



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 21 2008

OFFICE OF
AIR AND RADIATION

David Moody, PhD, Manager
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Dear Dr. Moody:

On July 29, 2008, the Environmental Protection Agency (EPA) conducted a follow-up inspection at Los Alamos National Laboratory (LANL) regarding the events that led to the emplacement at the Waste Isolation Pilot Plant (WIPP) of a drum (# LAS817174) of transuranic (TRU) waste with an open non-conformance report (NCR). On July 30, 2008 EPA notified, in writing, that we concurred with DOE's decision to resume shipments from LANL with an exception of two waste streams. Based on further evaluation, EPA now concurs with full resumption of shipments from LANL in accordance with the scope of their existing approval.

During the inspection, EPA inspectors evaluated the failures that led to the certification and disposal of a drum with an open NCR. The failure of the NCR tag and the ability of the CCP Data Center to select drums with open NCRs were the primary causes based on EPA's evaluation. EPA then evaluated corrective actions taken by DOE and found the changes to be adequate and appropriate. Subsequent to this inspection CBFO/Central Characterization Project (CCP) held a conference call/Live Meeting to demonstrate further changes to the CCP Data Center database and EPA found them to be appropriate and adequate.

If you have any questions regarding this issue, please contact Tom Peake at (202) 343-9765.

Sincerely,

Jonathan D. Edwards, Acting Director
Radiation Protection Division

Enclosure



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Enclosure

July 29, 2008, EPA LANL CCP Inspection Report

1.0 Summary of Purpose

EPA performed an inspection on July 29th at the Los Alamos National Laboratory (LANL) to evaluate the adequacy of corrective actions (CAs) that Central Characterization Project (CCP) implemented at LANL related to the container identification and management portion of the system of controls required by 40 CFR 194.24. The CCP had to implement certain CAs to prevent recurrence of the May 2008 incident discussed in the next section below. EPA conducted this inspection¹ through interviews with site personnel, a demonstration of the CCP Data Center, and an evaluation of the segregation of drums through observation and tests. EPA inspectors were Ed Feltcorn (Lead Inspector), Rajani Joglekar, and Mike Eagle.

As a result of this inspection, on July 29, EPA concurred with CBFO's decision to resume shipment of LANL's CH TRU waste except for most containers from the MIN-03 and CIN-02 waste streams. The reason for the partial approval at that time was because database changes had not been made to address issues that led to the certification of a subject drum with an open NCR. On an August 6 Live Meeting Conference Call, Carlsbad Field Office (CBFO)/CCP demonstrated to EPA changes made to the Data Center to correct the inadequacies in the data query process. EPA determined them to be adequate and the implemented changes would prevent recurrence. These changes are currently LANL solid waste specific, however, this CCP query search would be applicable at all CCP TRU sites when certifying any TRU solid waste not requiring head space gas analysis.

2.0 Background

In May 2008, the CCP at LANL disposed of a container of CH TRU S3000 (solid matrix) waste (LAS817174) that had an open NCR. This drum was one of four drums overpacked in a standard waste box (SWB) because of integrity concerns. The SWB was then shipped and disposed of at the Waste Isolation Pilot Plant (WIPP). A couple of weeks after the drum was emplaced in the repository, during routine Quality Assurance (QA) checks, CCP QA staff discovered the error in the CCP Data Center database used for certifying container shipment. The disposal of the subject drum was a violation of the system of controls required under 40 CFR 194 when characterizing and disposing TRU waste at the Waste Isolation Pilot Plant (WIPP). Subsequent to this event, the Department of Energy (DOE) suspended all shipments from LANL.

¹ On June 25, EPA conducted inspection at LANL and concluded that CCP/CBFO had more work to do before EPA can concur with the DOE's decision to resume shipment for disposal at WIPP of the EPA-approved TRU waste categories. EPA decided against issuing a report of that inspection as EPA did not get sufficient objective evidence to base its determination.

EPA performed an inspection at LANL on June 25th to determine how a TRU waste drum with an NCR could be disposed of at WIPP and what corrective actions CCP has proposed to DOE that would prevent recurrence. At the end of this EPA inspection, DOE committed to wait to resume shipment from LANL until EPA was able to complete its investigation. CCP conducted a Root Cause Analysis (RCA) and issued a report on June 26th. The report listed contributing factors such as the use of a manual search by LANL-CCP to select candidate drums for WIPP disposal and the failure of CCP Carlsbad personnel to identify the open NCR. CCP's RCA report can be found on the EPA website at, http://www.epa.gov/radiation/docs/wipp/lanldoe_letter_response_71808.pdf. DOE completed its evaluation of CCP's corrective action plan developed in response to CBFO QA CAR 008-025 and on July 18 informed EPA of its intention to resume shipment and disposal of TRU waste from LANL.

3.0 Description of Inspection Activities Performed:

3.1 LANL CH TRU Container Mover Interviews

EPA inspectors interviewed LANL personnel involved in the movement of containers of CH TRU waste. During those interviews it was determined that they were adequately instructed in the significance of a red tag denoting an open (active) NCR when moving containers for characterization, packaging, and shipment to WIPP. They are also instructed to ask for an investigation when a partial tag is found attached to a container or when a tag is found separated from a container. Drum movers who work in Dome 49, where drums that are candidates for shipment and disposal at WIPP are located, said that no container with a red (NCR) tag attached can be moved to the east side "free zone" (cleared). They noted that the west (un-cleared) side contained containers with open NCRs, in process (not completely characterized containers) and containers held for other reasons.

EPA determined that the drum movement personnel had been properly trained and were qualified to prevent inadvertent removal of a tag and to recognize a failed tag and request an investigation by appropriate personnel.

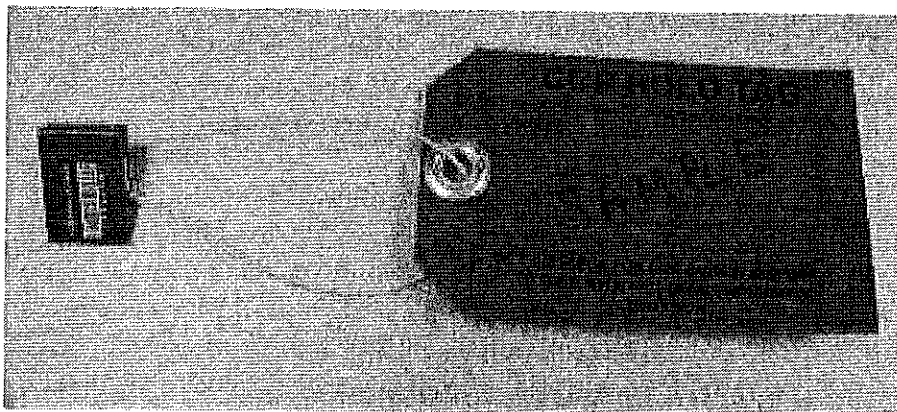
3.2 Tag Status

Interviewed container movement personnel also reported that NCR tags were sometimes found to be separated from their associated container. This was reported to occur more frequently in outdoor storage than in the covered/sheltered storage domes. The drum movement personnel also reported that the plastic zip strap/plastic coated red paper tag used prior to July 2008 was to be removed only by authorized personnel. Drum movers said they would not remove a tag even if directed to do so. According to the CCP Site Project Manager (SPM) the red tags can only be removed by CCP personnel and all removed tags are to be accounted for.

The tags of drums early in drum processing (i.e. prior to the completion of the waste characterization process) were removed by cutting the plastic zip strap and removing the entire tag/strap assembly. The tags of containers fully characterized and therefore cleared for movement to the Dome 49 (east) area had the tags generally ripped off and the zip tie left in place. The tag on the container overpacked and shipped to WIPP was in this condition with the tag removed and the strap still in place.

EPA inspectors were shown a sampling of removed tags retained by the LANL CCP Site Project Manager (SPM). Some of these tags were significantly degraded (weathered). These tags were faded, torn, and cracked. The LANL CCP SPM then described the interim and the long-term solution to the degraded tag problem.

- As an interim solution, the SPM reported that all plastic zip ties have been replaced with a metal wire/locking red plastic body (with a visible marking NCR CCP) that would remain in place even if a tag fell off to alert LANL drum movers (non-CCP) and CCP personnel that a tag may have failed. The drum handling procedures are being revised which, when available, EPA will evaluate for adequacy.
- As a long-term solution, CCP management described and displayed the new tag that will be implemented in the near future. (See picture below.) The tag is thicker plastic than the previously used plastic-coated paper tag and has ultra-violet protection to reduce the risk of failure due to weathering. The tag will be attached by a red metal bracket (with NCR CCP marking) using aircraft grade, twisted steel cable that requires metal cutters to remove. The "CCP HOLD TAG" to be used in the field will have a red (blue in the example in the picture) metal bracket and be appropriately marked, "NCR CCP". CCP plans to use this new tag assembly at all DOE TRU sites where CCP is responsible for characterizing and shipping CH TRU waste for disposal at WIPP. The new tag assembly would ensure that in an event the tag is intentionally removed/ripped off/fallen due to weathering, the red metal bracket with the "NCR CCP" marking will remain attached unless purposefully cut using a wire cutter. This step would prevent recurrence of the shipment and disposal of a previously tagged drum with an open NCR.



EPA found that the physical tag system had been sufficiently strengthened to preclude recurrence of the inability of drum handlers and CCP personnel to recognize the failure of an associated NCR tag.

3.3 CCP Data Center Database

EPA was given a demonstration of the CCP data center by the LANL CCP SPM and CCP Manager. The CCP data center is not a part of the certified program; however, it performs an important function to the control of containers with NCRs. One of the reasons the NCRed container was able to be selected by the data center as a candidate for disposal was that the waste stream it belonged to (MIN-03) was exempted from the requirement that a head space gas (HSG) test be performed. Therefore to select candidate drums from this waste stream (requested by the CCP Lot Evaluator in CCP's Carlsbad Office), the LANL CCP SPM had to perform a manual search known as Standard Search 10. This manual query was necessary because the Standard Search 7 would not select any drums that did not have a valid HSG. Furthermore, the manual search could not screen out drums with open NCRs unless searched manually, thereby compounding the risk of an improper container selection for certification for shipment.

In addition, to obtain objective evidence for database search adequacy, EPA inspectors selected 10 containers each on the east and west side of Dome 49. CCP provided the CCP Data Center Standard Search 1 results for each container selected. Standard Search 1 provides a detailed container history including characterization and NCR information. All containers selected during this inspection and those selected at the June 25th inspection were found to have no open NCRs and were documented as fully characterized. None were observed to have red NCR tags.

During the July 29 inspection, CCP indicated that it was making changes to the data center database and training the CCP personnel mentioned above. CCP and CBFO maintained that designated changes will address the failure of several CCP Carlsbad personnel to detect open NCR associated with TRU drums. EPA informed CBFO/CCP that EPA would evaluate appropriateness and adequacy of the CCP changes to the Data Center query process. At the end of the July 29 inspection, therefore, EPA limited its concurrence for resumption of TRU LANL solid waste until CCP modifies and EPA approves changes to the standard search function for drum selection as WIPP eligible. As discussed in the paragraph below, this restriction is now lifted, given EPA's evaluation of changes made to the CCP Data Center database search procedure.

On August 6, 2008, CBFO/CCP conducted a Live Meeting online demonstration to EPA of the modifications to the CCP Data Center database search. CCP was able to demonstrate the adequacy of the changes – a new search capability ("Candidate List for the FGA Exempt Drums at LANL) implemented on August 4, 2008. EPA concurs that these changes will allow a CCP Lot Evaluator in Carlsbad office to properly select LANL waste belonging to waste streams MIN-03 and CTN-02 solids waste streams as candidates

for WIPP eligible drums for disposal. The same query could be used by CCP at other sites to select TRU waste drums with similar waste characteristics.

3.4 Segregation in Dome 49

During the July 29th inspection, EPA examined the storage area designated Dome 49. This is the primary location where containers are kept immediately prior to shipment to the WIPP. The east side of the dome is roped off and marked to designate the area for containers that are NCR free (known as Free Zone) and fully characterized and certified for WIPP disposal. Only containers certified for shipment are allowed in this area. EPA determined that the segregation of waste containers on the east side of Dome 49 was adequate.

The west side of the Dome 49 is used as storage area for in-process drums. These include drums that are in various stages of characterization, those with NCR HOLD tags requiring additional investigation, and those drums that are fully characterized and are cleared for certification but which have not been transferred to the Free Zone.

EPA agrees with DOE that: the segregation of waste in the Free Zone, additional checks performed by LANL on all containers on the east side of Dome 49, enhanced communication between different entities, and verification steps implemented by LANL CCP and LANL are sufficient to resume disposal of LANL's TRU waste including containers belonging to both the CIN-02 and MIN-03 waste streams.

4.0 Conclusions

The weakness in the CCP's Data Center database review process resulted in a TRU drum with open NCR being certified as WIPP eligible. The absence of an NCR tag compounded the problem, that is, if the hold tag was intact LANL drum movers would have questioned eligibility of the subject drum for shipment.

Based on the information gathered and reviewed during the inspection, EPA inspectors determined that the failure of the NCR tag and the ability of the LANL-CCP and CCP Data Center staff to select drums as potential candidates for disposal with open NCRs were the primary factors contributing to the shipment of an uncertified drum from LANL. The corrective actions taken by CCP/DOE and objective evidence evaluated during the July 29 inspection and Aug 6 evaluation are the basis for EPA's determination that these changes are adequate and sufficiently robust for the MIN-03 and CIN-02 waste streams and would prevent recurrence at LANL or other CCP sites handling similar waste streams. Therefore, EPA concurs with the DOE's July 18th decision to resume disposal of EPA-approved CH TRU waste from LANL at WIPP. EPA will evaluate the segregation of certified containers at all sites that dispose of TRU waste at WIPP.