



**STATE OF NEW MEXICO
ENVIRONMENT DEPARTMENT**

**IN THE MATTER OF
U.S. DEPARTMENT OF ENERGY
AND WASHINGTON TRU
SOLUTIONS LLC, CARLSBAD,
NEW MEXICO, NM4890139088,
RESPONDENTS.**

**COMPLIANCE ORDER
HWB 07-43 (CO)
(LANL)**

ADMINISTRATIVE COMPLIANCE ORDER

The Secretary of Environment, acting through the Director of the Water and Waste Management Division of the New Mexico Environment Department (NMED), issues this Administrative Compliance Order (**Order**) to the U.S. Department of Energy (**DOE**) and Washington TRU Solutions LLC (**WTS**) (collectively referred to as Respondents), pursuant to the New Mexico Hazardous Waste Act (**HWA**), NMSA 1978 Section 74-4-10 (2001).

FINDINGS OF FACT

1. NMED is the agency within the executive branch of the government of the State of New Mexico charged with the administration and enforcement of the HWA, NMSA 1978 Section 74-4-1 et seq. (2001), and New Mexico Hazardous Waste Management Regulations (**HWMR**), 20.4.1 NMAC.
2. Respondents are DOE and WTS, who own and/or operate the Waste Isolation Pilot Plant (**WIPP**), a mixed waste storage and disposal facility for which a permit is required under the HWMR, 20.4.1.900 NMAC (incorporating 40 CFR §270.1(a)).
3. DOE is an agency of the federal government and the owner and co-operator of WIPP.

4. WTS is a private limited liability company under contract with DOE and the co-operator of WIPP.

5. The Central Characterization Project (**CCP**) is an organizational division within WTS. At the direction of DOE, CCP performs waste characterization activities at generator/storage sites such as Los Alamos National Laboratory (**LANL**).

6. WIPP is located approximately twenty-six (26) miles east of Carlsbad in Eddy County, New Mexico.

7. On October 27, 1999, NMED issued a Permit (Permit Number NM4890139088-TSDF) to Respondents to operate a hazardous waste storage and disposal facility at WIPP.

8. From 1998 through 2004, NMED issued the following Compliance Orders (**CO**) or Notices of Violation (**NOV**) against Respondents pursuant to the HWA and the HWMR (with summary descriptions that include some, but not all violations):

A. NOV 1998 - Failure to meet training requirements for one individual.

B. NOV 1999 - Failure to provide adequate aisle space in less than 90-day storage area; failure to label container at satellite accumulation point.

C. CO 99-04 - Failure to make hazardous waste determination.

D. CO 99-05 - Inadequate hazardous waste determination; failure to obtain a general waste analysis that complies with 40 CFR §265.13(a); storing and disposing hazardous waste without following the written waste analysis plan.

E. NOV 2001 - Submitting and putting into effect permit modifications that failed to meet the requirements for Class 1 modifications listed in Appendix I of 40 §CFR 270.42; failure to manage, store and dispose of waste as required by

Permit Conditions II.C.1 Waste Analysis Plan, IV.B.2.b Prohibited Waste, and 40 CFR §264.13.

F. CO 01-08 - Storing and disposing hazardous waste without following the written waste analysis plan.

G. CO 04-07 - storing and disposing hazardous waste without following the written waste analysis plan; failure to submit a timely written notice of noncompliance.

H. NOV 2006 - Failure to provide copies of the current Contingency Plan and all revisions to the NMED Secretary.

9. As a result of the compliance orders described above, Respondents submitted a certification of compliance (CO 99-04), or entered into either a stipulated final order (CO 99-05, CO-01-08) or a settlement agreement (CO 04-07) to compromise and settle the matter.

10. 20.4.1.900 NMAC incorporates 40 CFR §270.30(a) which states in part, “The permittee must comply with all conditions of [its] permit[.]”

11. All Permit citations given below are from the version of the Permit that was in effect prior to October 16, 2006.

12. Permit Condition II.B.1 states in part, “The Permittees may only receive TRU mixed waste from those sites which comply with the applicable requirements of the Waste Analysis Plan (**WAP**) specified in Permit Condition II.C.1 and Permit Attachment B, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.13(a)) and as verified through the Permittees' Audit and Surveillance Program specified in Permit Condition II.C.2.”

13. Permit Condition II.C.3.a states, “Liquids - liquid waste is not acceptable at WIPP. Waste shall contain as little residual liquid as is reasonably achievable by pouring,

pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container (e.g., 55-gallon drum, standard waste box, etc.) may not exceed 1 percent volume of that container.”

14. Permit Attachment B, Section B-1c, Waste Prohibited at the WIPP Facility, states, “Before accepting a container holding TRU mixed waste, the Permittees will ensure, through audit and as part of their Permittee-level data reviews (Section B3-10c), that generator/storage sites examine the radiography or visual examination data records (Section B-4b) to verify that... residual liquid does not exceed 1 percent volume in any payload container. If discrepancies or inconsistencies are detected during the data review, the generator/storage site will review the radiography video tape or visual examination tape to verify that the observed physical form of the waste is consistent with the waste stream description provided by the generator and to ensure that no prohibited items are present in the waste.”

15. Permit Attachment B, Section B-1d Control of Waste Acceptance, states, “Waste characterization data shall confirm the absence of prohibited items specified in Section B-1c.”

16. Permit Attachment B, Section B-3c Radiography and Visual Examination, states, “... Radiography and/or visual examination will be used to examine every waste container to verify its physical form. These techniques can detect liquid wastes and containerized gases, which are prohibited for WIPP disposal. The prohibition of liquids and containerized gases prevents the shipment of corrosive, ignitable, or reactive wastes...” This section further states, “Generator/storage sites may conduct visual examination of waste containers in lieu of radiography.”

17. Permit Attachment B1, Section B1-3b(3) Visual Examination, states, “As an additional **QC** [quality control] check, or in lieu of radiography, the waste container contents shall be verified directly by visual examination of the waste container contents... Visual examination *shall be conducted to describe all contents of a waste container*, and includes estimated or measured weights of the contents.” (Italics added.)

18. Permit Attachment B1, Section B1-3b(5) On-the-Job Training, states, “The visual examination expert shall be familiar with the waste generating processes that have taken place at that site and also be familiar with all of the types of waste being characterized at that site.”

19. Permit Attachment B defines homogeneous solids, or solid process residues, “...as solid materials, excluding soil, that do not meet the NMED criteria for classification as debris... Included in the series of solid process residues are inorganic process residues, inorganic sludges, salt waste, and pyrochemical salt waste. Other waste streams are included in this Summary Category Group based on the specific waste stream types and final waste form... This category includes wastes that are at least 50 percent by volume solid process residues.” This definition does not require waste to exhibit homogeneity throughout the container (i.e., there can be multiple distinct components of homogeneous solids in a single container).

20. The acceptable knowledge (**AK**) summary report CCP-AK-LANL-004, *Los Alamos National Laboratory TA-50 Radioactive Liquid Waste Treatment Facility Homogeneous Inorganic Solids Non-Cemented, Waste Stream LA-MIN03-NC.001* indicates that LANL generated a homogeneous dewatered sludge at Building TA-50-01, Radioactive Liquid Waste Treatment Facility (**RLWTF**), between November 1979 and December 1987. CCP identified this homogeneous dewatered sludge as waste stream LA-MIN03-NC.001.

21. CCP-AK-LANL-004 states, “The treatment process removed particulate and heavy metals as a sludge that settled out of the clariflocculation tanks. This sludge was further treated by rotary drum vacuum filtration in a filter precoated with perlite or diatomaceous earth... The final dewatered sludge consists of 25-40% solids.”

22. Perlite and diatomaceous earth are non-hardening absorbents, not hardening agents such as Portland cement.

23. Regarding packaging of the waste, CCP-AK-LANL-004 states, “The dewatered sludge was packaged in a 5-mil plastic liner in a 90 or 125 mil polyethylene liner in a 55-gallon Department of Transportation (**DOT**) 17C drum. Approximately 10 pounds of dry Portland Cement was added below and an additional 10 pounds above the sludge during packaging for moisture absorption, and the 5 mil plastic liner was twisted and taped closed. At some point during the early 1980s, the use of tape to close the liner was discontinued and the plastic liner was simply folded over the waste material prior to installing the rigid liner lid.”

24. On February 24, 2004, CCP released revision 0 of the AK summary report CCP-AK-LANL-004 for LA-MIN03-NC.001 that noted the potential for the presence of liquids due to dewatering or condensation. This AK summary report also stated that radiography and/or visual examination (**VE**) is performed to ensure the absence of free liquids.

25. In March 2004, Argonne National Laboratory-West (**ANL-W**) personnel conducted VE and repackaging of the waste in drum S831581 (which was later assigned by CCP to waste stream LA-MIN03-NC.001) in a glove box at ANL-W. The repackaging of the waste consisted of opening the drum and using a hoist within the glovebox to move the Type II 90-mil rigid liner with the waste in place into a new 55-gallon drum. The VE involved removing a “concrete cap” that covered approximately 50 percent of the surface of the sludge material, which

was described as “Portland cement, setup & hard, black color” and weighing approximately 20 pounds. The VE operator poked a screwdriver approximately three inches into the remaining sludge material, which was described as “tan color, coarse granular, slightly damp” and weighing approximately 365 pounds.

26. Between April and December 2004, CCP performed real-time radiography (RTR) characterization at LANL on 198 drums from waste stream LA-MIN03-NC.001. Many of these drums were rejected for non-residual liquid that would not be visible at the surface of the waste.

27. On April 26 – 30, 2004, DOE conducted the initial certification audit of LANL/CCP waste characterization activities (A-04-05). DOE submitted a final audit report to NMED dated July 15, 2004, and NMED issued an approval letter on August 27, 2004. Objective evidence provided in the audit report related to VE performed on homogeneous waste under CCP procedure CCP-TP-113 (CCP Standard Waste Visual Examination) was limited to VE as a QC check of RTR.

28. On April 11 – 15, 2005, DOE conducted a recertification audit of LANL/CCP waste characterization activities (A-05-09). DOE submitted a final audit report to NMED dated May 25, 2005, and NMED issued an approval letter on June 23, 2005. Objective evidence provided in the audit report related to VE performed on homogeneous waste under CCP procedure CCP-TP-113 was again limited to VE as a QC check of RTR.

29. From May 4 through June 23, 2005, CCP performed VE in lieu of RTR on 144 drums from waste stream LA-MIN03-NC.001. Ten of these drums were rejected for free liquid that was visible at the surface of the waste. Based upon review by NMED staff of the VE video recordings, the VE for most inspections was limited to opening the drum, removing the rigid plastic liner lid, opening the plastic liner bag(s), and inspecting the surface of the waste without

touching it. In most drums, the dewatered sludge was not visible under the concrete cap. Drums that appeared on their surface to contain no prohibited items were consistently described in each batch data report (**BDR**) and in the VE video record as being “100% Aqua-set matrix.” It appears that no attempt was made to examine and describe all the contents of the waste container or to ensure the absence of prohibited items not visible at the surface of the waste.

30. Aquaset® is the name of a family of solidification/stabilization agents developed by Fluid Tech Inc. that immobilize wastes (liquid, sludge, or solid) through the action of complex bonding mechanisms and ion exchange reactions. Aquaset cures to a stiff, putty-like consistency. The AK summary report CCP-AK-LANL-004 does not mention Aquaset as a component of waste stream LA-MIN03-NC.001.

31. In describing the waste as being “100% Aqua-set matrix”, the VE BDRs generated from May 4 through June 23, 2005 did not identify the two distinct components of the waste (concrete and dewatered sludge) as described in the AK summary report CCP-AK-LANL-004 and identified in the March 2004 VE event at ANL-W.

32. On June 6 2005, CCP resumed RTR characterization of drums from waste stream LA-MIN03-NC.001.

33. On July 25, 2005, Respondents transmitted the approved CCP Waste Stream Profile Form (**WSPF**) Number LA-MIN03-NC.001 to NMED.

34. On or about July 30, 2005, Respondents began receiving and emplacing shipments of waste stream LA-MIN03-NC.001 at WIPP.

35. On or about August 14, 2005 through February 25, 2006, Respondents received and emplaced 121 drums of waste from waste stream LA-MIN03-NC.001 that were characterized by VE in lieu of RTR.

36. On May 15 – 18, 2006, DOE conducted a recertification audit of LANL/CCP waste characterization activities (A-06-11). At this audit, NMED first became aware that CCP had characterized containers of waste stream LA-MIN03-NC.001 using VE in lieu of RTR rather than as a QC check of RTR.

37. As a result of Audit A-06-11, DOE issued Corrective Action Reports (CARs) 06-024 and 06-025 on May 24 and 25, 2006, respectively. CAR 06-024 listed the Condition Adverse to Quality (CAQ) as: “VE was performed in lieu of RTR for solid waste stream LA-MIN03-NC.001, for the campaign of 145 sludge containers processed from May 4, 2005 through June 23, 2005. The VEE [VE Expert] did not sufficiently document on the CCP Waste VE Data Form, the basis for his decisions regarding limiting the VE for these drums. These decisions are to be based on the AK record and the VEE’s observation of the waste stream.” CAR 06-025 listed the CAQ as related to the AK summary report, CCP-AK-LANL-004: “The sections describing the waste material parameters and prohibited items must be revised to indicate that layered residual liquid and containers, empty or containing liquid, may be present below the surface of the waste.”

38. On June 16, 2006, WTS transmitted the Corrective Action Plans (CAP) for CARs 06-024 and 06-025 to Carlsbad Field Office (CBFO). The CAP for CAR 06-024 included the following information:

A. Remedial Actions: three drums certified by VE in lieu of RTR were placed on hold pending amendments to the VE data forms for these drums.

B. Investigative Actions: the CAP states that VE in lieu of RTR for solidified material involves “opening the drum, opening layers of confinement to inspect the surface of the waste, and inspecting the area between the liner and the drum for

liquids.” This section of the CAP also states that “VE was used due to a temporary unavailability of RTR equipment. Once RTR operations were re-initiated, drums were identified that contained prohibited items within the solidified matrix, conflicting with AK.” This information had not been formally provided to the AK Expert (AKE) for an evaluation of impact to the AK documentation.

The investigative actions found that VE in lieu of RTR was performed on 145 drums. The CAP states, “... the VEE examined the drums for indications of potential liquids during VE by examining the waste, sides of the drum and the liner. This method was used in all of the drums being characterized through VE...” It states that in addition to the three drums placed on hold, eleven were rejected for liquid, nine were rejected for “non-VE related issues,” and 122 drums were emplaced.

C. Root Cause: the CAP states that although CCP normally uses RTR to characterize homogeneous solid waste, the WAP permits VE in lieu of RTR to confirm the physical form of the waste and the absence of prohibited items, as indicated in AK. It also states that there was not a “formal feedback method to the AKE to determine if the prohibited items found from VE or RTR warranted any changes” to the AK summary documentation. Finally, this section states that the VEE failed to follow CCP procedures because he did not provide enough documentation regarding the extent of the VE performed on the VE data form.

D. Actions to Prevent Recurrence: the CAP stated that VEE and VE operators will receive a lessons learned, and that the VE qualification card will be revised. It also states that a mechanism will be developed for formal feedback to AK.

The CAP for CAR 06-025 included the following information:

A. Remedial Actions Taken: the CAP stated that CCP would review existing AK reports to include relevant information in the AK summary report.

B. Investigative Actions: found “That there has not been a formal feedback loop to the AKE from the characterization and certification process to determine whether there are impacts to the AK reports. AK confirmation is established at the lot evaluation step and only drums that have successfully passed the certification process are eligible for lot evaluation.”

C. Root Cause: Information from the nonconformance report (NCR) process “was not formally provided to AK for an assessment/evaluation of its impact on the waste stream and therefore the AK report was not revised to incorporate new/inconsistent information.”

D. Actions to Prevent Recurrence: The CAP stated that “The NCR form in CCP-QP-005 will be revised to incorporate the formal feedback loop for evaluation/assessment of AK.”

39. On June 16, 2006, DOE transmitted a letter to WTS stating the CAPs for CARs 06-024 and 06-025 were acceptable and requested documented confirmation when the actions in the CAPs are completed.

40. On June 22, 2006, WTS transmitted CAP Closure Documentation for CARs 06-024 and 06-025 to DOE. The letter for CAR 06-024 summarizes the documentation as follows: “... the remedial actions consisted of revising the visual examination batch data reports for the drums that had not been replaced to add detail on the decisions made by the VEE. Finally, under actions to preclude recurrence, CCP prepared a lessons learned on the issues, revised the

qualification card addendums to include that specific item, and modified CCP procedure CCP-QP-005 to incorporate a formal feedback mechanism to acceptable knowledge.”

A. One enclosure was an email dated June 21, 2006 from the VEE to the Site Program Manager (SPM) clarifying the extent of VE performed. In the email, the SPM suggested the following statement would be added to each VE BDR: “The AK identified that the main prohibited item expected was liquids. The drums were opened and all layers of confinement were opened to inspect the waste. Liquids were looked for by visually inspecting the drum, moving the drum, manipulating the bags. This was the extent of the VE performed.” The VEE clarified this statement by responding: “...in addition to manipulating the bags was to obtain a clearer view of the waste with a 360 degree rotation of the drum from the operator to capture all its contents, this is called out on the video.” This email exchange between the VEE and the SPM was later included in the BDRs for the drums that underwent VE in lieu of RTR from May 4 through June 23, 2005.

B. Another enclosure was a memo summarizing a “lessons learned” briefing CCP held at the Idaho National Laboratory (INL) on June 20-21, 2006, with VE operators, VE leads, and VEE’s. The Lessons Learned Statement reads: “This incident has determined the need to pay attention to the details of a container rejected during Real Time Radiograph (RTR) that is from a solids waste stream immediately upon identification to ensure the impact on the Visual Examination (VE) process is evaluated.” The memo states that although RTR has identified a few drums with containerized liquids, AK indicated containerized liquids were not expected in waste stream LA-MIN03-NC.001. It also states that “it is

unknown if any containerized liquids were embedded in” the 122 drums that were certified by VE in lieu of RTR and emplaced at WIPP because the VEE “*looked at only the top of the waste form.*” (Italics added.) In addition to revising the VE qualification card and the formal mechanism for feedback to AK, the recommended actions in the memo included reassessing the text in the AK summary regarding the absence of containerized liquids in the waste stream.

The letter for CAR 06-025 summarizes the documentation as follows: “... the remedial actions consisted of reviewing and making recommendations for the Acceptable Knowledge (AK) reports and revising and reissuing the Nondestructive Assay memos. Finally, under actions to preclude recurrence, CCP-TP-005 was revised, a tool was developed to help perform reviews on the AK reports, and internal review was added for AK at Level I, and ...CCP procedure CCP-QP-005 was modified to incorporate a formal feedback mechanism to AK.” On June 22, 2006, CCP released revision 11 of CCP procedure CCP-QP-005 incorporating corrective actions resulting from CAR 06-024 and 06-025. The NCR form was revised by adding Block 9a to address impacts of non-conformances on AK.

41. On June 23, 2006, CCP released revision 2 of AK summary report CCP-AK-LANL-004 for LA-MIN03-NC.001 that added the following statement: “CCP RTR confirmation activities have identified drums in this waste stream with residual liquids below the surface of the sludge (i.e., layered residual liquids) and internal containers of liquids” (p. 70).

42. On July 7, 2006, DOE transmitted a letter to WTS indicating that the corrective actions for CAR 06-024 have been evaluated and the CAR has been closed by DOE. DOE’s evaluation states, “Based on a review of the documentation [in the CAP], the VEE decision to perform VE in the manner that was used on this waste stream appears reasonable, based of (*sic*)

the available information at that time.” The evaluation further states, “Based on experience with other waste water treatment sludge waste streams, excess liquids should be detectable based on removing the drum lid, opening the liner bag, and pulling on the liner bag to see if liquid is between the waste and the liner bag or between the liner bag and the drum liner.”

43. On July 10, 2006, DOE transmitted a letter to WTS indicating that the corrective actions for CAR 06-025 have been evaluated and the CAR has been closed by DOE.

44. On July 19, 2006, DOE transmitted to NMED the Re-certification Audit Report for the LANL/CCP Audit A-06-11. The audit report discussed the conditions described in CARs 06-024 and 06-025.

45. On August 31, 2006, NMED transmitted approval of the Final Audit Report A-06-11 to the Respondents. In that letter, NMED stated that DOE’s closure of CAR-06-024 appeared to be adequate, but cited concerns over whether the VEE was able to identify all the contents and confirm the absence of prohibited items in the waste containers. The letter stated that NMED believed the CAR should have evaluated compliance with the following permit requirements:

- Identification of prohibited items, (Permit Attachment B, Sections B-1c, B-1d, B-3c, and B-3d(2)); and
- Description of all contents in a waste container (Permit Attachment B1, Section B1 - B3(b)).

46. On September 22, 2006, NMED submitted an e-mail request to DOE seeking additional information about waste stream LA-MIN03-NC.001 for NMED’s evaluation. Specifically, the information request sought:

- The list of drums, including the current status, for which VE in lieu of RTR was performed.
- BDRs, NCRs, and video tapes or DVDs for all containers in the waste stream for which VE was performed from the initial characterization of the waste stream through September 16, 2006.
- BDRs, NCRs, and video tapes or DVDs for all containers in the waste stream for which RTR was performed from the initial characterization of the waste stream through September 16, 2006 that contain liquid.
- An Excel spreadsheet with a detailed list of all drums from the waste stream characterized by either RTR or VE from the initial characterization of the waste stream through September 16, 2006, to include specific information about the containers and their status.
- Copies of all records related to the decision to conduct VE in lieu of RTR on the 145 drums referenced in CAR 06-024.
- Characterization data for any drums in the waste stream that was conducted prior to CCP.
- 13 AK Source Documents.

47. On November 17, 2006, DOE provided the following information and data in response to NMED's September 22, 2006 request:

- A spreadsheet listing 144 drums for which VE in lieu of RTR was performed, including the status of the drums.
- Approximately 35 VHS video records of VE and RTR characterization on waste streams at LANL, including waste stream LA-MIN03-NC.001.

- Approximately 200 DVD video records of RTR characterization on waste streams at LANL, including waste stream LA-MIN03-NC.001.
- Electronic copies of all RTR and VE BDRs for drums in waste stream LA-MIN03-NC.001 from March 29, 2004 through September 16, 2006.
- A detailed spreadsheet listing all drums from waste stream LA-MIN03-NC.001 that were characterized using VE or RTR from March 29, 2004 through September 16, 2006.
- 13 AK Source Documents as requested.
- An analysis titled, "Validation of VE in Lieu of RTR used at LANL."

48. On March 8, 2007, NMED staff met with Respondents to discuss LANL VE and RTR concerns. At this meeting, Respondents stated the following as facts:

- A. The waste in LA-MIN03-NC.001 is a sludge material that initially exhibits a consistency similar to mayonnaise when it is placed in the waste drum, and subsequently solidifies, shrinks, and fractures in a manner similar to concrete.
- B. Any free liquid in the waste would likely migrate, assuming solidification, shrinkage, and fracturing of the dewatered sludge, to a hypothesized one quarter ($\frac{1}{4}$) inch annulus created between the waste and the rigid drum liner.
- C. Prohibited quantities of liquid would be visible during VE of a container by looking in the annulus between the waste and the rigid drum liner, or it would inundate the waste in the container.
- D. Rigid drum liners were straight wall liners that conform to the shape of the drum, allowing VE operators to examine the annulus between the rigid liner and the waste for evidence of liquids.

E. RTR generally identified small amounts of liquid either as isolated pockets in the bottom edges of a drum, in folds of the liner bag, or at the surface of the waste extending part way down into the annulus from above.

F. VE operators intentionally lifted or “tugged” the liner bags looking for evidence of liquids.

G. NMED approved the CCP procedure for VE for homogeneous solid waste streams at both the 2004 and 2005 LANL/CCP audits.

H. In a short paper provided during the meeting, a WTS statistician concluded, “As both VE and RTR are certified and accepted methods for detection of prohibited items in the waste stream under the waste disposal permit, rejection of either method for reasons of inadequacy of capability is not justified with the currently available data. The only available data supports the conclusion that both methods are effective...”

49. Respondents stated as fact during the March 8, 2007 meeting with NMED that VE operators intentionally lifted or “tugged” the liner bags and examined the annulus for evidence of liquids. This is unsupported by the record. Procedure CCP-TP-113 (CCP Standard Waste Visual Examination) notes following step 4.1.4[D], “Contents of containers with a solidified mass or sludge DO **NOT** need to be removed.” The procedure is silent regarding manipulating or pulling on liner bags during VE to see if there is liquid between the waste and the liner bag or between the liner bag and the drum liner.

50. Respondents stated as fact during the March 8, 2007 meeting with NMED that rigid drum liners were straight wall liners that conform to the shape of the drum, allowing VE operators to examine the annulus between the rigid liner and the waste for evidence of liquids.

This statement is unsupported by the record, particularly the video recordings of RTR and VE events of waste stream LA-MIN03-NC.001. Descriptions in *Test and Evaluation Document for DOT Specification 7A Type A Packagings* (DOE/RL-96-57, Rev. 0, Vol. 1) provide specifications for DOT-17C 55-gallon steel drums and Type II 90-mil rigid tapered shoulder liners. The DOT-17C 55-gallon steel drum has a 33 ¼ inch usable inside height and an inside diameter of 22 ½ inches. The Type II 90-mil rigid tapered shoulder liner is 33 inches high and 22 inches in diameter, with an 18-inch opening at the tapered top.

51. On or about December 1, 2006, NMED staff began reviewing video records and BDRs for VE and RTR characterization of waste stream LA-MIN03-NC.001 as provided by DOE on November 17, 2006. NMED's review consisted of the following activities:

A. To verify that the data in the spreadsheets provided by DOE was accurate, NMED staff viewed video records and reviewed BDRs for all 241 drums that underwent VE (both as a QC check and in lieu of RTR) from approximately March 29, 2004 through September 16, 2006. Staff also reviewed video records and BDRs for approximately 300 drums that underwent RTR, including 268 drums that were rejected for liquid by RTR from approximately April 1, 2004 through September 16, 2006. NMED staff made corrections to the spreadsheets DOE had provided as necessary to ensure data accuracy.

B. NMED staff review of the RTR video records found that RTR is capable of identifying liquid: 1) visible at the surface of the waste; 2) below the surface of the waste; 3) along the sides of the waste, both between the drum and the rigid liner and between the rigid liner and the waste; and 4) embedded in the waste, within containers and in pockets. RTR also verified that waste containers

generally incorporated a Type II 90-mil rigid tapered shoulder liner, consistent with descriptions and specifications in *Test and Evaluation Document for DOT Specification 7A Type A Packagings* (DOE/RL-96-57, Rev. 0, Vol. 1).

C. NMED staff review of the VE video records found that VE operators made little or no apparent effort to identify liquid not visible at the surface of the waste. VE operators never touched the waste, limiting their contact to only the packaging (i.e., drum, drum liner lid, and liner bag). VE operators were not directed, either by the VEE or by procedure CCP-TP-113, to pull or tug on the liner bags, or to look for liquid in the annulus between the waste and the rigid liner or between the rigid liner and the drum. With the exception of the March 2004 VE event performed by ANL-W personnel, all VE video recordings are low-angle camera shots providing an oblique view of the surface of the waste container contents. In addition, the surface of the waste was not clearly visible in many of the VE video recordings because either the camera was out of focus or the VE operators obstructed the camera's view of the waste.

D. NMED staff review of the VE video records found that the VEE generally followed a script that was heard on the audio track describing the VE activities. For those containers not rejected for liquids, following removal of the rigid liner lid, the VEE generally stated:

“Operators will demonstrate peeling the plastic back so we can obtain a clearer view of the waste. For the record, it appears we have no closure method; therefore no bag liners are present. Operators will demonstrate volume utilization percentage momentarily. For the record, it appears we

have XX% volume utilization; that is captured and noted. Operators will demonstrate rotating the drum full circle. For the record it appears we have, for package one: 100% Aqua-set matrix, waste material parameter IN, with traces of PW; that is captured and noted. Operators will demonstrate to return all items back to this container.”

52. Respondents stated as fact during the March 8, 2007 meeting with NMED that rigid drum liners were straight wall liners that conform to the shape of the drum, allowing VE operators to examine the annulus between the rigid liner and the waste for evidence of liquids. This statement is inaccurate and unsupported by the record. With few exceptions, RTR and VE video recordings confirm that rigid drum liners were generally tapered shoulder liners. As a result, if liquids were present in the annulus, they would not be visible during the VE procedure used by Respondents.

53. Respondents stated in the CAP to CAR 06-024 that the VEE examined the drums for indications of liquids during VE by examining the sides of the drum and the liner. The evaluation of closure documentation to CAR 06-024 implies that excess liquids were detected by pulling on the liner bag to see if liquid was present below the surface of the waste. Respondents stated as fact during the March 8, 2007 meeting with NMED that VE operators intentionally lifted or “tugged” the liner bags looking for evidence of liquids, and that VE operators examined the annulus for liquids. These statements are unsupported by the record. Procedure CCP-TP-113 does not direct VE operators to pull, lift, or tug liner bags under any scenario, and video recordings of VE events indicate that VE operators infrequently attempted to pull, lift, or tug liner bags or examine the annulus for liquids.

54. The VEE consistently described the waste container contents as being “100% Aqua-set matrix.” Respondents stated as fact during the March 8, 2007 meeting with NMED that the waste in LA-MIN03-NC.001 is a sludge material that subsequently solidifies, shrinks, and fractures in a manner similar to concrete, and that any free liquid in the waste would likely migrate to a hypothesized one quarter ($\frac{1}{4}$) inch annulus created between the waste and the rigid drum liner. These statements are inaccurate and unsupported by the record. The AK summary report and the March 2004 VE event performed by ANL-W personnel clearly stated that the dewatered sludge treated with perlite or diatomaceous earth (both non-hardening absorbents) has a Portland cement cap on top of the sludge, and that the dewatered sludge material is “tan color, coarse granular, slightly damp” and can be penetrated by a screwdriver.

55. Respondents stated as fact during the March 8, 2007 meeting with NMED that both RTR and VE in lieu of RTR are effective at identifying prohibited items, and that based on “currently available data,” neither method can be rejected for reasons of inadequacy. These statements are unsupported by the record. The VE and RTR video recordings clearly demonstrate that RTR is capable of identifying liquids throughout the drum, while the VE method used is only capable of identifying liquids visible at the surface. Respondents’ statements fail to consider the information provided by these video recordings as “currently available data.”

56. Respondents stated in CAR 06-024 that VE in lieu of RTR had been performed on 145 drums, including the following: 122 drums that were emplaced; eleven drums that were rejected for prohibited amounts of liquid; nine drums that were rejected for non-VE related reasons; and three drums that were placed on hold pending resolution of the CAP. The CAP for CAR 06-024 also made this claim. These statements are unsupported by the record. Based on NMED staff review of data provided by DOE, the record shows that 144 drums from waste

stream LA-MIN03-NCNC.001 underwent VE in lieu of RTR, including the following: 121 drums that were emplaced; ten drums that were rejected for prohibited amounts of liquid; nine drums that were rejected for reasons not related to liquid; and four drums that were placed on hold pending resolution of CAR 06-024.

57. Respondents stated in the CAP for CAR 06-024 that VE was used in lieu of RTR due to a temporary unavailability of RTR equipment; however the record shows that during this time, CCP performed RTR characterization on at least 35 drums from waste stream LA-MIN03-NC.001. A cursory review of data in the WIPP Waste Information System (WWIS) database reveals that at least an additional 180 drums of debris waste from other waste streams are identified as being characterized by CCP using RTR during this time.

CONCLUSIONS OF LAW

58. All preceding paragraphs are hereby incorporated by reference.

59. Each Respondent is a “person” as defined in the HWA, Section 74-4.3.K, and HWMR, 20.4.1.101 NMAC (incorporating 40 CFR §260.10).

60. Respondents manage, store, and dispose of hazardous waste as defined in the HWA, Section 74-4-3.I, and HWMR, 20.4.1.101 NMAC (incorporating relevant portions of 40 CFR §260.10).

61. DOE is the owner and co-operator of a permitted storage and disposal facility as defined in the HWMR, 20.4.1.101 NMAC (incorporating relevant portions of 40 CFR §260.10).

62. WTS is the co-operator of a permitted storage and disposal facility as defined in the HWMR, 20.4.1.101 NMAC (incorporating relevant portions of 40 CFR §260.10).

63. CCP is an organizational division within WTS operating at the direction of DOE.

64. Based upon AK information and RTR performed between April and December 2004, Respondents knew prior to performing VE in lieu of RTR that containers from waste stream LA-MIN03-NC.001 had a significant probability of containing prohibited amounts of liquid that would not be visible at the surface of the waste.

65. The CAP closure documentation for CAR 06-024 states that “it is unknown if any containerized liquids were embedded in” the drums that were certified by VE in lieu of RTR and emplaced at WIPP because the VEE “looked at only the top of the waste form.” Because the VEE only looked at the top of the waste, NMED also concludes that the VE method used was not able to ensure the absence of liquid in the drum or rigid liner not visible at the surface of the waste.

66. DOE’s evaluation of the corrective actions for CAR 06-024 states, “Based on a review of the documentation [in the CAP], the VEE decision to perform VE in the manner that was used on this waste stream appears reasonable, based of (*sic*) the available information at that time.” The evaluation further states, “Based on experience with other waste water treatment sludge waste streams, excess liquids should be detectable based on removing the drum lid, opening the liner bag, and pulling on the liner bag to see if liquid is between the waste and the liner bag or between the liner bag and the drum liner.” NMED concludes that the information that was available at the time indicated that the selection of the VE method used for this waste stream was unreasonable and inappropriate. Further, NMED concludes that the VE method used on this waste stream did not include “pulling on the liner bag to see if liquid is between the waste and the liner bag or between the liner bag and the drum liner.”

67. Based on NMED staff review of the data and video records provided by DOE, NMED concludes that the VE method used did not describe all contents of the waste container or ensure the absence of prohibited items that would not be visible at the surface of the waste.

**VIOLATION 1:
STORING AND DISPOSING OF HAZARDOUS WASTE WITHOUT FOLLOWING
THE WRITTEN WASTE ANALYSIS PLAN**

68. Respondents violated the HWMR, 20.4.1.500 NMAC (incorporating 40 CFR §264.13(b)), and Permit Condition II.C.1 Waste Analysis Plan, which states, “The Permittees shall not manage, store, or dispose TRU mixed waste at WIPP which fails to meet the characterization requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.13), as specified by this Permit.” Respondents stored and disposed of containers from waste stream LA-MIN03-NC.001 without following the written WAP. Respondents did not ensure that all contents of the containers were described or confirm the absence of prohibited items prior to receipt and disposal of 121 waste containers characterized and certified by VE in lieu of RTR. Respondents failed to follow the written WAP in the following manners:

A. Respondents failed to follow the requirement in Permit Attachment B, Section B-1d, Control of Waste Acceptance, which states: “Waste characterization data shall confirm the absence of prohibited items specified in Section B-1c” because the VE method used to certify the 121 containers that were disposed of at WIPP was unable to detect prohibited items (i.e., non-residual liquid) not visible at the surface of the waste, and was insufficient to confirm the absence of prohibited items.

B. Respondents failed to follow the requirement in Permit Attachment B, Section B-2, Waste Parameters, which states that waste characterization at the

generator/storage sites shall confirm “physical form and exclusion of prohibited items specified in Section B-1c” because the VE method used to certify the 121 containers that were disposed of at WIPP could not adequately confirm the physical form of the waste and could not detect prohibited items (i.e., non-residual liquid) not visible at the surface of the waste.

C. Respondents failed to follow the requirement in Permit Attachment B, Section B-3c, Radiography and Visual Examination, which states: “Radiography is a nondestructive qualitative and quantitative technique that involves X-ray scanning of waste containers to identify and verify waste container contents. Visual examination (VE) constitutes opening a container and physically examining its contents. Radiography and/or visual examination will be used to examine every waste container to verify its physical form. These techniques can detect liquid wastes and containerized gases, which are prohibited for WIPP disposal. The prohibition of liquids and containerized gases prevents the shipment of corrosive, ignitable, or reactive wastes... Radiography, or the equivalent, will be used on the existing/stored waste containers to verify the physical characteristics of the TRU mixed waste correspond with its waste stream identification/waste stream Waste Matrix Code and to identify prohibited items.” Respondents have not demonstrated that the VE method used to certify the 121 containers that were disposed of at WIPP accurately described contents of the containers. Even though it was known that the waste was not uniform, and liquids might be present in places other than on the surface of the waste, Respondents used a VE method that only examined the surface of the waste, and therefore all contents of the

containers were not examined or verified. In most cases, the VE method only examined the concrete cap and did not examine the dewatered sludge. The VEE repeatedly described the waste as “100% Aqua-set matrix”, which is inconsistent with the description in AK documents and the ANL-W VE event. Further, the VE method used to certify the 121 containers that were disposed of at WIPP could not detect liquid or containerized gases that were not visible at the surface of the waste.

D. Respondents failed to follow the requirement in Permit Attachment B, Section B-3d(2), Retrievably Stored Waste, which states: “All retrievably stored waste containers will be examined using radiography to confirm the physical waste form (Summary Category Group), to verify the absence of prohibited items, and to determine the waste characterization techniques to be used based on the Summary Category Groups (i.e., S3000, S4000, S5000)... Radiographic results will be compared to acceptable knowledge results to ensure correct Waste Matrix Code assignment and identification of prohibited items... Generator/storage sites may elect to substitute visual examination for radiographic analysis.” The VE method used to certify the 121 containers that were disposed of at WIPP could not verify the absence of prohibited items (i.e., non-residual liquid) not visible at the surface of the waste.

E. Respondents failed to follow the requirement in Permit Attachment B, Section B-4a(1), Data Quality Objectives, which states that the objective of visual examination is “To verify the TRU mixed waste streams by Waste Matrix Code for purposes of physical waste form identification, determination of sampling and

analytical requirements, and to identify prohibited items.” The VE method used by Respondents to certify the 121 containers that were disposed of at WIPP was not capable of verifying the absence of prohibited items (i.e., non-residual liquid) not visible at the surface of the waste.

F. Respondents failed to follow the requirement in Permit Attachment B1, Section B1-3b(3), Visual Examination, which states: “As an additional QC check, or in lieu of radiography, the waste container contents shall be verified directly by visual examination of the waste container contents... Visual examination shall be conducted to describe all contents of a waste container, and includes estimated or measured weights of the contents.” The VE method used to certify the 121 containers that were disposed of at WIPP could not accurately describe all contents of the containers due to the perfunctory manner in which it was implemented. The VE method used only examined the surface of the waste, and therefore all contents of the containers were not examined or verified. The VEE repeatedly described the waste as “100% Aqua-set matrix”, which does not match the description in AK documents.

G. Respondents failed to follow the requirement in Permit Attachment B1, Section B1-3b(5), On-the-Job Training, which states: “The visual examination expert shall be familiar with the waste generating processes that have taken place at that site and also be familiar with all of the types of waste being characterized at that site.” The VEE repeatedly described the waste as “100% Aqua-set matrix”, indicating he was not familiar with the waste generating processes or all of the types of waste being characterized at that site.

SCHEDULE OF COMPLIANCE

69. Based upon the foregoing Findings and Conclusions, Respondents are ordered to take the following corrective actions.

A. Immediately upon receipt of this Order, Respondents shall discontinue shipment and emplacement of homogeneous solids (S3000) containers that have been characterized using VE in lieu of RTR. Within 30 calendar days from receipt of this Order, Respondents shall provide NMED with a list of all certified and/or emplaced homogeneous solids (S3000) containers that have been characterized using VE in lieu of RTR.

B. Within 30 calendar days from receipt of this Order, Respondents shall provide NMED with a plan for removing from Panel 3 the 121 emplaced containers from waste stream LA-MIN03-NC.001 that were characterized using VE in lieu of RTR between May 4 and June 23, 2005. This plan shall establish a deadline for removing such disposed containers no later than 180 calendar days from receipt of this order.

C. Within 30 calendar days from receipt of this Order, Respondents shall provide NMED with technical justification demonstrating that the 121 emplaced waste containers from waste stream LA-MIN03-NC.001 that were characterized using VE in lieu of RTR between May 4 and June 23, 2005 pose no elevated risk to human health and the environment.

D. Regarding VE characterization procedures, within 30 calendar days from receipt of this Order, Respondents shall provide NMED with the following:

1. Technical justification that the revised CCP VE procedures ensure compliance with current Permit Attachment B1, Section B1-4, Visual Examination, which states: “In lieu of radiography, the waste container contents may be verified directly by visual examination of the waste container contents... Visual examination shall be conducted to describe all contents of a waste container, clearly identifying all discernible waste items, residual materials, packaging materials, or waste material parameters.” The revised VE procedures must ensure that VE operators and VEEs are able to describe the contents of the container throughout the drum, not just at the surface of the waste.

2. Technical justification that the revised CCP VE procedures ensure compliance with current Permit Attachment B, Section B-1d, Control of Waste Acceptance, which states: “Waste characterization data shall confirm the absence of prohibited items specified in Section B-1c.” Because liquid has been discovered by RTR to occur below the surface of the waste and in internal containers embedded in the waste, revised VE procedures must include methods for confirming the absence of prohibited items not visible at the surface of the waste.

3. Documentation that all CCP VE operators and VEEs have been trained under the revised VE procedures from items F.1 and F.2 above.

E. Within 30 calendar days from receipt of this Order, Respondents shall provide NMED with procedures demonstrating that all VE operators and VEEs receive and review revised AK Summary reports when such revisions may impact the VE

operators' and VEEs' abilities to identify prohibited items and/or describe all contents of the waste containers.

CIVIL PENALTY

70. The HWA, Section 74-4-10(C)(1), authorizes the Secretary to assess a civil penalty of not more than twenty five thousand dollars (\$25,000) for each day of continued noncompliance with the HWA, HWMR, and this Order. As set forth in the attached civil penalty calculation, the Secretary assesses a civil penalty of eight hundred forty seven thousand dollars (\$847,000) for the violations described above. The Secretary reserves the right to recalculate this civil penalty based on evidence of additional violations and continued noncompliance with the HWA and HWMR.

NOTICE OF OPPORTUNITY TO ANSWER AND REQUEST A HEARING

71. Respondents may request a hearing pursuant to the HWA, Section 74-4-10.H, and NMED's Adjudicatory Procedures, 20.1.5.200 NMAC, by filing a written request for hearing with the hearing clerk no later than 30 calendar days from receipt of this Order. The request for hearing shall include an answer which:

- A. admits or denies each alleged finding of fact. Any alleged finding of fact that is not specifically denied shall be deemed to be admitted. Respondents may assert that they have no knowledge of any alleged finding of fact, and such finding shall be deemed to be denied;
- B. asserts any affirmative defenses upon which Respondents intend to rely. Any affirmative defense not asserted in the answer, except an affirmative defense asserting lack of subject matter jurisdiction, shall be deemed to be waived;

C. has been signed under oath or affirmation that the information contained therein is true and correct to the best of the signatory's knowledge; and

D. has attached a copy of this Order.

Respondents shall send their Answer and Request for Hearing, if any, to the hearing clerk at the following address:

Hearing Clerk
New Mexico Environment Department
P.O. Box 26110
1190 St Francis Drive
Santa Fe, New Mexico 87502-6110

Upon Respondents' request, the NMED Secretary shall hold a hearing. The hearing shall be governed by NMED's Adjudicatory Procedures, 20.1.5 NMAC (copy attached).

FINALITY OF ORDER

72. This Order shall become final unless Respondents file an Answer and Request for Hearing as specified above. Respondents' failure to file an Answer and Request for Hearing shall constitute an admission of the alleged findings of fact in this Order and a waiver of Respondents' right to a hearing under the HWA, Section 74-4-10.

SETTLEMENT CONFERENCE

73. Respondents may confer with NMED concerning settlement at any time, but such conference or request for a conference shall not extend or waive the deadline for filing an Answer and Request for Hearing as specified above. Respondents may confer regarding settlement as an alternative to, or simultaneously with, a hearing on this Order. Respondents may appear pro se or through counsel at any settlement conference.

The Secretary shall approve any settlement through a stipulated final order pursuant to the conditions set forth in NMED's Adjudicatory Procedures, 20.1.5.601 NMAC. A stipulated final

order shall be final, shall resolve all issues raised in this Order, shall bind all parties to this Order, and shall not be appealable.

To confer regarding settlement, contact:

James Bearzi
Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
(505) 476-6000

TERMINATION

74. Compliance with this Order does not relieve Respondents of their obligation to comply with all applicable laws and regulations. This Order shall terminate upon Respondents' certification of compliance with this Order and NMED's approval of such certification, or upon the NMED Secretary's approval of a stipulated final order.



JON GOLDSTEIN, DIRECTOR
WATER AND WASTE MANAGEMENT DIVISION

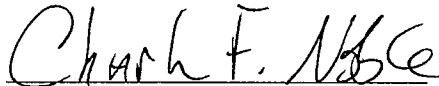
DATE: 11-26-07

CERTIFICATE OF SERVICE

I certify that on November 26, 2007, I caused this Order to be sent by facsimile and first class mail, certified mail-return receipt requested, to:

David Moody, Manager
Carlsbad Field Office
U.S. Department of Energy
P.O. Box 3090
Carlsbad, NM 88221
Facsimile: (575) 234-7027

Farok Sharif, President
Washington TRU Solutions LLC
P.O. Box 2078
Carlsbad, NM 88220
Facsimile: (575) 234-7046



Charles F. Noble

NARRATIVE EXPLANATION OF AMOUNTS SELECTED

#1 **Storing and Disposing of Hazardous Waste without Following the Written Waste Analysis Plan**

1. Gravity Based Penalty

(a). Potential for harm: Moderate

Although the violation poses a relatively low risk of exposure, the act of certifying containers that significantly failed to follow a written waste analysis plan (WAP) and subsequently disposing of them significantly undermines the statutory and/or regulatory purposes for implementing the permitted RCRA program.

(b) Extent of Deviation: Moderate

Because the waste drums were certified without being adequately characterized by using VE, the extent of deviation from the Permit WAP is moderate. The Respondents significantly deviated from an important regulatory requirement, but most of the other important requirements were met.

(c) Multiple Counts: 121

As of September 16, 2006, 121 drums of TRU mixed waste from waste stream LA-MIN03-NC.001 have been disposed of at the WIPP facility without following the written WAP.

2. Multiday Penalty: 1 day

From the multi-day penalties matrix, a multi-day penalty is presumed appropriate for the moderate/moderate category. Waste containers that were inadequately characterized using VE were received and disposed of between August 14, 2005 and February 25, 2006 (195 days), and the problem was not identified until May 18, 2006 (82 days). However, the failure to fully characterize is not considered a multi-day event in this instance.

3. Good Faith: None

There is no increase or decrease in the penalty due to good faith. Although the Respondents identified the basic facts of this noncompliance at the LANL/CCP Audit A-06-11, they did not address it as a permit violation. However, the Respondents have cooperated with NMED by providing information and data necessary to determine compliance, and meeting with NMED to discuss their interpretation of the data.

4. Negligence: 15%

The policy indicates an increase of 15% for substantial negligence and 25% for probably willful. Respondents received 121 inappropriate drums over an extended time frame. Respondents knew of the legal requirements, had control over the events constituting the violation by virtue of certifying each container for disposal, but took inadequate precautions to preclude the acceptance of inappropriate drums. An increase of 15% is deemed appropriate.

5. History of Noncompliance: 25%

The Respondents have a substantial history of violations with the regulations. The enforcement actions are CO 99-04, CO 99-05, CO 01-08, CO 04-07, and RCRA violations noted during NMED WIPP inspections during 1998, 1999, and 2006, resulting in letters of violation. The policy indicates an increase of 25% if there is a substantial history of noncompliance with any regulation(s).

6. Economic Benefit (considered negligible if less than \$2500):

NMED is not aware that the Respondents gained any economic benefit from storing and disposing the 121 drums.