

**Annual Change Report 2016/2017**

**From July 1, 2016, to June 30, 2017**

**November 2017**

Prepared for:

**The U.S. Department of Energy**

Prepared by:

**Nuclear Waste Partnership LLC**

**Regulatory Environmental Services**

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## Introduction

The U.S. Environmental Protection Agency (EPA) requires the U.S. Department of Energy (DOE) to provide information on any change in conditions or activities pertaining to the disposal system since the most recent compliance application. This requirement is identified in Title 40 Code of Federal Regulations (CFR) Part 194.4(b)(4) (EPA 1996), which states:

“No later than six months after the Administrator issues a certification, and at least annually thereafter, the Department shall report to the Administrator, in writing, any changes in conditions or activities pertaining to the disposal system that were not required to be reported by paragraph (b)(3) of this section and that differ from information contained in the most recent compliance application.”

The DOE provides an annual report each November of applicable changes under this requirement. This annual report informs the EPA of non-significant changes to information in the most recent compliance application (the 2014 Compliance Recertification Application [CRA] [DOE 2014]). Significant planned changes must be reported to the EPA prior to implementation by the DOE. In addition, Title 40 CFR Part 194.4(b)(3) (EPA 1996) requires that significant unplanned changes be reported to the EPA within 24 hours or ten days, depending on the severity of the activity or condition. Planned changes are submitted on an individual basis.

Proposed changes in activities or conditions are reviewed to determine if 40 CFR Part 194.4(b)(3) reporting is necessary. The enclosed tables list those items identified for reporting under 40 CFR Part 194.4(b)(4) (EPA 1996). The majority of the items described in this report are inspections, reports, and modifications to written plans and procedures for Waste Isolation Pilot Plant (WIPP) operations.

This report captures the summary of each change within seven tables for the period July 1, 2016, through June 30, 2017.

### Information required by 40 CFR 194.4(b)(4):

Table 1: Changes in WIPP Conditions or Activities Reportable under Title 40 CFR Part 194.4(b)(4), documents EPA and DOE interactions during the reporting period with a high-level summary of each correspondence.

Table 2: Procedure/Plan Revision, documents changes to relevant plans and procedures during the reporting period.

Table 3: Waste Emplacement Summary Report, documents the transuranic (TRU) waste inventory for the waste parameters. The summary provides the total emplaced inventory in the repository as of June 30, 2017.

Table 4: Performance Assessment, Software, and Hardware Changes, documents the changes to relevant codes, software, and hardware that have occurred during the reporting period.

### Extra-Regulatory Information Requested by the Environmental Protection Agency:

Table 5: Passive Institutional Controls (PICs) Activity, documents the relevant activities applicable to the development of PICs. This table has been added at the request of the EPA. (Reyes to Moody, 2008a)

Table 6: EPA Waste Characterization Inspections January 2008 to June 2017, documents inspections performed by the EPA pertaining to Tier 1 changes to the baseline approvals at generator and storage sites for TRU waste. This table was added to the Annual Change Report at the request of the EPA during the EPA/DOE management meeting held July 29, 2010. Inspections prior to January 2008 were documented in Table CARD 8-1, EPA Waste Characterization Inspections, submitted with the five-year recertification applications and are included. (EPA request, July 29, 2010)

Table 7: EPA Quality Assurance Audits by Site January 2008 to June 2017, documents audits performed by the EPA for generator and storage sites for TRU waste. This table was added to the Annual Change Report at the request of the EPA during the EPA/DOE management meeting held July 29, 2010. Audits prior to January 2008 were documented in Table CARD 8-2, EPA Quality Assurance Audits by Site, submitted with the five-year recertification applications and are included. (EPA request, July 29, 2010)

In accordance with EPA requests<sup>1</sup> and feedback, this report incorporates suggestions and guidance for capturing the appropriate level of detail and the layout of information with respect to the WIPP certification criteria. This report does not include administrative changes to procedures such as editorial changes, reformatting, correcting references, correcting inconsistency within a procedure, and other changes that do not change the substance or intent of the document.

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<sup>1</sup> EPA to McFadden, 1998; Page to Klein, 1999a; Page to Triay, 1999b; Marcinowski to Triay, 2000; Marcinowski to Triay, 2001; Marcinowski to Triay, 2002a; Marcinowski to Triay, 2002; Marcinowski to Triay, 2003a; Marcinowski to Triay, 2003b; Marcinowski to Triay, 2003c; Gitlin to Detwiler, 2004; Gitlin to Triay, 2005a; Gitlin to Piper, 2005b; Gitlin to Moody, 2006a; Gitlin to Moody, 2006b.

**Information required by 40 CFR 194.4(b)(4)**

**Table 1:**  
**Changes in WIPP Conditions or Activities Reportable under Title 40 CFR Part 194.4(b)(4)**

Regulatory Requirements	Implementing Document or Activity that Changed	Description of the Change and DOE Assessment of the Impact of the Change
194.4(b)(4) Conditions of Compliance Certification	2015/2016 Annual Change Report	<u>DOE to EPA, November 14, 2016.</u> Submittal of the 2015/2016 Annual Change Report.
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Advanced Mixed Waste Treatment Project (AMWTP)	None to report.
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Argonne National Laboratory (ANL)	None to report.
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Idaho National Laboratory (INL)	<u>DOE to EPA, August 22, 2016.</u> Tier 1 request for waste streams ID-HFEF-S5000-RP and ID-HFEF-S3000-RP (lots 6 and 7).
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Los Alamos National Laboratory (LANL)	<u>EPA to DOE, December 13, 2016.</u> Transmittal of the scope of the baseline inspection (EPA-LANL-CCP Inspection No. 02.17-8) of the Central Characterization Program (CCP) at the LANL scheduled February 7-9, 2017.
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Oak Ridge National Laboratory (ORNL)	<u>DOE to EPA, July 21, 2016.</u> Tier 1 request to evaluate the four appendices, C-F, added for the radiological approach of RH ORNL Waste Stream OR-REDC-RH-HET debris waste, requiring disposal. The contact-handled (CH) companion waste stream is OR-REDC-CH-HET.

Regulatory Requirements	Implementing Document or Activity that Changed	Description of the Change and DOE Assessment of the Impact of the Change
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Sandia National Laboratories (SNL)	None to report.
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Savannah River Site (SRS)	<u>EPA to DOE, June 5, 2017</u> . Approval of Tier 1 request to add RH TRU waste stream SR-RH-773A.01 to the list of approved remote-handled (RH) waste streams (EPA air e-docket: EPA-HQ-OAR-2001-0012-0471).
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	Waste Control Specialists (WCS)	None to report.
NOTE: Dates correspond to CCP quarterly reports.		
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	FY16 Quarterly Tier 2 reports, second quarter	<u>EPA to DOE, July 6, 2016</u> . EPA accepted and did not object to any of the FY 16 second quarter changes reported. <u>DOE to EPA, July 14, 2016</u> . Submittal of AMWTP and CCP documents requested by EPA in their July 6, 2016 acceptance letter.



<b>Regulatory Requirements</b>	<b>Implementing Document or Activity that Changed</b>	<b>Description of the Change and DOE Assessment of the Impact of the Change</b>
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	FY16 Quarterly Tier 2 reports, third quarter	<p><u>DOE to EPA, July 26, 2016</u>. Notification of Tier 2 change for AMWTP and CCP activities for FY16, third quarter.</p> <p><u>EPA to DOE, February 1, 2017</u>. Acknowledgement of receipt of third quarter FY16 Tier 2 changes and request for additional information.</p>
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	FY16 Quarterly Tier 2 reports, fourth quarter	<p><u>DOE to EPA, December 12, 2016</u>. Notification of Tier 2 change for AMWTP and CCP activities for FY16, fourth quarter.</p> <p><u>EPA to DOE, February 1, 2017</u>. Acknowledgement of receipt of fourth quarter FY16 Tier 2 changes and request for additional information.</p>
194.8 Approval Process for Waste Shipment from Waste Generator Sites for Disposal at the WIPP	FY17 Quarterly Tier 2 reports, first quarter	<p><u>DOE to EPA, February 17, 2017</u>. Notification of Tier 2 changes for AMWTP and CCP activities for FY17 first quarter.</p> <p><u>EPA to DOE, June 8, 2017</u>. Acknowledgement of receipt of first quarter FY17 Tier 2 changes and request for additional information.</p>

Regulatory Requirements	Implementing Document or Activity that Changed	Description of the Change and DOE Assessment of the Impact of the Change
40 CFR 194.11-15	Certification/Recertification	<p><u>DOE to EPA, September 16, 2016.</u> Response to EPA letter dated June 6, 2016, requesting performance assessment sensitivity analyses for the 2014 Compliance Recertification Application.</p> <p><u>DOE to EPA, October 6, 2016.</u> Response to EPA email of July 28, 2016, regarding chemistry questions on the 2014 Compliance Recertification Application.</p> <p><u>EPA to DOE, November 4, 2016.</u> Request for DOE to "...perform a limited sensitivity study using the following modifications to the CRA-2014 PA inputs:</p> <ul style="list-style-type: none"> <li>a) Use the Data0.FM1 chemistry database with the uncertainty distribution for actinide solubility developed with the references EPA provided to DOE via letter dated September 30, 2016,</li> <li>b) For the PBRINE parameter please see the EPA developed distribution previously provided to DOE via email from Tom Peake dated September 16, 2016,</li> <li>c) For the TAUFAIL parameter, the lower bound of the sampled distribution for the 50% degraded waste will be 1.60 MPa,</li> <li>d) For spallings releases use version 1.22 of the DRSPALL code where the errors in the <i>Forchterm</i> have been corrected, and</li> <li>e) The correct representative length of the furthest northern set of panel closures, which is almost double of what was modeled in the CRA-2014 PA."</li> </ul> <p><u>EPA to DOE, January 13, 2017.</u> EPA notification that the 2014 Compliance Recertification Application for the WIPP is complete. Docket No. EPA-HQ-OAR-2014-0609.</p>

Regulatory Requirements	Implementing Document or Activity that Changed	Description of the Change and DOE Assessment of the Impact of the Change
194.14(b) Design of the Disposal System	Status of Experiments in the WIPP Underground July 1, 2016 to June 30, 2017.	<p>SEGA (Segmented Enriched Germanium Assembly) and MEGA (Multiple Element Germanium Array)</p> <p>All SEGA activities are currently on hold and the Q-room area of S-90 is partitioned off pending evaluation of the status of ground stability.</p> <p>EXO (Enriched Xenon Observatory)</p> <p>EXO activities include: The EXO-200 experiment was in operation until the last week of June 2017, when the ability to cryogenically cool the primary and secondary chillers was lost. The Xenon was containerized and new chillers will be sent at the end of the summer 2017.</p> <p>LBRE (Low Background Radiation Experiment)</p> <p>Power was lost to the LBRE connex on June 4, 2017, and the nematode experiment could not be salvaged. Experiments with bacteria continue.</p> <p>DMTPC (Dark Matter Time Projection Chamber)</p> <p>DMTPC has stood-down data collection.</p> <p>Salt Disposal Investigations (SDI)/Salt Defense Disposal Investigations (SDDI)</p> <p>The test plan, “<i>Testing of a Prototype Canister Heater in the WIPP Underground</i>” (SDI-TP-002 R01) and science work control document TC0-WA-0016 R00, “<i>Experimental Heater Installation in WIPP</i>” were approved by the Test Coordination Office and key WIPP organizations. The prototype canister heater was approved to be used underground at WIPP and is underground awaiting for power to be established.</p>

Regulatory Requirements	Implementing Document or Activity that Changed	Description of the Change and DOE Assessment of the Impact of the Change
194.21, Inspections	WIPP and Generator site inspections	<p><u>EPA to DOE, October 25, 2016.</u> EPA notified the DOE of their intent to perform the annual 40 CFR 191 Subpart A WIPP inspection November 7-9, 2016. “The inspection will also address the state of the WIPP’s relevant programs and procedures following facility recovery activities and prior to the resumption of active waste emplacement.”</p> <p><u>EPA to DOE, February 17, 2017.</u> Results of the annual 40 CFR 191 Subpart A inspection held November 7-9, 2016. “The DOE and its contract staff at the WIPP continue to meet commitments and regulatory requirements to track waste, monitor the disposal system, measure any radioactive releases, calculate potential dose to the public and document the results of these activities.”</p>
194.22, Quality Assurance (QA)	Quality Assurance Audit	None to report.
194.42 Monitoring	Ground Water Monitoring	None to report.

**Table 2:  
Procedure/Plan Revision**

Procedure/Plan	Revision and Effective Date	Description of Change
DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria	Revision 8.0 July 5, 2016	Major updates to include several new activities and process enhancements resulting from the 2014 event.
DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria, Appendix F, RTR	Revision 8.0 May 16, 2017	EPA concurrence on Appendix F, RTR.
SP 12-36, Use and Maintenance of the Snap-Sampler Brand Passive Water Sampling System	Revision 0, August 16, 2016	This system provides the capability to collect a water sample at any desired depth within a water column and will be used to support activities described in WIPP Test Plans TP 06-01, "Monitoring Water Levels in WIPP Wells" (Schuhen 2010a) and TP 03-01, "Test Plan for Testing of Wells at the WIPP Site" (Schuhen 2010b).
WP 05-WH1010, Container Overpacking	Revision 11, September 7, 2016	Identified Hazardous Waste Facility Permit required inspection.
WP 10-AD3029, Calibration and Control of Monitoring and Data Collection Equipment	Revision 12, September 15, 2016	Complete rewrite using new procedure template; no rev bars displayed. Rewrite includes deletion of Precautions and Limitations as N/A to admin procedure (text relocated within body of procedure); addition of instructions that procedure sections may be performed independently; deletion of Note 1 in Key Step column as this management control procedure does not implement key requirements; addition of IT Department assistance with database development; addition of actions to submit M&DC Equipment Usage List with EA10AD3029-1-0; deletion of example EA (former ATT1).
WP 05-WH1011, CH Waste Processing	Revision 56, September 29, 2016	Revised in response to cold-op practice runs. <ul style="list-style-type: none"> <li>•Inserted HWFP requirements in 3.8, 3.11, and 3.12.</li> <li>•Reworked RCT steps in sections 5.4 and 5.5 to accommodate changed process requirements.</li> <li>•Formatted ACGLF counterweight specs to match DOE/WIPP-02-3184, CH Packaging Operations Manual.</li> </ul>
WP 10-AD3028, Calibration and Control of Measurement and Test Equipment	Revision 15, October 18, 2016	Complete rewrite using new procedure template.

Procedure/Plan	Revision and Effective Date	Description of Change
WP 02-EC3506, Environmental Incident Reporting	Revision 10, October 19, 2016	Updated to reflect changes in the Hazardous Waste Facility Permit.
WP 05-WH1010, Container Overpacking	Revision 12, October 19, 2016	Update to reflect changes in the Hazardous Waste Facility Permit.
WP 12-9, WIPP Emergency Management Plan	Revision 43, October 26, 2016	Revised to show merger of CBFO Emergency Management Plan into NWP/WIPP Emergency Management Plan. Updated organization positions and terminology.
WP 05-WH1011, CH Waste Processing	Revision 57, November, 2, 2016	Revised data entry to WWIS/WDS and to insert TSR required inspection language.
WP 12-HP1500, Radiological Posting and Access Control	Revision 21-FR1, November 14, 2016	Incorporated Field Revision 1 changes.
WP 12-HP3500, Airborne Radioactivity	Revision 23, December 8, 2016	Complete rewrite to align with updated current practices.
WP 16-2, Software Screening and Control	Revision 16, May 17, 2017	Major revision to incorporate requirements from modification to WP 13-1 Revision 37, Section 6, Software Requirement.
WP 13-1, Nuclear Waste Partnership LLC Quality Assurance Program Description	Revision 37, May 17, 2017	Revised to incorporate DOE/CBFO-94-1012, Revision 13, <i>Quality Assurance Program Document</i> .

**Table 3:  
Waste Emplacement Summary Report**



<b>TRU Waste Inventory</b>				
	<b>Reporting Period<sup>1</sup> Emplaced Volume (m<sup>3</sup>)*</b>	<b>Cumulative<sup>2</sup> Emplaced Volume (m<sup>3</sup>)</b>		
<b>RH TRU</b>	0	357		
<b>CH TRU</b>	229	90,942		
<b>Waste Components Inventory</b>				
	<b>Reporting Period<sup>1</sup> Emplaced Mass (kg)*</b>	<b>Cumulative<sup>2</sup> Emplaced Mass (kg)</b>	<b>Maximum Emplaced Limiting Value<sup>3</sup> (kg)</b>	<b>Percent of Limiting Value<sup>3</sup> Emplaced</b>
<b>Cellulose, Plastic, Rubber Materials<sup>4</sup></b>	14,552	8,935,299	22,000,000	40.61%
	<b>Reporting Period<sup>1</sup> Emplaced Mass (kg)*</b>	<b>Cumulative<sup>2</sup> Emplaced Mass (kg)</b>	<b>Minimum Emplacement Limiting Value<sup>3</sup> (kg)</b>	<b>Percent of Limiting Value<sup>3</sup> Emplaced</b>
<b>Fe-Metals<sup>5</sup></b>	163,695	27,924,013	20,000,000	Minimum met
<b>Non-Fe Metals</b>	261	438,480	2,000	Minimum met
<b>Emplaced Radiological Activity Inventory (curies)</b>				
<b>Radionuclide</b>	<b>Cumulative Activity in FY 2015/2016 Annual Change Report<sup>6</sup></b>	<b>CH Repository Reporting Period Activity<sup>6</sup></b>	<b>RH Repository Reporting Period Activity<sup>6</sup></b>	<b>Total Activity as of June 30, 2017<sup>6</sup></b>
<sup>241</sup> Am	2.587E+05	2.584E+05	6.208E+02	2.590E+05
<sup>137</sup> Cs	1.445E+04	1.422E+01	1.444E+04	1.445E+04
<sup>238</sup> Pu	4.835E+05	4.829E+05	7.289E+02	4.837E+05
<sup>239</sup> Pu	3.337E+05	3.349E+05	3.839E+02	3.353E+05
<sup>240</sup> Pu	8.267E+04	8.278E+04	2.802E+02	8.306E+04
<sup>242</sup> Pu	2.759E+01	2.725E+01	3.821E-01	2.763E+01
<sup>90</sup> Sr	7.615E+03	1.595E+01	7.599E+03	7.615E+03
<sup>233</sup> U	6.921E+00	6.546E+00	3.848E-01	6.931E+00
<sup>234</sup> U	8.783E+01	8.671E+01	1.140E+00	8.785E+01
<sup>238</sup> U	1.762E+01	1.758E+01	3.915E-02	1.762E+01
<b>Total</b>	<b>1.181E+06</b>	<b>1.159E+06</b>	<b>2.405E+04</b>	<b>1.183E+06</b>

<b>Magnesium Oxide (MgO)<sup>7</sup> and Cellulose, Plastic and Rubber (CPR) Mass Emplaced Per Waste Panel</b>				
<b>Panel</b>	<b>Room</b>	<b>MgO (kg)</b>	<b>CPR* (kg)</b>	<b>Excess Factor</b>
1	all	4,482,355	1,237,732	1.87 <sup>8</sup>
2	2-7	5,972,300	1,241,928	2.26 <sup>8</sup>
2	1	691,515	186,200	1.71
3	7	960,120	104,831	4.03
3	6	954,405	228,033	1.95
3	5	1,022,985	284,651	1.70
3	4	960,120	255,054	1.79
3	3	931,545	243,860	1.89
3	2	944,880	227,889	2.03
3	1	662,940	183,072	1.76
4	7	942,975	248,903	1.90
4	6	925,830	267,494	1.71
4	5	948,690	265,302	1.71
4	4	1,049,655	290,739	1.76
4	3	1,015,365	285,755	1.70
4	2	931,545	374,327	1.22 <sup>7</sup>
4	1	668,655	265,884	1.23
5	7	937,260	353,262	1.28
5	6	875,477	140,009	2.85
5	5	782,346	298,808	1.24
5	4	737,167	225,425	1.64
5	3	714,286	215,937	1.61
5	2	730,612	194,045	1.84
5	1	485,714	135,742	1.75
6	7	744,218	167,581	2.11
6	6	666,667	189,857	1.74
6	5	474,294	203,473	1.24
6	4	471,586	202,410	1.25
6	3	406,533	171,306	1.25
6	2	291,716	121,686	1.22
6	1	235,107	80,223	1.46
7	7	57,692	15,900	1.76
7	6	69,388	20,424	*1.83

#### Footnotes

1. Reporting Period is July 1, 2016, through June 30, 2017.
2. Cumulative period includes from the beginning of emplacement until June 30, 2017.
3. Limiting Value—Values from CRA 2009 Section 24. These values are based on inventory assumptions.
4. Cellulose, Plastic, Rubber Materials (CPR) includes the waste, container materials, emplacement materials and non-containerized waste.
5. Fe-Metals include both materials in the waste and containers in total.
6. There is no decay correction for the listed isotope activities. All isotopic activities reported are from the time of the original assay. It is understood that some isotopes may have reached secular equilibrium after disposal.
7. New minimum value for excess factor of MgO to be implemented as approved by EPA (February 11, 2008) reduces excess factor from 1.67 to 1.20 and ensures minimum reactivity of 94%.
8. MgO, CPR and Excess Factor results for all of panel 1 and rooms 2-7 of panel 2 have been recalculated to replace averaged data with actual emplaced data.

#### \* Notes

Waste emplacement is a three-step process. The first step is emplacement of RH waste into the walls of the emplacement room. (This step was limited in Panel seven to only rooms six and seven.) The second step involves CH waste emplacement into the room. The third step involves emplacement of MgO.

**Table 4:**  
**Performance Assessment, Software, and Hardware Changes**

WIPP Codes/Software and Code Version	Version Date	Description of Change	New Code Version
POSTLHS 4.10	July 12, 2016	Revised compiler option to restrict instruction set that is supported by all cluster nodes. This will correct Software Problem Report (SPR) 16-001 (Park 2016).	POSTLHS 4.11
EPAUNI 1.18	October 3, 2016	The compiler option in this code was revised to restrict the instruction set that is supported by all cluster nodes. This will correct SPR16-003.	EPAUNI 1.19
MATSET 9.23	November 8, 2016	The compiler option in this code was revised to restrict the instruction set that is supported by all cluster nodes. This will correct SPR16-002.	MATSET 9.24
PRELHS 2.43	November 8, 2016	The compiler option in this code was revised to restrict the instruction set that is supported by all cluster nodes. This will correct SPR16-004.	PRELHS 2.44
TBD 1.00	March 2, 2017	This code was retired from use.	None

**Extra-Regulatory Information Requested by the Environmental Protection Agency**

**Table 5:  
Passive Institutional Controls Activity**

Date	Description of Activity
August 8, 2016	In continuance of the efforts to obtain papers and opinions relating to the Records, Knowledge and Memory (RK&M) international initiative through the Nuclear Energy Agency (NEA), DOE has secured a panel (R.8.5) and two half paper sessions (8.9a and 8.9b) at Waste Management Conference 2017. These papers will be utilized by DOE in an expert elicitation to create a new Passive Institutional Controls conceptual model. This new model will be in coordination with the international guidelines being developed by the NEA RK&M group.
March 6-10, 2017	In support of the WIPP Passive Institutional Controls (PICs) program and the international RK&M initiative, the DOE/CBFO organized two paper half sessions (session 023 and session 105), and one panel session (panel session 024) at the Waste Management 2017 conference. A total of seven papers were presented with four papers from the United States, one paper from the United Kingdom Nuclear Decommissioning Authority (NDA), one paper from France French National Radioactive Waste Management Agency (ANDRA), and one paper from Germany Technischer Überwachungs-Verein National Office Regions and Districts (TÜV-NORD). Panelists were from the United States (DOE, EPA, and Longenecker and Associates) and France (ANDRA). These papers and the panel discussion notes will be evaluated by the DOE/CBFO in its effort to develop a new PICs conceptual model that will be in coordination with the guidelines being developed by the NEA RK&M initiative.
May 26, 2017	DOE/CBFO proposed session 8.8 Global Experience of Records, Knowledge and Memory (RK&M) for Nuclear Waste Geologic Repositories for Waste Management 2018. This is a paper session expected to present eight papers on this topic and the papers will be evaluated by the DOE/CBFO in efforts to develop a new PICs conceptual model.

**Notes:**

In a 2008 letter from EPA to DOE (Reyes, 2008b), EPA changed the schedule for Passive Institutional Controls development as previously defined in Triay (2002c).



**Table 6:**  
**EPA Waste Characterization Inspections – January 2008 to June 2017**

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
Advanced Mixed Waste Treatment Plant (AMWTP)/Accelerated Retrieval Project (ARP)	March 2, 2010, Desk-top evaluation	Tier 1 evaluation adding BN510 waste stream	EPA Docket No. A-98-49; II-14-127, June 10, 2010
	November 17-18, 2010	EPA unannounced continued compliance inspection	EPA Docket No. A-98-49; II-A4-143, March 16, 2011
	October 30- November 1, 2012, and February 26, 2013	EPA Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-173, April 25, 2013
	October – December 2012	Tier 1 addition of ANLE-generated SCG S3000 and S5000 CH waste and SCG S5000 MFC CH waste	EPA Docket No. A-98-49; II-A4-169, January 2013
	February 2013	Tier 1 Subsurface Disposal Area (SDA) waste stream	EPA Docket No. A-98-49; II-A4-174, July 9, 2013
	February 2013	Tier 1 adding LANL debris waste to the super-compacted CH AMWTP debris waste	EPA Docket No. A-98-49; II-A4-178, September 16, 2013
	February 11, 2014	Tier 1 adding INL-generated waste	EPA Docket No. A-98-49; II-A4-180, February 11, 2014
	November 3-5, 2014	Continued compliance inspection	Final document has not been released at this time
	No inspection performed	Tier 1 approval adding waste stream WDP-AMWTP-15-003, Load Management.	No Docket No. assigned, approval February 9, 2015
	No inspection performed	Approval of assembly of CH waste pay loads of Product Drum Assembly-High Minimum Detectable Activity silvers.	No Docket No. assigned, approval May 13, 2015

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	May 13, 2015	Tier 1 change to allow assembly of CH waste payloads	No Docket No. assigned
	July 14-16, 2015	Tier 1 to allow CH Retrieval Box Assay System	EPA Docket No. A-98-49; II-A4-200, October 19, 2015
	November 17-19, 2015	Continued compliance inspection of Idaho Treatment Group	EPA Docket No. A-98-49; II-A4-206, April 4, 2016
	No inspection performed	DOE closure of last item opened by EPA on Continued Compliance	No Docket No., June 13, 2016
Argonne National Laboratory-Illinois (ANL)	May 28, 2008	Tier 1 SRS-CCP RH Visual Examination (VE) newly packaged waste	EPA Docket No. A-98-49; II-A4-102, July 10, 2008
	October 2008	Tier 1 addition of 100 drums of AGHCF debris waste to AERHDM waste stream	EPA Docket No. A-98-49; II-A4-136, October 2008
	May 20-21, 2010, Desk-top evaluation	Tier 1 SRS-CCP addition of 30 containers to AERHDM waste stream	EPA Docket No. A-98-49; II-A4-132, September 13, 2010
	June 29, 2010, Desk-top evaluation	Tier 1 SRS-CCP addition of 120 containers to AERHDM waste stream	EPA Docket No. A-98-49; II-A4-134, September 28, 2010
	May 4 and 18, 2010, EPA Inspection	Tier 1 SRS-CCP addition of 30-gallon containers of Fuel Examination Waste (FEW) to previously approved RH debris AERHDM waste stream	EPA Docket No. A-98-49; II-A4-140, November 22, 2010

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	September 2011 EPA Inspection	Tier 1 to add eight 55-gallon K-Wing FEW containers to RH debris waste stream AERHDM	EPA Docket No. A-98-49, II-A4-158, February 13, 2012
	January 3, 2012 EPA Inspection (11-2060)	Tier 1 to evaluate Radiation Characterization Approach of Solidified Liquid Waste from K-Wing, Building 205, 55-gallon	EPA Docket No. A-98-49; II-A4-162, June 14, 2012
	February – June, 2012 EPA Inspection Desk-top Review	Tier 1 debris from the Reduced Enrichment Research and Test Reactor (RERTR) program and the second batch of FEW packaged in 30-gallon containers	EPA Docket No. A-98-49; II-A4-140, October 4, 2012
	February – June, 2012 EPA Inspection	Tier 1 to evaluate solidified liquid waste from K-Wing, Bld. 205, 55-gallon drum	EPA Docket No. A-98-49; II-A4-162, June 14, 2012
	May 8-9, 2012 EPA Inspection	Tier 1 to include Lot 2 waste ID-ANLE-S5000	EPA Docket No. A-98-49; II-A4-163, July 25, 2012
	EPA Inspection July 31-August 1, 2012	Tier 1 of the analytical chemistry lab (ACL)	EPA Docket No. A-98-49; II-A4-165, September 4, 2012
	September, 2012 EPA Desktop evaluation	Tier 1 evaluation of waste stream AERHDM RERTR and second batch debris, (bldg. 212, 30-gallon container)	EPA Docket No. A-98-49; II-A4-167, October 4, 2012

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	February 2014	Tier 1 evaluation of five containers of solidified liquid waste from K-Wing Bldg. 205 to be included in the AERHDM waste stream	EPA Docket No. A-98-49; II-A4-181, March 24, 2014
Bettis Atomic Power Laboratory (BAPL)	August 30, 2010, September 23, 2010, December 8, 2010 and April 12-13, 2011 EPA Baseline Inspection	EPA Baseline Inspection No. EPA-BAPL-CCP-RH-04.11-8	EPA Docket No. A-98-49; II-A4-151, July 2011
General Electric Vallecitos Nuclear Center (GEVNC)	December 2-4, 2008	CCP RH Initial Certification	EPA Docket No. A-98-49; II-A4-115, August 26, 2009
Hanford	April 27-29, 2010	CH Baseline Inspection	EPA Docket No. A-98-49; II-A4-138, December 21, 2010
	March 22-23, 2011	Tier 1 adding SHENCA	EPA Docket No. A-98-49; II-A4-146, May 2, 2011
	November 2011	Tier 1 adding CH S3000 RLCCPPUNIT waste stream	EPA Docket No. A-98-49; II-A4-154, November 10, 2011
Idaho National Laboratory (INL)	January 2008	Tier 1 K cell waste	EPA Docket No. A-98-49; II-A4-97, January 1, 2008
	April 11, 2008	Tier 1 high-range gamma probe for DTC	EPA Docket No. A-98-49; II-A4-98, April 11, 2008
	June 9, 2008, Desk-top evaluation	Tier 1 Waste Area Groups (WAGs) density range extension	EPA Docket No. A-98-49; II-A4-107, October 7, 2008
	December 9-11, 2008	Tier 1 addition of VE CH S5000 retrievably stored waste stream	EPA Docket No. A-98-49; II-A4-110, March 4, 2009
	September 22, 2009	Tier 1 visual examination technique	EPA Docket No. A-98-49; II-A4-118, September 22, 2009

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	September 22, 2009	Tier 1 recalibration of the HENC	EPA Docket No. A-98-49; II-A4-119, September 22, 2009
	December 8-9, 2009	Tier 1 addition of ID-HFEF-S5400-RH Lot 1A and ID-ANLE-S5000 waste streams	EPA Docket No. A-98-49; II-A4-122, February 1, 2010
	April-May 2010 Desk-top evaluation	Tier 1 addition of ID-MFC-S5400-RH waste stream	EPA Docket No. A-98-49; II-A4-126, June 11, 2010
	December 8-9, 2009, January 12-13, 2010, and February 17, 2010	Tier 1 addition of ID-INTEC-RH waste stream	EPA Docket No. A-98-49; II-A4-130, August 17, 2010
	July 13, 2009, to June 2010 Desk-top evaluation	Tier 1 addition of Osprey and ID-HFEF-S5400-RH Lot 1B waste stream	EPA Docket No. A-98-49; II-A4-131, August 23, 2010
	July 1, 2009 Desk-top evaluation	Tier 1 High Efficiency Neutron Counter (HENC) operating range extension	EPA Docket No. A-98-49; II-A4-119, September 22, 2010
	September 22, 2009	Tier 1 addition of ID-RTC-S3000 waste stream	EPA Docket No. A-98-49; II-A4-137, November 1, 2010
	August 9-10, 2010	Tier 1 addition of IN-ID-NRF-153 waste stream	EPA Docket No. A-98-49; II-A4-135, November 1, 2010
	November 16-17, 2010	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-142, March 16, 2011
	March 23, 2011	Tier 1 addition of Lot 4A to waste stream ID-HFEF-S5400-RH	EPA Docket No. A-98-49; II-A4-145, March 23, 2011
	June 23, 2011	Tier 1 supplemental calibration for the WAGS to allow filters	EPA Docket No. A-98-49; II-49-150, June 23, 2011

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	October 4-5, 2011	Tier 1 to include RH waste stream IN-ID-NRF-SPC	EPA Docket No. A-98-49; II-A4-159, March 12, 2012
	January 4, 2012	Inspection of Waste Stream ID-NRD.1	EPA Docket No. A-98-49; II-A4-157, January 4, 2012
	May 8-9, 2012	Tier 1 radiation approach of 48 additional canisters for waste stream ID-ANLE-S5000 AERHDM (Lot 2)	EPA Docket No. A-98-49; II-A4-163, July 25, 2012
	February 2013	Tier 1 evaluate SWEPP Gamma-Ray Spectrometer (SGRS) new calibration	EPA Docket No. A-98-49; II-A4-172, February 26, 2013
	May 7-9, 2013	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-175, July 16, 2013
	December 3-5, 2013	Tier 1 adding waste stream IN-ID-BTO-030 (Lot 3)	EPA Docket No. A-98-49; II-A4-191, November 10, 2014
	April 16, 2014	Tier 1 addition of waste stream ID-EBR-S5000	EPA Docket No. A-98-49; II-A4-183, April 16, 2014
	May 5-7, 2014	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-190, July 15, 2014
	July 15, 2014	Tier 1 change for the addition of Lot 5C to waste stream ID-HFEF-S5400-RH	EPA Docket No. A-98-49; II-A4-185, July 15, 2014
	July 15, 2014	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-190, July 15, 2014
	June – October 2014	Tier 1 adding waste stream ID-TRA-W345-RH (Lot8B)	EPA Docket No. A-98-49; II-A4-194, November 5, 2014

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	No inspection performed	Tier 1 approval for waste stream ID-HFEF-S5400-RH (Liner 3; Lot 5C)	EPA Docket No. A-98-49; II-A4-198, September 8, 2015
	May 19-21, 2015	Tier 1 adding waste stream ID-ANLW-W269-RH (Lot 8C)	EPA Docket No. A-98-49; II-A4-201, November 10, 2015
	No inspection performed	Approval of Tier 1 to include waste streams ID-RF-S5300-RH and ID-RF-S5100-RH (Lot 8A)	EPA Docket No. A-98-49; II-A4-203, November 13, 2015
Los Alamos National Laboratory (LANL)	April 11-15, 2005	Inspection for OSRP for Sealed Sources	EPA Docket No. A-98-49; II-A4-55, June 17, 2005
	June 21, 2007	CH Baseline Inspection	EPA Docket No. A-98-49; II-A4-88, June 21, 2007
	October 28, 2007	Tier 1 extension of range for the HENC2	EPA Docket No. A-98-49; II-A4-91, October 28, 2007
	December 7, 2007	Tier 1 extension of range for the HENC	EPA Docket No. A-98-49; II-A4-95, December 7, 2007
	May 8-10, 2007	Initial RH Certification	EPA Docket No. A-98-49; II-A4-96, February 19, 2008
	May 25-26, 2010	Tier 1 HENC unit 2 Report (non-approval)	EPA Docket No. A-98-49; II-A4-139, November 8, 2010
	May 25-26, 2010	LANL-CCP CH TRU Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-141, February 9, 2011
	April 28, 2010 (10-0810)	CH Tier 1 request expanding the calibration range to the HENC unit 2 to accommodate CH lead-lined 55-gallon drums	EPA Docket No. A-98-49; II-A4-139, April 30, 2012
	October 28, 2011	Tier 1 addition of the SuperHENC	EPA Docket No. A-98-49; II-A4-153, October 28, 2011



<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	June 20-21, 2012	CH Tier 1 request for calibration range extension for the SuperHENC and the extend ability for the HENC unit 1 to assay lead-lined 55-gallon drums containing solidified materials	EPA Docket No. A-98-49; II-A4-164, August 14, 2012
	September – November, 2012	Tier 1 approval to add summary category group S4000	EPA Docket No. A-98-49; II-A4-168, December 31, 2012
	June 4-5, 2013	Tier 1 to include the Mobile ISOCS for SWBs, Corrugated Metal Boxes (CMBs), and 55-gallon drums	EPA Docket No. A-98-49; II-A4-176, July 22, 2013
	February 2014	Continued compliance inspection	Final document has not been released at this time
	No inspection performed	Tier 1 approval of HENC3	EPA Docket No. A-98-49; II-A4-199, September 8, 2015
	No inspection performed	DOE closure of last item opened by EPA on Continued Compliance	No Docket No., June 13, 2016
Oak Ridge National Laboratory (ORNL)	(Desk-top evaluation)	Tier 1 CH Calibration Extension for segmented gamma scanner (SGS)	EPA Docket No. A-98-49; II-A4-108, October 8, 2008
	November 17, 2008	Tier 1 CH Calibration Extension for Drum Waste Assay System (DWAS) Imaging Passive Active Neutron (IPAN)	EPA Docket No. A-98-49; II-A4-109, January 8, 2009
	June 30-July 2, 2008	EPA RH Baseline Inspection No. EPA-ORNL-CCP-RH-06.08-8	EPA Docket No. A-98-49; II-A4-111, February 3, 2009

Generator Site	Date of Inspection	EPA Inspection No./Tier 1 Evaluation	Docket Number/Approval Date
	May 6, 2009	Tier 1 OR-REDC-RH-HET to include Solvent Extraction Test Facility (SETF) Time Period (November 1978-November 1991) waste	EPA Docket No. A-98-49;II-A4-120, November 30, 2009
	August 11-12, 2009	Tier 1 addition of CH S4000 SCG waste	EPA Docket No. A-98-49; II-A4-117, October 7, 2009
	November 23, 2009	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-121, November 23, 2009
	February 23-24, 2010	Tier 1 addition of CH VE and adding the IQ3	EPA Docket No. A-98-49; II-A4-125, March 30, 2010
	February-March, 2010 Desk-top evaluation	Tier 1 addition of RH SETF Pre-79 waste stream	EPA Docket No. A-98-49; II-A4-124, April 21, 2010
	March 23, 2011	Tier 1 addition of NFS Trench B soils to waste stream OR-NFS-CH-SOIL	EPA Docket No. A-98-49; II-A4-144, March 23, 2011
	February 4-6, 2014	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-186, June 18, 2014
	June 18, 2014	Tier 1 Adding Refurbished IQ3	EPA Docket No. A-98-49; II-A4-186, June 18, 2014
	July 2014	Tier 1 evaluation of CH waste with addition of SCG S3000	EPA Docket No. A-98-49; II-A4-186, June 9, 2014
	August 5-6, 2014	Tier 1 adding MILCC2	EPA Docket No. A-98-49; II-A4-192, October 21, 2014
	No inspection performed	Tier 1 approval adding VE for S5400 and S5000 CH wastes	EPA Docket No. A-98-49; II-A4-193, November 10, 2014
	August 2-4, 2016	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-207, June 14, 2017

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	No date	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-207, June 14, 2017
	No inspection performed	Approval of assembly of CH waste pay loads at ORNL Transuranic Waste Processing Center	No Docket No. given, June 19, 2017
Sandia National Laboratories (SNL)	March 8, 2011, May 10, 2011, June 7-8, 2011	Initial Baseline Inspection	EPA Docket No. A-98-49; II-A4-155, November 23, 2011
	December 2011-January 2012	Tier 1 to include RH containers generated from waste groups PKE00027/54 and PKE00047 to existing waste stream SNL-HCF-S5400-RH	EPA Docket No. A-98-49; II-A4-160, March 28, 2012
Savannah River Site (SRS)	March 24-26, 2009	Tier 1 addition of Non-destructive Assay Box Counter (NABC)	EPA Docket No. A-98-49; II-A4-114, August 4, 2009
	September 30, 2010 Desk-top evaluation	Tier 1 addition of CH S3000 waste	EPA Docket No. A-98-49; II-A4-123, March 23, 2010
	November 2009 – March 2010	Tier 1 addition of SR-BCLDP.001.001, SR-BCLDP.001.002, SR-BCLDP.002, SR-BCLDP.003, SR-BCLDP.004.002, SR-BCLDP.004.003 waste streams	EPA Docket No. A-98-49; II-A4-129, September 13, 2010
	March 24-26, 2009	Tier 1 extension of calibration to the NABC	EPA Docket No. A-98-49; II-A4-133, September 14, 2010

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	May 12, 2011 timeframe, EPA Desk-top evaluation	Tier 1 allowing use of American Society for Testing and Materials (ASTM) standard efficiency calibration method for NABC	EPA Docket No. A-98-49; II-A4-148, May 31, 2011
	July 26, 2011 (11-1419)	RH EPA Baseline adding SR-RH-FBL.01 (remainder of RH at SRS)	EPA Docket No. A-98-49; II-A4-161, April 18, 2012
	August 14-15, 2012	Tier 1 request for using 5-foot setback configuration of the NABC	EPA Docket No. A-98-49; II-A4-166, September 11, 2012
	February, 2013	Tier 1 to evaluate waste stream SR-RH-235F.01	EPA Docket No. A-98-49; II-A4-170, February 12, 2013
	February, 2013	Tier 1 NABC BSGS 5-foot setback for SWB's	EPA Docket No. A-98-49; II-A4-171, February 2013
	June – July, 2013	Tier 1 SR-RH-221H.01 waste stream	EPA Docket No. A-98-49; II-A4-177, August 20, 2013
	March, 2014	Tier 1 change calibration to include a 5-foot detector setback configuration on the NDA Box Counter to assay SLB's Type 2	EPA Docket No. A-98-49; II-A4-182, March 2014
	May 22, 2014	Tier 1 SR-RH-SDD.01 (Sealed Sources)	EPA Docket No. A-98-49; II-A4-184, May 2014
	August – October 2014	Continued Compliance Inspection	EPA Docket No. A-98-49; II-A4-195, February 23, 2015
	December 2014	Inspection SR-BCLDP.003	EPA Docket No. A-98-49; II-A4-196, December 31, 2014

<b>Generator Site</b>	<b>Date of Inspection</b>	<b>EPA Inspection No./Tier 1 Evaluation</b>	<b>Docket Number/Approval Date</b>
	February 2015	Follow-up Continued Compliance Inspection for RTR Operations, 1-Drum BCO152	EPA Docket No. A-98-49; II-A4-195, February 23, 2015
	No inspection performed	Tier 1 approval of RH-SWD.01 waste	EPA Docket No. A-98-49; II-A4-197, August 3, 2015
	No inspection performed	Tier 1 approval of RH-772F.01 waste	EPA Docket No. A-98-49; II-A4-202, November 25, 2015
	No inspection performed	Tier 1 SR-RH-MNDPAD1.01 waste stream	EPA Docket No. A-98-49; II-A4-204, June 15, 2016
	No inspection performed	Tier 1 approval of SR-RH-773A.01 waste containers	EPA Docket No. A-98-49; II-A4-210, June 5, 2017

**Table 7:**  
**EPA Quality Assurance Audits by Site – January 2008 to June 2017**

<b>Site</b>	<b>Audit Date</b>	<b>Purpose</b>
Advance Mixed Waste Treatment Plant (AMWTP)	August 18-20, 2009	Recertification Audit A-09-19
	August 23-26, 2010	Recertification Audit A-10-24
	November 1-3, 2011	Recertification Audit A-12-03
	October 15-18, 2012	Recertification Audit A-13-01
	October 1-3, 2013	Recertification Audit A-14-01
	October 7-9, 2014	Recertification Audit A-15-01
	September 24, 2014 to February 26, 2015	Remote audit of the AMWTP QA program for NQA-1-1989 compliance. EPA docket no: A-98-49; II-A1-121
	October 27-29, 2015	Recertification Audit A-16-01
	December 12-16, 2016	Recertification Audit A-17-04
Argonne National Laboratory East (ANLE)-CCP	July 10, 2008	RH VE Newly Packaged Waste Audit A-08-03
	August 5-7, 2008	CCP RH Recertification Audit A-08-24
	August 4-6, 2009	CCP RH Recertification Audit A-09-21
	August 3-5, 2010	CCP RH Recertification Audit A-10-23
	August 2-4, 2011	CCP RH Recertification Audit A-11-20
	August 28-30, 2012	CCP RH Recertification Audit A-12-16
	December 19, 2012	CCP Recertification Audit A-12-16
	August 27-28, 2013	CCP Recertification Audit A-13-24
	September 16-18, 2014	CCP Recertification Audit A-14-20
	November 1-3, 2016	CCP Recertification Audit A-17-08
Bettis Atomic Power Laboratory (BAPL)	April 19-21, 2011	Initial Certification Audit A-11-12
	April 24-26, 2012	Closeout Audit A-12-10
Carlsbad Field Office (CBFO)	June 29-July 1, 2010 August 3-4, 2010	Audit of the DOE Peer Review used to qualify historical information for TRU waste streams SR-BCLDP-004.002 and SR-BCLDP-004.003. EPA Docket No. A-98-49; II-A1-108
	April 8-29, 2013	Remote records audit of CBFO Technical Assistance Contractor
	June 18-20, 2013	Audit of the quality assurance program relative to the American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) Standard NQA-1-1989. EPA Docket no. A-98-49; II-A1-112
	July 22-24, 2014	Audit of CBFO QA program for compliance with NQA-1-1989 elements. EPA Docket No. A-98-49; II-A1-117
	January 6-February 12, 2015	Audit of CBFO QA program for compliance with NQA-1-1989 elements. EPA Docket No. A-98-49; II-A1-120
	September 1-3, 2015	Audit of CBFO QA program for compliance with NQA-1-1989 elements. EPA Docket No. A-98-49; II-A1-121
	September 20-22, 2016	CBFO Document Control Audit A-16-27

<b>Site</b>	<b>Audit Date</b>	<b>Purpose</b>
General Electric Vallecitos Nuclear Center (GEVNC)- CCP	December 2-4, 2008	Initial RH S5000 Certification Audit A-09-05
	January 26-28, 2010	Recertification Audit A-10-04
Hanford-CCP	April 6-8, 2010	Initial Certification Audit A-10-07
	April 5-7, 2011	Recertification Audit A-11-10
	May 14-17, 2012	Recertification/Closeout Audit A-12-11
	May 14-16, 2013	Recertification Audit A-13-15
	May 20-21, 2014	Recertification Audit A-14-16
	June 23-25, 2015	Recertification Audit A-15-19
	May 31 to June 1, 2016	Recertification Audit A-16-11
	April 4, 2017	Recertification Audit A-17-20
Idaho National Laboratory (INL)- CCP	January 29-30, 2008	Expansion Audit (NMED approval of Acceptable Knowledge [AK]) Audit A-08-11
	May 13-15, 2008	Recertification Audit A-08-10 INL and A-08-22 ID Labs
	December 9-11, 2008	VE of Records Audit A-09-08
	May 5-7, 2009	Recertification Audit A-09-14 INL and A-09-13 ID Labs
	June 8-10, 2010	Recertification Audit A-10-16 INL and A-10-17 ID Labs
	June 7-9, 2011	Recertification Audit A-11-13 INL Labs and A-11-14 INL
	June 11-14, 2012	Laboratory Recertification Audit A-12-14 and CCP Recertification Audit A-12-13
	June 3-6, 2013	Recertification Audit A-13-18
	July 9-11, 2013	Analytical Laboratories Close Out Audit A-13-19
	June 3-5, 2014	Recertification Audit A-14-18
	June 16-18, 2015	Recertification Audit A-15-18
	June 14-16, 2016	Recertification Audit A-16-18
	June 13-15, 2017	Recertification Audit A-17-23
Los Alamos National Laboratory (LANL)- CCP	February 19, 2008	Initial Certification Audit A-07-12 and A-07-13
	April 15-17, 2008	CCP CH and RH Recertification Audit A-08-16
	December 9-11, 2008	Addition of VE CH S5000 Retrievably Stored Waste Audit A-09-08
	April 7-9, 2009	CCP CH and RH Recertification Audit A-09-12
	April 27-29, 2010	CCP CH and RH Recertification Audit A-10-14
	May 17-19, 2011	CCP CH and RH Recertification Audit A-11-11
	July 24-26, 2012	CCP CH and RH Recertification Audit A-12-12
	July 23-25, 2013	CCP CH and RH Recertification Audit A-13-23
	July 22, 2013	CCP CH Recertification Audit revised A-13-23



Site	Audit Date	Purpose
	June 10 – July 8, 2014	Audit of the QA program for the WIPP as it pertains to NQA-1-1989. EPA Docket No. A-98-49; II-A1-116
	August 19-21, 2014	CCP CH Recertification Audit A-14-19
	March 1-3, 2016	QAPD Implementation Audit A-16-10
	March 7-9, 2017	QAPD Implementation Audit A-17-14
	May 16-18, 2017	Recertification Audit A-17-17
	May 17-19, 2016	CCP CH and RH Recertification Audit A-16-19
Nuclear Waste Partnership (NWP) LLC	June 18-20, 2013	Quality Assurance (QA) audit relative to the American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) Standard NQA-1-1989. EPA Docket no. A-98-49; II-A1-113
	July 22-24, 2014	Audit of NWP QA program for compliance with NQA-1-1989 elements. EPA Docket No. A-98-49; II-A1-118
	January-November 2015	Audit of NWP QA program for compliance with NQA-1-1989 elements. Final document has not been released at this time
	August 6 – September 24, 2015	Audit of NWP QA program for compliance with NQA-1-1989 elements. Scope was limited and will be revisited at a later date. EPA Docket No. A-98-49; II-A1-123
	November 17-19, 2015	Environmental RCRA/Monitoring Program/Groundwater Audit A-16-04
	February 2-4, 2016	Calibration Audit A-16-06
	March 29-31, 2016	CCP QA Audit A-16-12
	April 26-28, 2016	Dosimetry/RADCON Program Audit A-16-16
	January 24-26, 2017	Industrial Safety Air Quality Monitoring Audit A-17-05
	February 7-9, 2017	Materia Control and Stores Inventory Audit A-17-32 Calibration Audit A-17-15
	March 28-30, 2017	QA Audit A-17-13
	May 8-10, 2017	Environmental RCRA/Monitoring Programs/Groundwater Audit A-17-01
Oak Ridge National Laboratory (ORNL)-CCP	November 13-15, 2007	AK and NDA Activities Audit A-08-06
	June 30-July 2, 2008	Initial RH Certification Audit A-08-12
	January 13-15, 2009	CH Recertification Audit A-09-07
	June 23-25, 2009	RH Recertification Audit A-09-22
	July 28-30, 2009	Addition of S4000 SCG Audit A-09-24
	February 9-11, 2010	CH and RH Recertification Audit A-10-08
	February 8-10, 2011	CH and RH Recertification Audit A-11-08
	March 27-29, 2012	CCP CH and RH Recertification Audit A-12-08
	April 23-25, 2013	CH and RH Recertification Audit A-13-12
January 14-26, 2014	CH and RH Recertification Audit A-14-03	

<b>Site</b>	<b>Audit Date</b>	<b>Purpose</b>
	March 31- April 3, 2015	CH & RH Recertification Audit A-15-09
	April 19-21, 2016	Recertification Audit A-16-15
	October 4-6, 2016	Neutron Dose-to-Curie and RH Waste Sampling Audit A-17-09
	October 17-20, 2016	WAC Compliance Audit A-17-07
	April 18-20, 2017	Recertification Audit A-17-21
Savannah River Site (SRS)-CCP	October 28-30, 2008	CH and RH Recertification Audit A-09-01
	March 24-26, 2009	Addition of NABC Audit A-09-17
	June 23-24, 2009	Addition of Real-time Radiography (RTR) #4 Audit A-09-16
	October 27-29, 2009	BCL RH Recertification and CH S3000 Initial Certification Audit A-10-01
	October 26-28, 2010	Recertification Audit A-11-01 and RTR Unit 4 for SLB2s and Large Container Non-Destructive Examination (LCNDE) for SWBs and SLB2s
	November 14-17, 2011	RH Recertification and Initial SR-RH-FBL-01 Audit A-12-04
	November 6-8, 2012	CH Recertification Audit A-12-02
	September 23, 2014	CH Recertification Audit A-14-04
	November 4-6, 2014	CH Recertification Audit A-15-02
	December 3-4, 2015	CCP Recertification Audit A-16-02
Sandia National Laboratories (SNL)-CCP	July 13-15, 2011	Recertification Audit A-11-23
	August 14-16, 2012	Closeout Audit A-12-15
	August 5-7, 2014	Initial Certification Audit A-14-26
	August 18-20, 2015	Recertification Audit A-15-25
	February 9-11, 2016	SNL-CPG Audit A-16-07
	November 15-17, 2016	RH S5000 Recertification Audit A-17-10
	December 6-8, 2016	Recertification Audit A-17-02
	February 14-16, 2017	QAPD Implementation Audit A-17-06
Sandia National Laboratories-Carlsbad Office (SNL-CO)	May 1-29, 2014 and July 22-24, 2014	Verification of implementation of SNL-CO's QA program relative to requirements of NQA-1 Standard NQA-1-1989. EPA Docket No. A-98-49; II-A1-115, EPA-HQ-OAR-2001-0012-0444

## Summary

The changes reported in this version of the WIPP Annual Change Report do not represent significant changes pertaining to the disposal system.

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