commenters interpreted the proposed § 61.13(f) as requiring the licensee to undertake a new complex, quantitative analysis. To better clarify the staff's original intent, this requirement has been removed from § 61.13, "Technical analysis," and placed in § 61.12, "Specific technical information." The requirement has also been rephrased to indicate that defense-in-depth protections need to be identified and their capabilities described for the land disposal facility to make it clear that a complex, quantitative defense-in-depth analysis is not required.

**Conforming and Clarifying Changes** The staff has also made a number of conforming and clarifying changes based upon the public comments. For instance, commenters provided a range of views regarding concerns and uncertainties in selecting specific exposure scenarios to be used in the inadvertent intruder assessment that indicate the regulation, at a minimum, needed further clarification to achieve an appropriate balance in the specification of exposure scenarios for the intruder assessment. To clarify, the staff has revised the definition of an inadvertent intruder in § 61.2 and the requirements in § 61.13(b)(1) for the types of activities to include in an inadvertent intruder assessment in order to limit unnecessary and

unsupported speculation regarding activities and pursuits that could occur far in the future and result in exposures to low-level radioactive waste. Specifically, the staff has replaced resource exploration and exploitation with drilling for water as a normal activity, and clarified that reasonably foreseeable pursuits need to be consistent with activities and pursuits in and around the site at the time the analysis is performed. In addition, in agreement with some public comments, certain details of overall objectives that were originally included in the proposed rule language have instead been moved to guidance.

**Guidance for Conducting Technical Analyses for 10 CFR Part 61** The staff intends to publish the final version of NUREG-2175 concurrently with the publication of this final rule. A draft of NUREG-2175 was published for comment along with the proposed rule, with the public comment period extending between March 26, 2015 and September 21, 2015. Seven comment letters were received on the draft NUREG from individuals, public interest groups, industry, licensees, and federal agencies. Several commenters requested that the NRC provide an additional public comment period on the guidance document after the 10 CFR Part 61 final rule is issued, but before the draft NUREG became final. However, the staff has already received and incorporated significant comments with respect to NUREG-2175 and rather than hold an additional public comment period at this time, the staff has concluded it would be better to issue the final NUREG-2175 with the final rule and seek additional public comment, if necessary, during any future updates to that guidance document. Other commenters recommended that specific areas of the guidance document be clarified and made more consistent with the proposed rule language, such as the defense-in-depth discussion. The staff has addressed the comments received on the draft NUREG, as well as incorporated conforming changes resulting from the final rule revisions, during development of the final NUREG.

**Draft Regulatory Analysis for Final 10 CFR Part 61 Rule** In addition to the *Federal Register* notice for the final rule, the staff provided the Commission with a final regulatory analysis (Enclosure 2) in support of the rulemaking. The regulatory analysis has been improved through the gathering of more quantitative cost data provided by the Agreement States and licensees. The regulatory analysis estimates that the industry will incur an implementation cost of $4.5 million, followed by an annual cost of $5.3 million during the regulatory analysis period (i.e., the time period starting at the present day and continuing through the lifetime of each current licensee), while the Agreement States with operating licensees will incur an implementation cost of $2.9 million, followed by an ongoing operations cost of $4 million over the regulatory analysis period. The rule ensures that low-level radioactive waste streams that are significantly different from those considered during the development of Part 61 can be disposed of safely and meet the performance objectives for land disposal of low-level radioactive waste. The amendments will facilitate the use of site-specific information and up-to-date dosimetry methodologies to better ensure public health and safety is protected. Under the final rule, licensees will be permitted to develop waste acceptance criteria from the results of the technical analyses. This approach provides licensees with flexibility to better manage disposal capacity consistent with the risks of disposal of low-level radioactive waste streams. The staff concluded that the rule is cost-justified because the regulatory initiatives enhance public health and safety by ensuring the safe disposal of low-level radioactive waste (e.g., large quantities of depleted uranium) that was not analyzed in the original 10 CFR Part 61 regulatory basis. If approved by the Commission, the regulatory analysis will be published concurrently with the final rule.

**Other Issues and Considerations** As described in Section XI, "Environmental Assessment and Final Finding of No Significant Environmental Impact," of the associated *Federal Register* notice

for the final rule, NRC staff determined that adoption of the final rule would not be a major federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. The final rule adds new, and amends some of the existing, requirements in 10 CFR Part 61. The final rule does not authorize either the construction of low-level radioactive waste disposal facilities or the disposal of additional low-level radioactive waste in existing land disposal facilities. Licensees and applicants would need to request and receive separate regulatory approval before construction of new disposal facilities or disposal of additional low-level radioactive waste in existing facilities could proceed. Consequently, because the rulemaking will not result in any physical impacts to the environment, the NRC has determined that the proposed action would not result in any significant environmental impact.

NRC staff determined that the final rule addresses the NRC's Strategic Plan safety goal to "[e]nsure the safe use of radioactive materials." Specifically, the final rule minimizes public exposure and prevents unintended releases of radioactive materials to the environment for low-level radioactive waste that contains significant quantities of long-lived radionuclides. It also enhances the risk-informed and performance-based regulatory framework by providing information on defense-in-depth protections that enhance the efficiency and effectiveness of regulatory reviews. Additionally, in a 2008 analysis provided in SECY-08-0147 involving a land disposal scenario for significant quantities of depleted uranium, the NRC identified conditions that would likely result in the land disposal facility not meeting the original performance objectives in §§ 61.41 and 61.42. The final rule enhances regulatory effectiveness by resolving the identified potential safety issue.

The staff was previously directed by the Commission to undertake two additional activities upon completion of the rulemaking. In SRM-SECY-15-0094, dated December 22, 2015, the Commission directed the staff to develop a regulatory basis for a possible Greater-Than-Class C rulemaking within 6 months of publication of the final rule. As indicated earlier, in SRM-SECY-13-0001, the Commission directed the staff to provide a Commissioners' Assistants note regarding the need to update the waste classification tables through rulemaking; the Commission directed the staff to complete this action after the current Part 61 rulemaking is completed. NRC staff plans to coordinate these future activities.

**Agreement State Interactions** A copy of the draft final rule *Federal Register* notice was provided to the Agreement States so they could have an early opportunity for review. Comments were received from five Agreement States, the Board of the Organization of Agreement States (OAS), and the Board of Directors for the Conference of Radiation Control Program Directors (CRCPD). The commenters were supportive of the changes made from the proposed rule and reflected in the final rule. Only two Agreement States provided specific comments (mostly editorial or requests for clarification). The NRC staff revised the Statement of Considerations accordingly. Regarding an Agreement State request that the Agreement States be provided 3 years from the effective date of the final rule to issue compatible regulations, the staff decided to retain the 3-year compatibility requirement from the date of publication as is normal for most rulemakings, having concluded that this will provide sufficient time for the Agreement States to issue compatible regulations.

The NRC staff has analyzed the final rule in accordance with the procedures established within Part III of the Handbook to Management Directive 5.9, "Categorization Process for NRC Program Elements." The final rule is a matter of compatibility between the NRC and the Agreement States, thereby requiring consistency among NRC and Agreement State requirements.

The staff made changes to the compatibility category for certain sections of the rule from those published in the proposed rule in response to public comments. Most of these changes allow the Agreement States greater flexibility to maintain aspects of their existing programs (primarily timeframes). To accomplish this, the definition of "compliance period" and §§ 61.41(b), 61.42(b), and 61.58 were changed from Category B to Category C. These compatibility category changes require the Agreement States to meet the essential objectives of the NRC requirements to avoid conflicts, duplications, or gaps; however, the Agreement States may implement more restrictive requirements.

The Standing Committee on Compatibility reviewed the final rule and agreed that the amendments to the NRC regulations resulting from this final rule are a matter of compatibility between the NRC and the Agreement States. The Committee made suggestions for minor revisions to the Statement of Considerations, which the staff implemented. The Committee agrees with the staff's compatibility designations.

**Background**

The regulations for the disposal of commercial low-level radioactive waste in land disposal facilities are set forth in 10 CFR Part 61. NRC originally adopted these regulations in 1982. Although the NRC has never licensed any land disposal facilities under this part, the Agreement States that currently or plan to license low-level radioactive waste land disposal facilities must adopt compatible versions of these regulations.

In SECY-13-0075, dated July 18, 2013, the NRC staff provided the Commission with a proposed rule to amend 10 CFR Part 61. The Commission approved publication of the proposed rule in SRM-SECY-13-0075, dated February 12, 2014. After making Commission directed changes, the NRC published the proposed rule for an initial 120-day comment period in the *Federal Register* on March 26, 2015. The public comment period closed on July 24, 2015. After receiving extension requests, the staff reopened the comment period, which then closed on September 21, 2015.

The NRC received 2,401 comment letters (including approximately 2,300 form letters) representing individuals, public interest groups, Native American Tribal Governments, industry groups, licensees, and state and federal agencies. The comments encompassed a wide variety of viewpoints that are summarized and responded to in Section IV, "Public Comment Analysis," of the *Federal Register* notice for the final rule (Enclosure 1).

The NRC staff briefed the Advisory Committee on Reactor Safeguards (ACRS), Radiation Protection and Nuclear Materials Subcommittee and full committee eight times before publication of the proposed rule. The staff is scheduled to brief the ACRS subcommittee in October 2016 and the full committee in November 2016 on the final rule. (The ACRS requested that the meetings occur after the draft final rule would be publicly available in order to keep the meetings open to the public.) Shortly after the November 2016 meeting, the ACRS will provide a letter report with recommendations and conclusions directly to the Commission.

*For additional information on the proposed final Part 61 rule and associated documents, please contact either Gary Comfort at (301) 415-8106 or at Gary.Comfort@nrc.gov or Stephen Dembeck at (301) 415-2342 or at Stephen.Dembek@nrc.gov.*

# NRC to Consider Reevaluation of Category 3 Source Accountability

On October 18, 2016, the U.S. Nuclear Regulatory Commission (NRC) issued a Staff Requirements Memorandum (SRM) regarding a proposed agency staff re-evaluation of Category 3 source accountability.

The SRM was issued in response to a July 29, 2016 memo from NRC Commissioner Baran proposing that NRC staff revisit the question of whether and how to track Category 3 sources. Commissioner Baran's memo was written in response to GAO-16-330 titled, "Nuclear Security: NRC Has Enhanced the Controls of Dangerous Radioactive Materials, but Vulnerabilities Remain."

The Government Accountability Office (GAO) report, which was issued on July 15, 2016, concludes that NRC and Agreement States have taken several steps to help ensure that radioactive materials licenses are granted only to legitimate organizations and that licensees can only obtain such materials in quantities allowed by their licenses. However, GAO also determined that NRC and Agreement States have not taken some measures for better controlling Category 3 quantities of radioactive material—such as tracking and agency license verification—that leave vulnerabilities.

**Overview**

The SRM directs NRC staff to submit a notation vote paper to the Commission that includes the following:

- an evaluation of the pros and cons of different methods of requiring transferors of Category 3 sources to verify the validity of a transferee's license prior to transfer;
- an evaluation of the pros and cons of including Category 3 sources in the National Source Tracking System (NSTS);
- an assessment, based on these evaluations, of these and any additional options that the staff identifies for addressing the source accountability recommendations made by the Government Accountability Office (GAO);
- a vulnerability assessment which identifies changes in the threat environment between 2009 and today that argue in favor of or against expansion of the NSTS to include Category 3 sources;
- a regulatory impact analysis of the accrued benefit and costs of the change, to include impacts to the NRC, Agreement States, non-Agreement States, and regulated entities;
- a discussion of potential regulatory actions that would not require changes to NRC regulations that arose from or were considered by the staff working groups—including changes to guidance, training, and other program improvements such as more closely monitoring the implementation of the staff recommendations using the Integrated Materials Performance Evaluation Program (IMPEP) process; and,
- any other factors arising from the staff's currently ongoing assessment that the staff concludes would bear on the Commission's deliberation on the proposed change.

The SRM states that the NRC staff's evaluations for the notation vote paper "should begin after completion of the ongoing broader evaluation of the overall source protection and accountability strategy for sources due to the Congress at the end of this year."

It further states that the results of the assessment of the security requirements in 10 CFR Part 37 should be used to inform the NRC staff's

evaluation and that, in conducting these evaluations, the staff "should assess the risks posed by the aggregation of Category 3 sources into Category 2 quantities and consider the current views of our Agreement States partners."

The staff's evaluation and notation vote paper are due to the Commission within 10 months of the issuance of the SRM.

**Background**

**July 2016 Memo from Commissioner Baran** In the July 2016 memo, Commissioner Baran asserts that the case for tracking Category 3 sources "is even stronger today than it was seven years ago."

Baran's July 2016 memo concludes with the following proposed staff direction:

> In light of [the Government Accountability Office's] GAO's findings and the years of operating experience with the [National Source Tracking System] NSTS, I propose that the NRC staff take a fresh look at the question of whether and how to track Category 3 sources. This re-evaluation can build on the efforts of the working groups established in response to the GAO investigation. I propose that, within six months of the Staff Requirements Memorandum resulting from this paper, the staff should submit a notation vote paper to the Commission that includes the following:
>
> 1) An evaluation of the pros and cons of different methods of requiring transferors of Category 3 sources to verify the validity of a transferee's license prior to the transfer;
> 2) An evaluation of the pros and cons of including Category 3 sources in the NSTS; and
> 3) Based on these evaluations, options for addressing the GAO recommendations.
>
> In conducting these evaluations, the staff should assess the risks posed by the aggregation of Category 3 sources into Category 2 quantities and consider the current views of our Agreement States partners.

**GAO Audit Report** In preparing GAO-16-330, GAO staff reviewed relevant guidance documents, regulations, and analyses of orders; interviewed NRC and state officials; and, used covert investigative techniques. Specifically, GAO established fictitious businesses and applied for radioactive materials licenses in three states—two Agreement States and one NRC state—for a license to possess a Category 3 source only slightly below the threshold for Category 2.

GAO's covert testing of NRC requirements showed them to be effective in two out of three cases. In the third case, however, GAO was able to obtain a license. GAO altered the license and secured commitments from two companies to purchase—by accumulating multiple Category 3 quantities of materials—a Category 2 quantity of a radioactive material considered attractive for use in a dirty bomb.

GAO-16-330 recommends that NRC take the following three actions:

- take the steps needed to include Category 3 sources in the NSTS and add Agreement State Category 3 licenses to the WBL as quickly as reasonably possible;

- at least until such time that Category 3 licenses can be verified using the LVS, require that transferors of Category 3 quantities of radioactive materials confirm the validity of a would-be purchaser's radioactive materials license with the appropriate regulatory authority before transferring any Category 3 quantities of licensed materials; and,

- as part of the ongoing efforts of NRC working groups meeting to develop enhancements to

the pre-licensing requirements for Category 3 licenses, consider requiring that an on-site security review be conducted for all unknown applicants of Category 3 licenses to verify that each applicant is prepared to implement the required security measures before taking possession of licensed radioactive materials.

*For additional information and direct links to NRC's October 2016 SRM, Commissioner Baran's July 2016 memorandum and GAO-16-330, please visit the Resources Page of the Disused Sources Working Group (DSWG) web site at www.disusedsources.org.*

# NRC Posts Additional CA BTP Implementation Questions & Answers

On August 29, 2016, the U.S. Nuclear Regulatory Commission (NRC) announced that additional questions and answers (Nos. 22, 23, and 24) regarding implementation of the revised Branch Technical Position on Concentration Averaging and Encapsulation (CA BTP) have been posted to the NRC public website at http://www.nrc.gov/waste/llw-disposal/llw-pa/llw-btp.html.

**Overview**

The regulatory requirements for licensing a low-level radioactive waste disposal facility describe a system for classifying low-level radioactive waste for near-surface disposal. Classification of low-level radioactive waste is based on the concentrations of certain radionuclides, and 10 CFR § 61.55(a)(8) specifically allows for averaging of concentrations in determining the waste class. The CA BTP expands on those regulatory requirements by describing acceptable averaging methods that can be used in classifying waste.

**Additional Questions and Answers**

On August 29, 2016, NRC posted the following additional questions and answers about implementation of the CA BTP to the public website:

22. *Section 3.2.1 of the CA BTP states that if blendable waste fills 90 percent or more of a package, average radionuclide concentrations can be based on the entire interior volume of the container. If a resin liner has the fill bar (inlet connection point) at the 85% full mark, could the liner be filled with other "blendable" radioactive material to achieve a volume of 90 percent full, thereby allowing the concentration to be based on the entire internal volume?*

    Yes, if the final package meets the disposal site waste acceptance criteria, the liner could be filled to 90 percent full with other blendable radioactive waste and the concentration could then be based on the entire internal volume. As discussed in the response to Question 7, small amounts of non-radioactive material also could be used.

    The CA BTP states containers of blendable waste should be at least 90% full to take credit for the entire internal volume of the container in averaging. Alternately, the waste volume or mass should be used. This guidance is similar to the 1995 CA BTP position for soils and contaminated trash. It was extended to all blendable waste in the 2015 CA BTP for simplicity, so that there would be one position for blendable wastes. NRC staff notes that 10 CFR 61.56(b)(3) requires licensees to minimize void spaces within waste (and between waste and its package) to the extent practical.

*23. Section 3.2.3 of the CA BTP states that if multiple waste streams of a single waste type generated at a licensee's facility are aggregated for the purposes of operational efficiency, occupational safety, or occupational dose reduction, the aggregated waste can be treated as a single waste stream for the purposes of the CA BTP. Does this mean that multiple waste streams (e.g., primary resin and secondary resin) placed in the same liner could be considered to be a single waste stream, thereby allowing the 90 percent fill provision of Section 3.2.1 to be used?*

Yes, if primary and secondary resins are combined at a generating facility for operational efficiency, occupational safety, or occupational dose reduction, they can be treated as one waste stream and the 90 percent fill provision of Section 3.2.1 of the 2015 CA BTP can be applied.

*24. Does the treatment of multiple waste streams as a single waste stream discussed in Question 23 contradict the definition of a waste stream as defined in Section 1.1.1 of the 2015 BTP?*

No. The 1995 CA BTP allowed waste streams aggregated at a generating facility for the purposes of operational efficiency or occupational dose reduction to be combined without being subject to any 1995 CA BTP constraints on "mixing." The corresponding provision in the 2015 CA BTP is very similar to the text of the 1995 CA BTP except that it adds "occupational safety" (i.e., non-radiological industrial safety considerations) as an acceptable basis for applying the provision. The provision does not contradict the definition of a waste stream. Rather, it recognizes that different waste streams are being combined but allows them to be averaged as if they are a single waste stream if they are combined for specific purposes (i.e., operational efficiency, occupational safety, or occupational dose reduction).

**Background**

10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," provides licensing procedures, performance objectives, and technical requirements for the issuance of licenses for the land disposal of low-level radioactive waste. Four performance objectives, including protection of an inadvertent intruder into the waste disposal site, define the overall level of safety to be achieved by disposal. Intruder protection is provided in part by the waste classification concentration limits in 10 CFR § 61.55, which are designed to ensure that an inadvertent intruder is not exposed to unsafe levels of radiation. All low-level radioactive waste must be classified in accordance with the waste classification tables in 10 CFR § 61.55. Concentrations of radionuclides that are used to determine the waste classification may be averaged over the volume or weight of the waste, in accordance with 10 CFR § 61.55(a)(8).

NRC staff has published guidance that defines acceptable approaches for such concentration averaging. In 1983, the NRC issued, "Low-Level Waste Licensing Branch Technical Position on Radioactive Waste Classification," one of the first guidance documents supporting Part 61. The waste classification technical position paper describes overall procedures acceptable to NRC staff that may be used by licensees to determine the presence and concentrations of the radionuclides listed in § 61.55, and thereby classifying waste for near-surface disposal.

In 1995, the NRC revised, in part, the 1983 "Low-Level Waste Licensing Branch Technical Position on Radioactive Waste Classification." The initial 1983 guidance established a technical position on radioactive waste classification. The initial guidance included a section, "Concentration Volumes and Masses," that provided guidance to

waste generators on the interpretation of 10 CFR § 61.55(a)(8), as it applies to a variety of different forms and types of low-level waste. The 1995 CA BTP expands on, further defines, and replaces the guidance that was provided in Section C.3 of the original 1983 technical position. The 1995 Technical Position represents acceptable methods by which specific waste streams or mixtures of these waste streams may be classified.

In 2007, the NRC staff performed a strategic assessment of the NRC's regulatory program for low-level radioactive waste. The staff undertook this effort in recognition of significant new and emerging low-level radioactive waste disposal issues. The strategic assessment identified a need to update the CA BTP. The CA BTP has the potential to increase the flexibility of disposal of certain types of low-level radioactive waste—particularly sealed sources, ion exchange resins, and irradiated hardware. The strategic assessment stated that the staff will use risk-informed approaches and knowledge that were not available when the BTP was developed and last updated in 1995.

In SECY-10-0043, NRC staff provided the Commission with an analysis of issues related to low-level radioactive waste blending. In the Staff Requirements Memorandum (SRM) for SECY-10-0043 (SRM-SECY-10-0043), the Commission directed the staff to revise the blending position in the CA BTP to be risk-informed and performance-based. With this decision, the staff was in a position to update the entire CA BTP—not only addressing blending, but also the remainder of the CA BTP topics that addressed mathematical averaging of radioactivity concentrations. Revising the CA BTP aligned with the NRC's position of moving towards a risk-informed performance-based regulatory approach. Refer to the NRC public website on low-level radioactive waste blending for more information on this topic.

The final version of the CA BTP was published in February 2015. (See *LLW Notes*, March/April 2015, pp. 41-45.) Volume 1 (ML12254B065) is the actual guidance document and Volume 2 (ML12326A611) contains responses to stakeholder comments and the technical basis.

NRC staff anticipates questions regarding implementation of the BTP; therefore, staff will post questions (with answers) as they are received. The current list of questions/answers can be found in ADAMS (ML16237A374).

*For additional information, please contact Don Lowman, Project Manager for NMSS/DSFM/ SFLB, at (301) 415-5452 or at Donald.Lowman@nrc.gov.*

# NRC Issues New Documents re Decommissioning Timeliness Rule

On September 27, 2015, the U.S. Nuclear Regulatory Commission (NRC) issued Regulatory Issue Summary (RIS) 2015-19, Revision 1, *Decommissioning Timeliness Rule Implementation and Associated Regulatory Relief.*

**Intent**

The NRC issued Revision 1 of RIS 2015-19 to correct the reference for Administrative Letter 96-05, Revision 1, and to clarify language pertaining to the time period for completing decommissioning in the subsection labeled "Requirement To Begin Decommissioning." In addition, the NRC is taking the opportunity to provide additional clarification to the sections "Alternate Schedules for Decommissioning" and "Requesting an Alternative to the DTR's Timeliness Requirements."

RIS 2015-19, Revision 1, was issued to:

- provide clarity on the Decommissioning Timeliness Rule's (DTR's) requirements to

notify the NRC to begin and complete decommissioning after certain criteria are met;

- highlight opportunities for licensees to request alternatives to the DTR's requirements;
- remind licensees that there are situations where they can request an alternative to the DTR's timeliness requirements for both beginning and completing decommissioning if adequately justified;
- clarify when the DTR applies to licensees whose only location of use are temporary jobsites; and,
- clarify when the NRC considers that the licensee has transitioned from an "operational" to a "decommissioning" status.

RIS 2015-19, Revision 1, informs licensees of requirements regarding the DTR requirements under 10 CFR Parts 30, 40, 70, and 72. According to NRC, the RIS is supplemental guidance for decommissioning and does not contradict information presented in Administrative Letter 96-05, Revision 1, "Compliance with the Rule, 'Timeliness in Decommissioning of Material Facilities'" or NUREG-1757, Volume 3, Revision 1, "Consolidated Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness, Final Report." NRC also states that the RIS does not apply to power reactors that have specific regulations concerning decommissioning (e.g., 10 CFR 50.82, "Termination of License," and 10 CFR 50.83, "Release of Part of a Power Reactor Facility or Site for Unrestricted Use").

**Background**

In July 1994, the Commission established the DTR to ensure the timely decommissioning of licensed facilities. The DTR was established to avoid delays in decommissioning sites at which licensed activities have permanently ceased to avoid the risk of compromised safety practices. Additionally, according to NRC, the DTR reduces the risk of delays in decommissioning because of bankruptcy, corporate takeover, or other unforeseen changes in a company's financial status, that may occur after licensed activities have ceased.

The DTR established specific decommissioning timeliness requirements for entire sites after the permanent cessation of all licensed activities. It also established timeliness requirements for separate buildings and outdoor areas that contain residual radioactivity such that they are unsuitable for release in accordance with NRC requirements after licensed activities have ceased in these areas, even if licensed activities continue at other site locations.

**Overview**

The NRC staff has recently identified a number of situations where confusion regarding the application of the DTR has resulted in licensees not completing decommissioning in accordance with the DTR requirements. RIS 2015-19, Revision 1, is being issued to reiterate the NRC's positions on these issues.

<u>Clarification of "Operational" vs. "Decommissioning" Status</u>

Discussions of "status" in RIS 2015-19, Revision 1, are meant only with respect to demonstrating compliance with the DTR. Under 10 CFR Parts 30, 40, 70, and 72, the DTR requires all licensees to notify the NRC within 60 days of one or more of the events listed below and begin decommissioning, unless a decommissioning plan (DP) is required. If a DP is required, the licensee is still required to notify the NRC within 60 days and to submit a DP within 12 months after the notification. The licensee would then begin decommissioning after the NRC approves the DP.

Part 30 licensees transition from an "operational" to "decommissioning" status by one or more of the following initiating events:

1. The license has expired.

2. The licensee has decided to cease principal activities permanently, as defined in Part 30, at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements.

3. No principal activities under the license have been conducted for a period of 24 months.

4. No principal activities have been conducted for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements.

The regulations in 10 CFR Parts 40.42, 70.38, and 72.54 all list similar initiating events but, for simplicity, they are not listed in RIS 2015-19, Revision 1. Licensees should review the specific initiating actions in the specific part of the regulations under which they are licensed.

Similarly, "principal activities" as defined in 10 CFR 30.4, 40.4, and 70.4—all titled "Definitions"—refer to activities authorized by the license that are essential to achieving the purpose(s) for which the license was issued or amended. Storage during which no licensed material is accessed for use or disposal and activities incidental to decontamination or decommissioning are not principal activities. Licensees regulated under other parts should refer to those provisions, as storage may be a principal activity (e.g., Part 72). Administrative Letter 96-05, Revision 1, provides guidance regarding storage-only licenses.

The regulations in 10 CFR 20.1003, "Definitions," refer to "residual radioactivity" as radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources, but excludes background radiation. It also includes radioactive materials remaining at the site because of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 CFR Part 20, "Standards for Protection against Radiation." For compliance with the DTR, the NRC considers that residual radioactivity will include any licensed sealed sources and licensed radioactive materials that remain at the site once principal activities have ceased.

During the development of the DTR, the NRC estimated that licensees that are not required to submit DPs will complete their decommissioning activities in approximately 50 months or less after permanent cessation of operations. The DTR breaks down the 50 months into three periods. The first period is the 24 months of inactivity, such as described in events 3 and 4 listed above. The second period is the 60 days allowed for notification, such as specified in 10 CFR 30.36(d). The third period is the 24 months to complete decommissioning, such as specified in 10 CFR 30.36(h). These time periods are the same for Parts 30, 40, and 70 of the regulations where a DP is not required. If a licensee determines it has exceeded the timeliness requirements for the second or third periods, it should immediately notify the appropriate NRC regional office.

<u>Requirement To Begin Decommissioning</u>

A licensee is required to both notify the NRC and begin decommissioning its site within 60 days of one or more of the initiating events discussed previously unless the licensee is required to submit a DP consistent with 10 CFR Parts 30, 40, 70, and 72. If a DP is required, the licensee is required to notify the NRC within 60 days of one or more of the initiating events and submit a DP to the NRC, for review and approval, within 12 months of notification. The licensee must then

begin decommissioning after the NRC approves the DP. Unless the NRC approves an alternative schedule, decommissioning must be complete within 24 months of the NRC's approval of the DP. If no DP is required or no alternative schedule approved, then decommissioning should be complete within 24 months of initiating decommissioning. Subpart E of 10 CFR Part 20, "Radiological Criteria for License Termination," provides the criteria licensees must meet in decommissioning.

"Decommission" is defined in 10 CFR 30.4, and means "to remove a facility or site safely from service and reduce residual radioactivity to a level that permits (1) Release of the property for unrestricted use and termination of the license; or (2) Release of the property under restricted conditions and termination of the license." The following examples are activities that the NRC would consider as actions the licensee could take during the 60-day period to begin decommissioning. Note, this is not a complete list and the licensee may take other actions to begin the decommissioning process. However, it is incumbent upon the licensee to document the actions and to proceed in a timely manner to complete the decommissioning as required by the DTR:

1. Transport source(s), licensed material, or waste offsite.

2. Perform surveys or remediation activities, if allowable under the license.

3. Evaluate decommissioning costs based on current residual activity found on site.

4. Begin budgeting process for waste removal or remediation.

Alternate Schedules for Decommissioning

The regulation in 10 CFR 30.36(f) states that the Commission may grant a request to extend the time periods in the DTR for the initiation of the decommissioning process if the Commission determines that this relief is not detrimental to the public health and safety and is otherwise in the public interest. The request must be submitted no later than 30 days before required notification of the initiating events described previously. Corresponding regulations in 10 CFR Parts 40.42(f), 70.38(f), and 72.54(f) similarly offer relief. Licensees should note that the timeframe for making a request to extend the time period for the initiation of the decommissioning process occurs before the 60-day period for notification has elapsed. It is incumbent upon licensees to make a timely decision regarding the initiation of decommissioning so that any request to extend the decommissioning schedule is appropriately submitted for consideration. The schedule for decommissioning will not commence until the Commission has made a determination on the relief request.

The NRC has approved alternative schedules when licensees have adequately demonstrated that they expect future work, but have not conducted principal activities within 24 months for economic reasons, such as a lack of grants or contracts. Licensees have adequately demonstrated an expectation to conduct future work by showing they are actively pursuing grants or contracts for work that requires a principal activity to be conducted. These licensees have also maintained appropriate safety measures and demonstrated that the delay in the initiation of decommissioning process was not detrimental to public health and safety and was otherwise in the public interest.

Furthermore, for an alternative schedule to be approved, the Commission must determine that the alternative schedule is necessary to the effective conduct of decommissioning operations and presents no undue risk from radiation to the public health and safety and is otherwise in the public interest. The licensee must maintain in effect all decommissioning financial assurances pursuant to 10 CFR 30.36(e), or the corresponding regulations in Parts 40, 70, or 72, as applicable. Additional guidance on requesting

an alternative schedule can be found in NUREG-1757, Volume 3, Revision 1, Section 2.6.

Requesting an Alternative to the DTRs Timeliness Requirements

The regulation in 10 CFR 30.36(h), and the corresponding regulations in Parts 40.42(h), 70.38(h), and 72.54(j), require licensees to complete decommissioning of the site or separate building or outdoor area as soon as practicable but no later than 24 months after the initiation of decommissioning unless an alternative schedule has been approved by the NRC. Additionally, in accordance with 10 CFR 30.36(h)(2), or with similar regulations in Parts 40, 70, or 72, if the decommissioning involves the entire site, and the NRC has not approved an alternative schedule, the licensee is required to submit a license termination request as soon as practicable, but no later than 24 months after the initiation of decommissioning, which is also the base time frame for completing the decommissioning.

If a DP is not required, the licensee transitions from "operational" to "decommissioning" status when one of the initiating events described in 10 CFR 30.36(d)(1)-(4), or corresponding regulations in 10 CFR 40.42, 70.38, or 72.54, occurs. The licensee is then required to provide notification that they intend to start decommissioning. Failure to submit the required notification does not relieve the licensee from compliance with the DTR timeliness requirements to begin and complete decommissioning. If a licensee fails to submit notification of the intent to decommission as required, initiation begins when the applicable time limit for the notification requirement ends. For example, if a Part 30 licensee does not conduct principal activities for 24 months, the licensee has 60 days to notify the NRC that it has transitioned to a decommissioning status. If the licensee has not notified the NRC of the intent to decommission by the 60th day, initiation of decommissioning is presumed to begin even though the licensee failed to notify the NRC that it had not conducted principal activities for 24 months. The licensee would then have a maximum of 24 months (50 months total from the time principal activities were ceased) to complete decommissioning and request license termination unless the NRC approves an alternative schedule. This automatic transitioning to decommissioning does not apply to licenses where the authorized activity is "storage only." For "storage only" licensees, decommissioning issues will be addressed when the license comes up for renewal.

If a licensee cannot feasibly complete decommissioning within the 24 months, the licensee may request an alternative schedule in accordance with 10 CFR 30.36(i), or through a similar regulation in Parts 40, 70, or 72. Guidance for such a request may be found in NUREG-1757, Volume 3, Revision 1. If a licensee submits a request for an alternative schedule, decommissioning need not start until the NRC rules on that request. If a DP is required, the decommissioning need not start until the approval of the DP. The licensee would be expected to complete decommissioning within 24 months after the approval of the DP if an alternative schedule has not been approved.

The process described above is shown in block diagram in NUREG-1757, Volume 3, Revision 1, Figures 2.1a and 2.1b. Attached to RIS 2015-19, Revision 1, as an enclosure are larger, more legible versions of these figures for determining compliance with the timeliness rule.

DTR Applicability to Temporary Job Site-Only Location of Use

The DTR applies to all licensees that are licensed under 10 CFR Parts 30, 40, 70 and 72, including licensees who conduct licensed activities at a temporary job site (TJS). However, as described in Administrative Letter 96-05, Revision 1, operations conducted at a TJS generally do not result in site contamination and licensed materials are required to be removed from the site at the completion of the licensed work. If a TJS does not contain residual radioactivity that would result

in a separate building or outdoor area being unsuitable for release in accordance with NRC requirements in 10 CFR Part 20, Subpart E, the DTR would not apply to the TJS. However, if contamination occurs at a TJS that results in residual radioactivity in a building or outdoor area such that the building or outdoor area would be unsuitable for release in accordance with NRC requirements in 10 CFR 20, Subpart E, the DTR does apply to the TJS. Additionally, if the license has expired, or no principal activities have been conducted under the license within 24 months, the DTR applies to the licensed material even if it is only used at a TJS. The licensee would submit notifications and begin decommissioning within 60 days after the license transitions from operational to decommissioning status, as described previously.

The DTR applies to licenses individually and, therefore, applies to a license under which no principal activities have been conducted within 24 months, even if a licensee is conducting similar principal activities under a different license (e.g. under an Agreement State license). In these situations, if the licensee would like to postpone the initiation of decommissioning under the license in which no principal activities have been conducted within the past 24 months, they should seek relief as described in 10 CFR 30.36(f), or similar regulations found in 10 CFR Parts 40, 70, or 72, as described in NUREG-1757, Volume 3, Revision 1, Section 2.6. NRC states that such licensees must be able to demonstrate that the relief is not detrimental to the public health and safety and is otherwise in the public interest.

*For additional information, please contact Greg Chapman, NMSS, at (301) 415-8718 or at Gregory.Chapman@nrc.gov.*

# NRC Issues Notice re Uranium Accumulation in Fuel Cycle Facilities

On September 28, 2016, the U.S. Nuclear Regulatory Commission (NRC) issued Information Notice (IN) 2016-13 titled, "Uranium Accumulation in Fuel Cycle Facility Ventilation and Scrubber Systems."

**Purpose**

NRC issued IN 2016-13 to inform addressees about the potential for uranium accumulation in off-gas ventilation and scrubber systems and some potential causal factors that could contribute to this type of event. According to NRC, over time, uranium can build up in areas that are difficult to inspect and clean. As a result, a criticality safety evaluation (CSE) mass limit could be exceeded and challenge controls designed to meet the performance requirements of 10 CFR 70.61(b) and 10 CFR 70.61(d) and the double contingency principle.

The NRC requests recipients to review the information contained in IN 2016-13 for applicability to their facilities and to consider actions, as appropriate, to avoid similar issues. Any suggestions contained in IN 2016-13 are not NRC requirements; therefore, no specific action or written response is required.

**Description of Circumstances**

During the most recent planned annual wet scrubber system cleanout at a low-enriched fuel fabrication facility, personnel noticed an abnormal amount of material buildup in the inlet transition region and associated ductwork (i.e., elbow). Over the course of the 2-day maintenance evolution, approximately 197 kilograms of material were removed from the scrubber transition region. The transition region is

considered an unfavorable geometry from a criticality perspective. Because facility personnel assumed that this material had a low uranium concentration, operators attempted to break up and wash away the material to facilitate its removal. Facility personnel did not sample the material to confirm the uranium concentration before conducting any activities that could have disturbed the as-found condition. After the material was removed, grab samples of the material were taken to analyze for uranium concentration.

The grab sample results indicated that the uranium concentrations ranged from 34 weight percent (wt %) – 55 wt%, which corresponded to approximately 87 kilograms of uranium. As such, the CSE mass limit of 29 kilograms was exceeded by a factor of 3. After the cleanout activities were completed, the scrubber was restarted. The scrubber operated for 6 weeks and then facility personnel shut it down to perform another cleanout of the inlet transition region and elbow. Facility personnel removed about 24 kilograms of material, which corresponded to approximately 5 kilograms of uranium. The scrubber was restarted following the 6-week cleanout. Approximately one week later, while discussing extent of condition, the licensee decided to shut down the scrubber again and thoroughly inspect the entire scrubber to ensure that the scrubber was free of uranium accumulation. An additional 184 kilograms of material was removed from the scrubber body and about 71 kilograms of material was removed from the packing material. The scrubber was shut down and the licensee commenced extent of condition and root cause evaluations and implemented several short-term corrective actions.

**Discussion**

Any event that involves exceeding a criticality parameter limit established by the CSE and results in not meeting the double contingency principle is a criticality safety concern. In this case, the mass limit was exceeded by a factor of three; moderation was available from the scrubber spray nozzles and the pressure washing; and, the scrubber packing, elbow, and transition region sections are all unfavorable geometries. As a result, the safety margin available to preclude an inadvertent criticality was significantly degraded.

The long-term accumulation of uranium in equipment with an unfavorable geometry, particularly in process ventilation and scrubber systems, has been a recurring issue throughout the nuclear fuel industry. The amount of material that can be transported into process ventilation can be underestimated. Therefore, licensees are encouraged to verify the assumptions regarding the rate and mechanisms of accumulation. Furthermore, during process changes, licensees are encouraged to consider process conditions that can affect accumulation and the possible creation of chemical hazards when off-gas from different process areas is combined. Frequent inspection and cleanout may be necessary when the accumulation rate is poorly understood or controlled. The same rigor can be applied to the analysis and control of process areas even if they are considered auxiliary to the main process or are perceived to have low risk. Otherwise, areas perceived to be low risk may become safety-significant.

Several causal factors appear to have contributed to the occurrence of the event described in IN 2016-13. The following are some of the contributing causes that the NRC staff considers important to understand in helping to prevent similar events from occurring in the future:

- Administrative Items Relied On for Safety (IROFS): There are IROFS in certain criticality accident sequences that involve implementing a particular operating or maintenance procedure. According to NRC, it is important that these procedures provide the necessary details, clear instructions, and acceptance criteria to ensure that the intended function is reliable and available. Additionally, procedures implementing visual

inspections are encouraged to contain specific pass/fail criteria and the particular process equipment be designed so that personnel can perform an adequate inspection. In this event, the annual visual inspection and cleanout through the scrubber cleanout port was ineffective at identifying and removing the accumulated uranium-bearing material.

- Configuration Management: A series of plant modifications to various systems, spread out over several years, can have a collective and unintended effect on the overall integrated system. Sufficient management measures need to be in place to ensure that the configuration of facility processes continues to be managed effectively. In this event, a series of modifications were made to several different systems that unintentionally resulted in accumulating more uranium-bearing material in the scrubber than expected.

- Challenge Assumptions: Safety analyses and evaluations may include engineering and scientific assumptions. Incorrect assumptions can lead to non-conservatisms, inadequate evaluation of risks, and could improperly render certain events or accident sequences not credible. Licensees are encouraged to use information gained from system performance measurements and operating experience in order to verify and validate these assumptions. In this event, there was data and operating experience to suggest that the assumed low uranium concentration in the scrubber could have been challenged and its validity questioned during revisions and peer reviews of the CSEs.

- Conservative Decisionmaking: After an abnormal or unexpected condition is identified, facility personnel are encouraged to ensure that the as-found condition and causes are sufficiently understood in responding to the event and before deciding to return to normal operations. In this event, a large amount of deposited material was removed. However, while the material was appropriately collected into safe-volume containers as though it had a high-uranium content, facility personnel assumed that the uranium concentration was low, decided to wash the material away, and did not report the event.

- Nuclear Safety Culture: Complex industrial facilities that process special nuclear material are confronted with criticality, chemical, and radiological hazards. In order to provide a safe environment for the workers and surrounding public stakeholders, facility personnel are encouraged to follow many guiding principles including, but not limited to, maintaining a questioning attitude, avoiding complacency, and constantly examining engineering processes and procedures. In this event, some of the scrubber operators and process engineers were unaware of the uranium mass limits and the criticality safety engineers were not adequately involved in the ventilation modifications, scrubber inspection and maintenance and initial response to the discovery of unexpected material.

**Background**

The scrubber in question was put into service in 2002. This scrubber combined two ventilation systems. In 2009, an additional feed stream was rerouted to the scrubber in question. This particular scrubber operates as a cross-flow horizontal packed-bed scrubber that uses a recirculating scrubbing liquid to absorb soluble gas molecules and knock down suspended solids, including uranium-bearing particles vented from several processes. The scrubber was originally designed to scrub mostly acidic off-gas; however, many of the current feed streams contain ammoniated off-gas.

From 2002 through 2009, facility personnel removed and inspected the scrubber inlet transition region and elbow on three different

occasions and noticed material buildup. Information on the volume, weight, and wt% of the material was not accurately and consistently recorded. For the next seven years leading up to the event, the annual scrubber cleanout did not involve removing the inlet elbow and all the packing for inspection and cleaning. Instead, the elbow and transition region sections were periodically pressure-washed through a cleanout port.

About one month before the most recent annual scrubber maintenance, the elbow and transition region were pressure-washed with a new sprayer that allowed cleaning of the upper surface of the scrubber. As described above, during the cleaning, operators observed that a large piece of accumulated material was dislodged from the upper surface of the transition region. During the annual scrubber maintenance, the inlet transition region and elbow were removed and cleaned. The material was weighed and sampled to reveal 87 kilograms of uranium, which exceeded the CSE mass limit of 29 kilograms of uranium. As part of the extent of condition, facility personnel inspected scrubber and ventilation system components that had been permanently removed from service for years and discovered some accumulation of uranium-bearing material.

*For additional information, please contact Stephen Vaughn of the NRC at (301) 415-3640 or at Stephen.Vaughn@nrc.gov.*

# NRC Seeks Comment on Proposed Changes to Public Meeting Policy

On August 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) announced that the agency is gathering comments on proposed revisions to the NRC's policy on enhancing participation in public meetings.

**Overview**

The proposed revisions aim to improve NRC public meeting consistency and help participants in meeting preparation. The revised policy would categorize public meetings as:

- Observation Meeting: The NRC meets with representatives from one or more groups in an open and transparent manner to discuss regulatory and technical matters. The meeting helps the public understand the applicable regulatory issues and NRC actions.
- Information Meeting with a Question and Answer Session: The NRC shares information and discusses applicable regulatory issues and NRC actions. These are organized, yet informal opportunities for the public to interact with and ask questions of the NRC staff.
- Comment-Gathering Meeting: The NRC obtains feedback on regulatory issues and NRC actions. The meeting will usually include an NRC presentation to explain the issue. The feedback received at these meetings supports actions such as licensing and rulemaking activities.

The proposed revised policy continues the NRC's goal of providing at least 10 days' advance notice for public meetings. The proposed revisions support teleconferencing and other technologies to help ensure widespread meeting participation. The revisions also clarify the types of meetings

covered by other policies (such as legal proceedings) or otherwise exempted from public participation requirements.

**Submitting Comments**

In a related *Federal Register* notice published on August 31, 2016, the NRC provided detailed instructions on how to submit written comments on the proposed revisions. Comments will be accepted through November 14, 2016.

*For additional information, please contact Lance Rakovan of the NRC at (301) 415-2589 or lance.rakovan@nrc.gov.*

# NRC Appoints New Director of Public Affairs

On August 22, 2016, the U.S. Nuclear Regulatory Commission (NRC) announced that Chair Stephen Burns has appointed veteran Washington communicator David Castelveter as Director of the agency's Office of Public Affairs. Castelveter succeeds Eliot Brenner, who retired in July 2016 after 12 years at the NRC, capping a long career in journalism and government.

"David Castelveter's experience in both the government and the private sector—and with high-stakes issues—makes him extraordinarily qualified for this senior position at the NRC," Burns said.

**Overview**

The Director of Public Affairs reports directly to the Chair, who by statute is the agency's spokesman. The Director serves as the agency's primary communicator with the public and news media, representing the Chair and advising senior agency officials and technical staff through the office's public affairs professionals at NRC Headquarters in Rockville, Maryland and the agency's four regional offices. The Office of Public Affairs also handles the NRC's social media and crisis communication efforts.

**Background**

Before joining the NRC, Castelveter was Deputy Assistant Administrator of the Office of Strategic Communications and Public Affairs at the U.S. Transportation Security Administration (TSA). He joined that agency in 2012 as Director of External Communications and assumed the Deputy Assistant post in 2014, serving as Acting Assistant Administrator for more than a year.

Castelveter's career in the private sector included stints as Vice-President for Communications at the Air Transport Association of America, now known as Airlines for America, and as Managing Director of Corporate Communications for US Airways Group. He is a Vietnam veteran who served in the Navy. He later served as a journalist in the Army reserves.

Castelveter has a Bachelor's Degree in Industrial Communications and Business Management from Robert Morris University and did graduate studies in Journalism and Communications at Point Park University. He is a Past-President of the Aero Club of Washington.

*For additional information, please contact David McIntyre of the NRC at (301) 415-8200.*

# NRC Remains a Top Performer in Government Survey

The U.S. Nuclear Regulatory Commission remains a top place to work in the federal government, according to recently released U.S. Office of Personnel Management (OPM) 2016 Federal Employee Viewpoint Survey (FEVS) results, exceeding government-wide results in a number of key areas.

"We continue to meet the challenges facing the agency while maintaining a clear focus on safety and security, and carrying out our core mission of protecting public health and safety," said NRC Chair Stephen Burns. "I am pleased that the NRC continues to score in the top tiers in most areas, despite a slight decline in other areas. This survey is an important tool in providing useful information to help us continually improve as a place to work."

Burns added that with the changing environment ahead, it is important that the NRC continues to address employee feedback by encouraging specific improvement initiatives and related action planning at office- and agency-wide levels throughout the NRC.

**Overview**

The NRC ranked within the top 10 medium-size agencies (1,000 to 9,999 employees) in the areas of global satisfaction and employee engagement. NRC staff provided positive responses to the majority of questions, consistently scoring well above government averages on all OPM's major indices—employee engagement, global satisfaction, and diversity and inclusion, also known as the new inclusion quotient (IQ).

The NRC employee engagement score was 74 percent, compared to 62 percent government wide with the agency ranking fifth overall. Employee engagement summarizes the results of several indices in the survey, measuring areas where agencies can focus to promote an engaged workforce. The agency score in global satisfaction was 71 percent compared to 62 percent government wide. Global satisfaction measures employee satisfaction as it relates to job, organization, and pay, as well as willingness to recommend their agency to others as a good place to work. The agency's overall "new IQ" score was 68 percent, compared to the average of 58 percent.

Overall, the NRC's FEVS participation rate was 62 percent, exceeding the 46 percent government-wide response rate. The NRC uses these survey results to identify improvement opportunities, while helping to build a stronger agency culture.

**Background**

The FEVS is conducted annually by OPM and evaluates management leadership, employee satisfaction, and organizational culture of federal agencies. Specifically, it measures employees' perception of whether, and to what extent, their organizations have the characteristics typically associated with high-performing, successful organizations.

The NRC encourages all employees to participate in FEVS, as the results of the survey are a key source for obtaining input from staff and continually improving and maintaining an effective workforce.

*For additional information, please contact Ivonne Couret of the NRC at (301) 415-8200.*

# To Obtain Federal Government Information

### by telephone

- DOE Public Affairs/Press Office ..... (202) 586-5806
- DOE Distribution Center ..... (202) 586-9642
- EPA Information Resources Center ..... (202) 260-5922
- GAO Document Room ..... (202) 512-6000
- Government Printing Office (to order entire *Federal Register* notices) ..... (202) 512-1800
- NRC Public Document Room ..... (202) 634-3273
- Legislative Resource Center (to order U.S. House of Representatives documents) ..... (202) 226-5200
- U.S. Senate Document Room ..... (202) 224-7860

### by internet

- NRC Reference Library (NRC regulations, technical reports, information digests, and regulatory guides)..... **www.nrc.gov**

- EPA Listserve Network • Contact Lockheed Martin EPA Technical Support at (800) 334-2405 or email (leave subject blank and type help in body of message)..... **listserver@unixmail.rtpnc.epa.gov**

- EPA • (for program information, publications, laws and regulations) ..... **www.epa.gov**

- U.S. Government Printing Office (GPO) (for the Congressional Record, *Federal Register*, congressional bills and other documents, and access to more than 70 government databases)..... **www.access.gpo.gov**

- GAO homepage (access to reports and testimony) ..... **www.gao.gov**

***To access a variety of documents through numerous links, visit the website for the LLW Forum, Inc. at www.llwforum.org***

# Acknowledgement and Disclaimer

*Acknowledgement: This material is based upon work supported in part by the U.S. Department of Energy under Award Numbers DE-EM0001364 and DE-em0003153.*


**Appalachian Compact**
Delaware
Maryland
Pennsylvania
West Virginia

**Atlantic Compact**
Connecticut
New Jersey
South Carolina

**Central Compact**
Arkansas
Kansas
Louisiana
Oklahoma

**Central Midwest Compact**
Illinois
Kentucky

**Northwest Compact**
Alaska
Hawaii
Idaho
Montana
Oregon
Utah
Washington
Wyoming

**Midwest Compact**
Indiana
Iowa
Minnesota
Missouri
Ohio
Wisconsin

**Rocky Mountain Compact**
Colorado
Nevada
New Mexico

*Northwest accepts Rocky Mountain waste as agreed between compacts*

**Southeast Compact**
Alabama
Florida
Georgia
Mississippi
Tennessee
Virginia

**Southwestern Compact**
Arizona
California
North Dakota
South Dakota

**Texas Compact**
Texas
Vermont

**Unaffiliated States**
District of Columbia
Maine
Massachusetts
Michigan
Nebraska
New Hampshire
New York
North Carolina
Puerto Rico
Rhode Island