

March 26, 2013

MEMORANDUM TO: Aby Mohseni, Deputy Director  
Environmental Protection and Performance  
Assessment Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Federal and State Materials  
and Environmental Management Programs

FROM: Don Lowman, Project Manager **/RA/**  
Environmental Protection and Performance  
Assessment Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Federal and State Materials  
and Environmental Management Programs

SUBJECT: SUMMARY OF MARCH 1, 2013, PUBLIC WORKSHOP IN PHOENIX,  
ARIZONA, ON POTENTIAL REVISIONS TO NUREG/BR-0204

On March 1, 2013, staff from the Office of Federal and State Materials and Environmental Management Programs conducted a public workshop for the purpose of gathering public views and comments concerning potential revisions to NUREG/BR-0204, Rev. 2 (July 1998), "Instructions for Completing NRC's Uniform Low-Level Radioactive Waste Manifest."

**BACKGROUND INFORMATION:**

Title 10 CFR Part 20, Appendix G, "Requirements for Transfers of Low-Level Radioactive Waste (LLRW) Intended for Disposal at Licensed Land Disposal Facilities and Manifests" requires that the U.S. Nuclear Regulatory Commission (NRC) Uniform Waste Manifest be prepared for LLRW intended for ultimate disposal at a licensed LLRW land disposal facility. The waste generator, collector, or processor who transports, or offers for transportation, LLRW must prepare the manifest reflecting information requested on applicable NRC Forms 540 (Uniform Low-Level Radioactive Waste Manifest (Shipping Paper)), and 541 (Uniform Low-Level Radioactive Waste Manifest (Container and Waste Description)) and if necessary, on an applicable NRC Form 542 (Uniform Low-Level Radioactive Waste Manifest (Manifest Index and Regional Compact Tabulation)). NRC Forms 540, and 540A must be completed, and must physically accompany the pertinent LLRW shipment. Per Appendix G of 10 CFR Part 20, the shipper of the waste must include, on the uniform manifest for the waste shipment, "[t]he activity of each of the radionuclides Tritium (H-3), Carbon-14 (C-14), Technetium-99 (Tc-99), and Iodine-129 (I-129) contained in the shipment." These isotopes are of concern because they were found to be especially important to safety from groundwater migration in the 10 CFR Part 61 Draft Environmental Impact Statement.

CONTACT: Don Lowman, FSME/DWMEP  
301-415-5452

Unfortunately, the activities of H-3, C-14, Tc-99, and I-129 are Difficult-To-Measure (DTM) in the radioactive waste that is generated. At a March 8, 2012, public meeting on proposed revisions to Part 61, stakeholders suggested that H-3, C-14, Tc-99, and I-129 are being over-estimated in current site inventory dose assessments because of a reliance on a default value when the amount of the physical isotope in question is below some Lower Limit of Detection (LLD) threshold for these isotopes. If true, the cumulative effect of this over reporting results in an over-estimation of the site inventory, thus, if reporting requirements are not updated, disposal sites may have to close prematurely due to over-estimation in site inventory dose assessments.

Additionally, the State of Texas required the performance assessment for the Waste Control Specialists (WCS) LLRW disposal facility in Andrews County to address CI-36 because it is also a key contributor to the groundwater dose and was analyzed in NUREG-1573, "A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities". CI-36 may also be over-reported because of minimum detection reporting criteria, thus it is included in the effort to update NUREG/BR-0204.

In SECY-13-0001, "Staff Recommendations for Improving the Integration of the Ongoing 10 CFR Part 61 Rulemaking Initiatives", staff noted that stakeholders have recommended that the earlier assumptions concerning the above isotopes cited in the 10 CFR Part 20, Appendix G should be revisited. Stakeholders would like the NRC to address the manifesting of these isotopes, potentially by revising NUREG/BR-0204, Rev. 2 to provide improved reporting guidance for the DTM radionuclides. NRC committed to facilitating public discussion of the issues involving H-3, C-14, Tc-99, and I-129. NRC staff will also evaluate issues with CI-36 reporting.

### **MARCH 1, 2013 PUBLIC WORKSHOP:**

The March 1 2013, Public Meeting Notice and meeting agenda were made publicly available prior to the meeting and can be found in the Agencywide Documents Access and Management System (ADAMS) (ML13016A269). The announcement for this facilitated public meeting was published in the *Federal Register* (FR) on February 20, 2013, (78 FR 11907). Approximately 56 individuals participated in this public meeting, both in person and remotely (electronically) via webinar/telephone. Attendance included representatives from the Electric Power Research Institute (EPRI), the U.S. Department of Energy, Agreement State representatives, current LLW disposal facility operators, utilities, and members of non-governmental organizations. See enclosure.

For this workshop, the staff relied on a panel of subject matter experts to address pre-determined topics related to the potential revision of NUREG/BR-0204:

- Characterize the issue(s)
- LLDs
  - How are LLD values summed to meet manifest requirements?
  - How to get generators to use more consistent standards for developing LLD's.
  - How to estimate concentrations if below the LLD.
  - Why do some burial sites use LLD values in their inventory and other sites do not?
  - If an LLD is reported, is using zero for inventory purposes good enough.

- What are some potential revisions to NUREG/BR-0204
  - Align the NUREG w/ Part 20 Appendix G by including processors in the certification statement.
  - Update Form 542 to identify the original generator even when attribution is solely the processor's as some states desire this.
  - No revisions needed.
  - Can we accomplish the objective in other guidance.
- Improved sampling and counting
- How to include CI-36 in the revisions
- Others?

The staff sought to use the information and feedback obtained from these discussions to determine if a revision to the NUREG was necessary to address the perceived issues raised at the March 2012 public meeting. During the workshop, time was provided for facilitated public discussion between the panelists and members of the audience. Mr. Chip Cameron was the meeting facilitator responsible for moderating the discussions. The public meeting was transcribed to serve as an official record of the event, and the stakeholder comments and suggestions provided can be found in the transcript (ADAMS No. ML13080A09)

Mr. Larry W. Camper, Director of the Division of Waste Management and Environmental Protection (DWMEP), opened the workshop with a brief history of the issues and a discussion of future public meetings on the topic. Later, at the end of the meeting, Mr. Aby Mohseni, Deputy Director of DWMEP summarized highlights from workshop. He expressed the view that the panel discussions as well as the subsequent feedback from the meeting participants had been constructive and informative. Mr. Aby Mohseni noted that the staff intended to review the workshop transcript as part of its information gathering initiative and consider both oral and written comments received as consideration as to whether the NUREG requires revision. NRC requested the audience provide public comments regarding the NUREG within 30 days of the workshop (April 1, 2013).

PANELISTS:

PARTICIPANT	TITLE	AFFILIATION
Paul Black	Chief Executive Officer	Neptune and Company, Inc.
Bill Dornsife	Executive VP – Safety & Regulatory Affairs	Waste Control Specialists
Don Lowman	Project Manager	NRC/DWMEP
Sean McCandless	Director of Compliance and Permitting	EnergySolutions
Billy Cox	Senior Project Manager	EPRI
Joe Weisman	Director of Radiological Affairs	US Ecology

Below is a summary of key comments and observations from the workshop:

- Manifest reporting of Tc-99 and I-129 are more of an issue than C-14, H-3, and Cl-36.
- In the industry, compliance sometimes supersedes accuracy in regulatory reporting which can have unintended consequences. For example, LLD values used on the manifest are over-conservative but meet the regulatory requirements and are defensible; however, their use may lead to early closure of the burial sites.
- Add flexibility to the NUREG/BR to allow generators and processors to use data that is applicable to their facility rather than being required to use laboratory LLDs which are most likely conservative.
- Accuracy of the distribution coefficients or  $K_d$ s for isotopes in a site-specific performance assessment should be evaluated to ensure they are appropriate for both the waste and the disposal site facility.
- NUREG/BR-0204 requires the summation of LLD values on the manifest which is not appropriate.
- Resolution of the issue(s) may not entirely reside with the NRC and potential revisions to NUREG/BR-0204. Industry believes that it can get more accurate measurements for the DTM isotopes, although more expensive and time consuming, through use of longer count times or use of mass spectrometry.
- Attribution of waste to the correct generator and state will be addressed in future public meetings on potential revisions to the NUREG.
- There currently is no public health or safety issue associated with the guidance provided in the current version of NUREG/BR-0204 so NRC is facilitating the discussions to determine a solution to the issue of over-reporting DTM isotopes. At the end of the planned public interactions, the NRC staff will determine if an update to NUREG/BR-0204 is appropriate.

#### **PATH FORWARD:**

At the end of the meeting, Mr. Mohseni described the staff's plans for additional public outreach efforts in connection with any potential revision to NUREG/BR-0204. Subject to resource availability, below are current NRC plans for moving forward with potential revisions to NUREG/BR-0204 (dates subject to change):

- Evaluate March 2013 Workshop Comments
- Conduct Two Webinars
  - Agreement States (May 2013)
  - General public interest groups (May 2013)

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- Draft Proposed NUREG/BR Revisions (September/2013)
- Public Meeting on Draft Guidance (October/2013)
- Publish Final Document (December/2013)

Enclosure:  
Attendance List

A. Mohseni

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- Draft Proposed NUREG/BR Revisions (September/2013)
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- Publish Final Document (December/2013)

Enclosure:  
Attendance List

**ML13081A237**

<b>OFC</b>	DWMEP	DWMEP	DWMEP	DWMEP	DWMEP
<b>NAME</b>	DLowman	MLee	TMoon	MHeath for GSuber	DLowman
<b>DATE</b>	3/25/13	3/25/13	3/25/13	3/26/13	3/26/13

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ATTENDEES (Public):

NAME	AFFILIATION
Mahn Aziz	Federal Authority of Nuclear Regulation, United Arab Emirates
Jhon Carilli	U.S. DOE
S.Y. Chen	Argonne National Lab
Cesar Costa	Industrias Nucleares Do Brasil
Lisa Edwards	EPRI
Sonny Goldson	EnergySolutions
Sarah Herness	Radwaste Monitor
Leslie Jardine	Dublin, CA
Thomas (Tom) Kalinowski	D.W. James Consulting
Ashok Kapoor	U.S. DOE
Mark Lewis	EnergySolutions
Todd Lovinger	LLW Forum
Rusty Lundberg	Utah Department of Environmental Quality
Leigh Anne Methlie	Catholic University of America, VSI & DOE
Clint Miller	Pacific Gas & Electric Company
Robert Petras	Savannah River Site
Joseph Rustick	Vanderbilt University
Roger A. Stigers	PPL Corporation
Linda Suttora	U.S. DOE
John Tauxe	Neptune and Company, Inc.
Christopher J. Tubman	APS Palo Verde
Robert Vellinger, Sr. r	Terranear PMC, LLC
Aaron White	U.S. DOE
Perry Williams	Studsvik
Bill Wilmark	U.S. DOE
Charles Yu	Argonne National Lab

ATTENDEES (Webinar):

NAME	AFFILIATION
Michael Ault	US Ecology
Brad Broussard	Texas Commission on Environmental Quality
Michael Carr	EnergySolutions
Diane Darrigo	Nuclear Information and Resource Service
Maurice Heath	U.S. NRC
Matthew Hooper	WMG, Inc
Vernon Ichimura	EnergySolutions
Graham Johnson	Duke Energy
Richard Lemons	Duke Energy
Michael Plemmons	South Carolina Dept. of Health & Environmental Control
Loren Morton	State of Utah
Kristen Schwab	Washington Dept. of Health
Sandra Talley	U.S. NRC
Mark Tunnell	WMG, Inc.

ATTENDEES (U.S. NRC):

NAME	TITLE
Boby Abu-Eid	Senior Technical Advisor
Andy Campbell	Deputy Director, Office of Enforcement
Larry W. Camper	Director, Division of Waste Management and Environmental
Ester Houseman	Legal Intern
Jim Kennedy	Senior Project Manager
Chris McKenney	Branch Chief, Performance Assessment
Aby Mohseni	Deputy Director, Division of Waste Management and Environmental
Karen Pinkston	Systems Performance Analyst
Mark Satorius	Director, Office of Federal and State Materials and Environmental Management Programs