



Assessment of Carlsbad Field Office Oversight of Transuranic Radioactive Waste Management Programs

Revised Interim Report

April 2020

Office of Enterprise Assessments
U.S. Department of Energy

Assessment of Carlsbad Field Office Oversight of Transuranic Radioactive Waste Management Programs August 26-30, 2019 Revised Interim Report

Overview

This assessment is in response to the Deputy Secretary of Energy's July 9, 2019, memorandum directing the Office of Enterprise Assessments (EA) to undertake a U.S. Department of Energy (DOE)-wide assessment of the procedures and practices for packaging and shipping radioactive waste. The assessment activities focused on the processes used to provide oversight of the programs that ensure safe and compliant characterization, packaging, and shipping of transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP), as implemented at various DOE sites. In providing oversight, the Carlsbad Field Office (CBFO) regularly engages with DOE's TRU waste generating sites. Two formal ways of providing this engagement are through direction and guidance to conduct generator site technical reviews (GSTRs) and annual certification/recertification audits. GSTRs examine site radioactive waste management programs and certified program processes that govern all TRU waste operations from original TRU waste generation to shipment of certified packages. Certification audits evaluate TRU waste certified programs that have been implemented at DOE sites to determine their readiness to begin operating to characterize, package, and ship TRU waste. This assessment examined a waste certification audit performed by the Carlsbad Field Office (CBFO) Office of Quality Assurance at Lawrence Livermore National Laboratory (LLNL), as CBFO evaluated LLNL's readiness to begin shipping TRU waste to WIPP. The EA assessment team, identified in Appendix A, interviewed CBFO personnel and contracted support staff who performed the audit and assessment activities; sampled certification audit activities while on the LLNL site; and evaluated multiple programmatic documents, including procedures, memoranda, audit and review reports (including the LLNL GSTR), and issues management system input. In addition, this assessment reviewed past GSTR and Certification Audit reports for a sample of other sites that ship TRU waste to WIPP, including Argonne National Laboratory, Idaho Cleanup Project, Los Alamos National Laboratory, and Savannah River Site, as well as procedures and processes implemented for these locations' respective certified programs.

This report replaces our original report, *Assessment of Carlsbad Field Office Oversight of Transuranic Radioactive Waste Management Programs*, issued in February 2020. Subsequent to the issuance of our original report, we became aware of information that changed our determination of a reported weakness regarding implementation of guidance for evaluating oxidizing chemicals introduced by absorption processes. After additional analysis of the information, we determined the issue is not a weakness. As a result, we have removed the weakness and are reissuing the report.

At the conclusion of the enterprise-wide assessment, a final compilation report will include the results of this summary. The perspective gained by conducting this assessment could change as additional information becomes available from subsequent site assessments. The final compilation report will identify best practices, lessons learned, and cross-cutting recommendations.

DOE Order 227.1A, *Independent Oversight Program*, describes and governs the DOE independent oversight program, which EA implements through a comprehensive set of internal protocols, operating practices, assessment guides, and process guides. DOE Order 227.1A defines the terms best practices, findings, deficiencies, opportunities for improvement, and recommendations. In accordance with DOE Orders 227.1A and 226.1B, *Implementation of Department of Energy Oversight Policy*, it is expected that the site will analyze the causes of findings and deficiencies identified in this summary, develop corrective

action plans for findings, and implement compensatory corrective actions for program and performance deficiencies.

Summary

Overall, CBFO's oversight process for ensuring that characterization, packaging, certification, and shipping of TRU waste to WIPP is thorough and adequately assesses the multiple ongoing operations across the DOE enterprise. The strength of the CBFO oversight program is rooted in the rigor and regularity of the audit processes. This assessment identified no findings and no opportunities for improvement; however, this assessment did identify one deficiency related to the management of issues identified during GSTRs, and two interim recommendations for consideration by DOE Federal and contractor management. Although the deficiency ultimately did not result in mishandling of TRU waste, management attention is warranted to reduce the risk of mishandling in the future. In addition, this assessment found that the collaborative self-assessment performed by NWP and CBFO, as required by the DOE Office of Environmental Management (EM) in a memorandum issued on July 23, 2019, by the EM Principal Deputy Assistant Secretary, was comprehensive, appropriately critical, and effective.

Positive Attributes

Waste Characterization

- The CBFO certification audit uses a checklist to ensure that items are not overlooked. Because the checklist is derived directly from the WIPP permit requirements, this methodology drives a thorough and efficient review with well-defined and appropriate criteria.
- The GSTR consists of a broad review of generator site programs, which includes an evaluation of processes used at the point of waste generation. The GSTR is planned and conducted to identify issues regarding TRU waste generator processes that may exist at a site, and it is currently the only CBFO oversight process that evaluates the generators at this level.
- Real-time radiography (RTR) auditors are knowledgeable and experienced. The auditors who evaluated RTR operations performed a thorough review of documentation, training/certification, and RTR operator performance. The auditors reviewed several RTR audio/video recordings created by the two qualified operators, observed one operator performing an RTR operation, and interviewed the operator who had not been observed performing RTR operations. The auditors also reviewed multiple batch data reports and non-conformance reports prepared by the RTR operators, as well as operator training records.
- Auditors effectively assess non-destructive assay (NDA) activities. The auditors evaluated operations related to processing drums using the standard segmented gamma scanner by reviewing system logbook entries and questioning the lead operator about several entries related to the system operating condition. The auditors also evaluated processing of drums using the Mobile In Situ Object Counting System (ISOCS) Large Container Counter (MILC). The NDA auditors appropriately conducted interviews and observations (i.e., evaluation activities) using a comprehensive CBFO audit checklist.

Packaging and Shipping

- Following the discovery of a pinhole in a waste drum received from a certified program, CBFO directed a review be conducted on the applicable container inspection procedure and appropriately found the procedure to be adequate. Nevertheless, CBFO began the development of a corrective action plan to improve procedure implementation for container inspections (i.e., CAR 20-007).

Auditing and Assessment

- The certification audit includes a step to verify that GSTR findings have been closed. Because the GSTR is not a regular, periodic assessment, expeditious follow-up on issues is not assured. Therefore, compliance with the New Mexico Environmental Department's requirement for the CBFO certification audit to follow up on GSTR completion and GSTR issue closure is imperative.
- CBFO and NWP collaborated to develop a self-assessment approach, which comprehensively and effectively evaluated WIPP operations in accordance with the direction provided in the July 23, 2019 memorandum issued by the EM Principal Deputy Assistant Secretary following the discovery of the Y-12 National Security Complex (Y-12) issue. The self-assessment conducted 11 separate small-team assessments of functional areas deemed essential to WIPP operations, led by both NWP and CBFO staff. The self-assessment identified 7 findings, 8 opportunities for improvement, and highlighted plans to develop an improvement strategy.

Findings

The assessment identified no findings.

Deficiencies

Deficiencies are inadequacies in the implementation of an applicable requirement or standard. Deficiencies that did not meet the criteria for findings are listed below, with the expectation from DOE Order 227.1A for site managers to apply their local issues management processes for resolution.

Deficiency D-CBFO-1: Although the CBFO-led certification audit does include a step to verify that GSTR findings have been closed, CBFO has not ensured that GSTR findings are evaluated and corrected on a timely basis, in accordance with DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*, Section 4.b.(4). CBFO National TRU Program procedures do not require: (1) GSTR issues to be tracked in all applicable Federal and contractor issues management systems; (2) corrective actions associated with identified issues to be closed; and (3) corrective action effectiveness to be verified. Additionally, site contractors' corrective action plans for closing GSTR issues are not always evaluated before CBFO officially considers the actions closed. Without procedural requirements to implement DOE Order 226.1B, Section 4.b.(4), CBFO, there is little assurance that waste generator processes will be regularly assessed by the issue originator, with associated corrective action closure and follow-up.

Other Areas of Weakness

Other areas of weakness represent potential vulnerabilities that warrant site management's consideration but do not rise to the level of a finding or deficiency as defined in DOE Order 227.1A. The site should review these vulnerabilities and take appropriate actions. These weaknesses will be further reviewed against subsequent enterprise-wide site assessments to determine whether the vulnerability is cross-cutting and warrants an enterprise-wide response.

Waste Characterization

- At LLNL, the certification audit commenced before some waste characterization processes were fully developed and/or ready to be audited. Specifically, multiple enhanced Acceptable Knowledge products (e.g., Chemical Compatibility Evaluation and Interface Waste Management Documents List) were not complete and/or approved at the time of the onsite audit at LLNL. Also, NDA processes and gas generation testing were not prepared for evaluation, so neither could be included in the audit.

Therefore, the audit produced an indeterminate result, and additional follow-on audit activities had to be planned and completed before the certification audit could be closed.

Auditing and Assessment

- The CBFO Office of the National TRU Program has a process for requesting the recertification audit, but it is not well-coordinated with the CBFO Office of Quality Assurance's certification audit planning process. Starting the audit before the program is ready. Performing the certification audit without all components of the certified program in operation may lead to segmentation and/or duplication of work, inhibit a comprehensive evaluation of the program's readiness, and ultimately drive an inefficient and/or ineffective review. In addition, because the audit team must return to evaluate the remaining parts of the process before operations can begin, no time is saved with this segmented approach.
- The GSTR, which includes an evaluation of TRU waste generation operations, is not performed on a routine or regular basis. Instead, a GSTR is only performed prior to a site's initial commencement of TRU waste shipments to WIPP and at any other time directed by the CBFO TRU sites and Transportation Division Director.

Interim Recommendations

Interim recommendations are intended to capture the evolving need for possible DOE management attention based on identified conditions from a single or multiple-site assessment. Interim recommendations should be considered suggestions for improving program or management effectiveness.

- It is recommended that CBFO evaluate the adequacy of processes to independently assess waste generator processes and consider incorporating a routine periodic assessment of waste generator operations. Such an assessment should also provide independent verification of corrective action effectiveness.
- It is recommended that CBFO establish a consistent and formal methodology for documenting issues identified during the GSTR. This methodology should identify the specific responsibilities of the site contractor, the Federal field element, the WIPP contractor, and CBFO regarding corrective action management.

Opportunities for Improvement

The assessment identified no opportunities for improvement.

Appendix A Supplemental Information

Dates of Office of Enterprise Assessments Onsite Assessment

August 26-30, 2019

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