



## Observer Inquiry Form

Observer: Coleman Smith/TLK

Tracking No. \_\_\_\_\_

Date: August 5, 2014

### Discussion of Request:

During the June 3-5, 2014 Carlsbad Field Office (CBFO) audit of the Idaho National Laboratory/Central Characterization Project (INL/CCP) A-14-18, NMED observed an Acceptable Knowledge (AK) document that describes nitrate salt-bearing waste. The AK Summary CCP-AK-INL-001-Rev12 (AK001) discusses nitrate waste from the Rocky Flats Plant (RFP) that was buried on the current INL site prior to and during closure of the RFP. Nitrate salt-bearing waste appears to be implicated in the heat/deflagration event that caused the radiological release at the WIPP on February 14, 2014. NMED is concerned with this waste type not only at LANL, but also at any other site in the DOE weapons complex that may have used a similar process to produce nitrate salt-bearing waste. The RFP used chemical processes that are very similar or the same as processes used at LANL that generated nitrate-bearing waste. Therefore, the audited AK document AK001 was of particular interest to NMED.

The AK001 document contains the following quote:

*"Based on review of AK documentation, numerous oxidizers (e.g., chromates, nitrates, perchlorates, permanganate, peroxides) have been identified in processes that generated waste buried in the retrieval area (refer to Table 5-5). There is the possibility that bottles of chemicals, including oxidizers, were buried in the SDA. For that reason, bottles of chemicals (solids and liquids) will be removed from the waste during retrieval and packaging operations (References ID-P122, ID-P269, ID-P253, ID-P423, and ID-P427, and ID-P431). Evaporator Salts (745-series sludge) are composed of an approximately 90 wt% mixture of potassium nitrate and sodium nitrate, and in concentrated form this material is an oxidizer. For this reason, 745-series sludge is removed from the waste during retrieval and packaging operations such that the waste does not meet the definition of an oxidizer (References ID-P398 and ID-P400). Cellulosic (e.g., wipes) waste items may be contaminated with oxidizers; however, tests performed in 1984 to determine burning characteristics of wipes and mop heads contaminated with nitric acid and potassium permanganate indicated that these wastes are not considered oxidizers. In addition, studies evaluating the formation of lead nitrate from leaded rubber gloves contaminated with nitric acid concluded that the gloves are not considered oxidizers. Therefore, the wastes will not exhibit the characteristic of ignitability (References ID-C102, ID-P111, ID-P122, ID-P250, ID-P253, ID-P269, ID-P398, ID-P400, ID-P423, ID-P427, ID-P431, RF-C028, RF-C260, and RF-P090)."*

Because the AK document states that the 745-series sludge is removed from the waste (above quote), during the course of the audit, NMED requested to observe CCP or site-specific procedures related to nitrate salt remediation. The only applicable CCP document identified during the audit is CCP-TP-005, Rev. 26, CCP Acceptable Knowledge Documentation. This procedure discusses general AK documentation requirements, but does not include site-specific packaging requirements or procedures. NMED then requested any reference and/or training materials related to the handling and management of repackaged nitrate salt-bearing waste.

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## Observer Inquiry Form

CCP manager Trey Greenwood spoke to the INL/contractor personnel at the audit, and three documents were provided:

1. a study by New Mexico Tech commissioned by INL in 2010 to evaluate how much zeolite clay and/or ground concrete must be added to a drum of pure nitrate salts to render it a "non-oxidizer";
2. an Idaho Cleanup Project engineering design file entitled "Impacts of Nitrated Salts in Targeted Waste from the Subsurface Disposal Area (SDA)", document EDF-8723 Rev. 1 dated 7/3/08; and
3. a copy of viewgraphs and attendance sheet for a briefing concerning VE of the nitrate salts. NMED requested the actual site-specific procedures for identification and remediation of nitrate salt-bearing waste.

NMED was told by Lisa Frost of INL that both the excavator operators and the glovebox VE operators are trained to be aware of the engineering design file, and training is recorded as attendance at a briefing. No other procedures were said to exist. Ms. Frost stated that only Oil Dri® is used as an absorbent. Oil Dri® is the name of a corporation that manufactures many different products, and does not identify a single absorbent or neutralizing agent. Sodium and potassium nitrate salts are produced by neutralization and evaporation of nitric acid solutions. Although the nitrate salts were likely neutralized at the RFP, some nitrate-bearing waste has been shown to have a pH too low to be considered non-corrosive (pH < 2). It is NMED's understanding that the pH should be rechecked during repackaging for any nitrate-bearing waste containing free liquids. If a low pH is indicated, a neutralizing agent must be added to the waste before addition of the absorbent. Before use, the precise chemical composition of both the neutralizer and the absorbent should be evaluated for chemical compatibility with the waste. Proper characterization should require that the quantities of neutralizer and absorbent added to the waste be documented, and steps involved in the entire repackaging process should appear in a written procedure that operators follow and are trained to.

The following quote is found in AK001:

*"CH2M WG Idaho, LLC (CWI) repackages ARP waste stream ID-SDA-SLUDGE at INTEC building CPP-653 (INTEC PCC [packaging configuration correction]) in support of compliant characterization and packaging of waste for disposal at the WIPP. The WIPP directed CWI to repack the ARP sludge wastes for those previously packaged drums of sludge where the tray liner was used. The tray liner forms a void space that could result in the non-compliant condition of liquid separation and accumulation in the void space. From the current population of waste, it is estimated that more than 1,700 (55-gallon drums and 85-gallon overpack drums) containers of waste will require repackaging. These actions necessitate opening the existing package, waste content removal, and subsequent repackaging for ultimate disposition at WIPP (References ID-C109, ID-P373, ID-P424, INTEC-P098, and ID-P214)."*

## Observer Inquiry Form

NMED requests documentation of how the following training is accomplished or alternately, a thorough explanation supported by data as available and necessary of why the Permittees believe this is not necessary.:

- 1) CWI excavator operators: how to identify nitrate compounds within a sludge matrix possibly combined with soil;
- 2) CWI excavator operators: how to identify free liquids when material is dumped onto "outside" tray; judgment or measurement of the absorbent added and how it was mixed with the waste prior to transfer to smaller "inside" tray and introduction into the glovebox line; how to identify and remove clumps of nitrate salts before introduction into the glovebox line; how does the operator know that the absorbent is Oil Dri® and not some other un-reviewed absorbent;
- 3) Glovebox VE operators (CWI?): dry or aqueous-based waste: how to identify prohibited items; how to identify and remove large pieces of nitrate salts; how to determine if additional absorbent is required; how to determine if the absorbent is Oil Dri® specifically; how to determine if the waste is acidic (characteristic of corrosivity) and in need of neutralization; method and type of neutralization agent added to the waste; either in the drum or at the "indoor" tray area, how to determine if the waste has greater or less than 8% nitrate salts per engineering design file;
- 4) Glovebox VE operators (CWI?): how is the pH checked or the characteristic of corrosivity eliminated. NMED regards nitrate salts from the RFP to be acidic and to exhibit the characteristic of corrosivity. It is also NMED's understanding that this characteristic for wet or damp waste from aqueous processes cannot be ruled out without a pH check with the pH between 2 and 12.5 to delete this code.
- 5) Glovebox VE operators (CWI?): organic-based waste: how to determine if the waste requires absorbent; how to determine if the absorbent is the correct Oil Dri® product; how to determine if the waste contains any of the compounds listed as incompatible with the specific Oil Dri® product or with a neutralizing agent per the manufacturer's MSDS documentation. Incompatible materials for Oil Dri® granular clay absorbents include turpentine, vegetable oil, and other similar unsaturated hydrocarbons.

NMED believes there should be a formality of operations at any certified generator site to drive the initiation and subsequent revisions of site-specific procedures in order to ensure the absence of RCRA codes D001 (ignitability), D002 (corrosivity), and D003 (reactivity). Without procedures associated with remediation of waste and modification or elimination of RCRA codes, WIPP and NMED cannot be sure if the WIPP WAP was complied with at the time the waste was repackaged.

During the audit, NMED raised these concerns with the CTAC AK auditor, Dick Blauvelt, the Lead Auditor, Tammy Achman and the CBFO QA team, Martin Navarette and Dennis Miels. Mr. Blauvelt did not agree that the remediation of nitrate salt-bearing waste needed procedures to formalize the process. He also did not agree that the quantities and types of materials added to any waste drum during repackaging must be explicitly included in container-specific records. Much discussion took place regarding NMED's concerns during the audit and the Audit Team

## Observer Inquiry Form

caucuses. By the close of the audit, NMEDs concerns did not rise to the CBFO/CTAC audit concerns list and NMED and CBFO agreed that submitting an Observer Inquiry was the best path forward for NMED concerns to be formally addressed.

NMED is also inquiring about compliance with procedure CCP-TP-005, Rev. 26 (TP005) at the following citations (the words “packaging” and “repackaging” are underlined for reference):

- 1) TP005, Section 4.4.27 [A] (pp. 25 of 81): *“See Attachment 6, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging - Example Form for an example. Include the Waste Material Parameter Evaluation Memorandum described in step 4.4.26 as an addendum to Waste Form, Waste Material Parameters, Prohibited Items, and Packaging.”*

**NMED comment TP1:** NMED believes that this addendum should include detailed packaging information, including any materials added to the waste during repackaging.

- 2) TP005, Section 4.4.30 (pp. 26 of 81): *“IF prohibited items or incompatible materials are listed on the Waste Form, Waste Material Parameters, Prohibited Items, and Packaging, THEN perform the following:”*

**NMED comment TP2:** NMED believes that this list should include chemicals and/or absorbent materials added during repackaging.

- 3) TP005, Attachment 1 – Acceptable Knowledge Documentation Checklist– Example Form (pp.46-49 of 81): *“Waste identifiers assigned by the generator site (e.g., item description code, packaging identification numbers. AK# WS10)”; “Waste Packaging records, AK # S4” and “Packaging, AK #S16”, and footnote 1: “(1) AK#s are used as identifiers for program, waste stream-specific and supporting elements. The identifiers are to be used in the Acceptable Knowledge Source Document Summary and Acceptable Knowledge Information List to aid in the page location of program and waste stream-specific elements within a given document. N/A means that item is not applicable.”*

**NMED comment TP5:** NMED believes that packaging records should include a detailed description of all materials added during repackaging and requests explanation as to why this is not addressed.

- 4) TP005, Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form (pp.58, 59 of 81): checklist “Packaging Materials: Present (Y/N)?” and “Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes” with footnote h: *“This waste has been approved for disposal at the WIPP by the Permittee as documented by Appendix C1 of the WIPP RCRA Part B Application and the Permittee’s*

## Observer Inquiry Form

*approval and assignment of the applicable TRUCON Codes for this waste stream.” and signature/date on form by the Acceptable Knowledge Expert.*

**NMED comment TP6:** NMED believes that this checklist should include a compatibility analysis between the drum contents and any chemicals/absorbents added during repackaging or an explanation as to why it is not necessary.

- 5) TP005, Attachment 12 – Example Form and Content Guide for AK Summary Reports, Section 2.2: Waste Stream Description (p.69 of 81): *“(Describe any other specific waste items in the waste stream, equipment, items not included above, secondary waste/chemicals introduced during packaging/repackaging.”); “(Describe waste packaging/repackaging and final waste container configuration) (Refer to Section 5.5)”.*

**NMED comment TP7:** NMED observed that the Waste Stream Description in AK001 did not address secondary waste/chemicals introduced during packaging/repackaging. NMED believes the AK should include this information. Please provide a specific citation to the document (name of document and location within the document) that addresses this or an explanation as to why the Permittees believe this is not necessary.

- 6) TP005, Attachment 12 – Example Form and Content Guide for AK Summary Reports, Section 4.0: Required Program Information(p.72 of 81): *“Included is a description of the (facility/building/operation), summary of the mission, defense determination, and descriptions of (other operations including D&D, maintenance, repackaging, etc.) operations associated with the generation of waste stream (number) are provided.”*

**NMED comment TP8:** NMED was not able to find or observe a detailed description of repackaging operations. Please provide a specific citation to the document (name of document and location within the document) that addresses this.

- 7) TP005, Attachment 12 – Example Form and Content Guide for AK Summary Reports, Section 5.0: Required Waste Stream Information (p.72 of 81): *“This section presents the mandatory TRU waste stream specific information required by the WIPP-WAP (RH only - and the WCPIP) for waste stream (number) (References \_\_ and \_\_). The area of generation, waste stream volume, period of generation, prohibited items, waste packaging, and the physical, chemical, and radiological composition of the waste stream are described.”*

**NMED comment TP9:** NMED was not able to find or observe detailed waste packaging information in the above cited Section 5.0 of AK001. Please provide a specific citation to the document (name of document and location within the document) that addresses this.

## Observer Inquiry Form

- 8) TP005, Attachment 12, Section 5.5 (p.73 of 81): *“Required Waste Stream Information: 5.5: Waste Packaging”*.

**NMED comment TP10:** NMED believes that this section of the AK Summary should describe all waste packaging activities, including the addition of neutralizing agents and/or absorbents.

All of the above references require the AK Summary Report to include packaging information and specifically, to include any secondary waste and/or chemicals introduced during packaging and repackaging (see Item 7 above). NMED is concerned that the AK001 is deficient concerning information related to repackaging, and does not fully comply with TP005. NMED is requesting a detailed response regarding repackaging information and TP005 compliance for each of the items listed above.

The WIPP RCRA TSDF Permit contains the following pertinent citations:

- 1) Attachment C, Waste Analysis Plan (WAP), Section 1b: *“The Permittees will only allow generators to ship those TRU mixed waste streams with EPA hazardous waste numbers listed in Table C-5.”*

**NMED comment WAP1:** Table C-5 in AK001 does not include RCRA codes D001, D002, or D003. NMED believes that if INL/CWI does not test the waste for pH, the characteristic of corrosivity (D002) cannot be ruled out. The federal regulation at 40 CFR 261.22 (incorporated by 20.4.1.200 NMAC) uses the terminology “aqueous” and “liquid” in subsections (a)(1) and (a)(2) when referring to corrosive solid waste. For the purposes of this Observer Inquiry, all waste drums/excavated material requiring absorbent to be added will be considered by NMED to be “liquid”, and all wet or damp nitrate salt-bearing waste will in addition be considered “aqueous”. NMED believes that the pH can be tested using EPA approved methods even if there is only a small amount of free liquid present. NMED believes that the pH of any aqueous sludge, whether it be newly generated or retrievably stored, should be measured before the D002 code can be eliminated. 40 CFR 261.22 Subsection (a)(1) also defines lack of corrosivity to be material that exhibits a pH that is greater than 2 and less than 12.5. NMED believes that the pH should be verified to be within this range before the D002 code can be eliminated. Please provide an explanation supported by data as available and necessary of why the Permittees believe this is not necessary.

- 2) WAP Section C-1c: Waste Prohibited at the WIPP Facility: *“The following TRU mixed waste are prohibited at the WIPP facility: (4<sup>th</sup> bullet): wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes.”*

**NMED comment WAP2:** NMED questions the addition of absorbent and/or neutralizing agents if the Material Safety Data Sheet (MSDS) for the added material states any

## Observer Inquiry Form

incompatibility with the waste. For example, the absorbent Oil Dri® is stated to be incompatible with turpentine, vegetable oils, and other unsaturated hydrocarbons. If the organic sludge contains unsaturated hydrocarbons, the AK summary report should address this possible incompatibility or provide an explanation as to why it does not address this.

- 3) WAP Section C4-2: Acceptable Knowledge Documentation: *“The New Mexico Environment Department (NMED) may independently validate the implementation of and compliance with applicable provisions of the WAP at each generator/storage site by participation in the Audit and Surveillance Program (Permit Attachment C6).”*

**NMED comment WAP3:** This Observer Inquiry is part of NMED’s independent validation of the AK Summary Report AK001.

- 4) WAP Section C4-2a: Required TRU Mixed Waste Management Program Information (7<sup>th</sup> bullet): *“The following information shall be included as part of the acceptable knowledge written record: Waste certification procedures for retrievably stored and newly generated wastes to be sent to the WIPP facility.”*

**NMED comment WAP4:** NMED believes that the waste certification procedures should require a check of the AK for completeness. NMED does not consider the AK Summary complete if it does not include all processes, including the process of repackaging.

- 5) WAP Section C4-2b: Required TRU Mixed Waste Stream Information: *“At a minimum, the waste process information shall include the following written information (6<sup>th</sup> bullet after 1<sup>st</sup> paragraph): Material inputs or other information that identifies the chemical content of the waste stream and the physical waste form (e.g., glove box materials and chemicals handled during glove box operations; events or processes that may have modified the chemical or physical properties of the waste stream after generation; data obtained through visual examination of newly generated waste that later undergoes radiography; information demonstrating neutralization of U134 [hydrofluoric acid] and waste compatibility.”*

**NMED comment WAP5:** NMED concludes that addition of absorbent is modification of a physical property of the waste (liquid/semi-solid to solid), and that addition of a neutralizing agent is modification of a chemical characteristic (removing D002 and possibly D003).

- 6) WAP Section C4-2b: Required TRU Mixed Waste Stream Information: *“The Permittees shall obtain from each site, at a minimum, procedures that comply with the following acceptable knowledge requirements (6<sup>th</sup> bullet after 2<sup>nd</sup> paragraph): Procedures to ensure radiography and visual examination include a list of prohibited items that the*

## Observer Inquiry Form

*operator shall verify are not present in each container (e.g., liquid exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes)."*

**NMED comment WAP6:** NMED expects that the AK Summary Report would contain reference to a procedure that ensures no D002 waste is repackaged for disposal at the WIPP, and that the waste was treated to remove this characteristic.

- 7) WAP Section C4-2b: Required TRU Mixed Waste Stream Information (8<sup>th</sup> bullet after 2<sup>nd</sup> paragraph): *"Procedures that ensure the assignment of EPA hazardous waste numbers is appropriate, consistent with RCRA requirements, and considers site historical waste management."*

**NMED comment WAP7:** NMED expects that the AK Summary Report would contain references to a procedure that discusses elimination of the D002 code through proper treatment of the waste.

- 8) WAP Section C4-2c: Additional Acceptable Knowledge Information: *"The generator/storage sites shall obtain additional acceptable knowledge information. Sites shall collect information as appropriate to augment required information and provide any other information obtained to further delineate the waste streams...Additional acceptable knowledge documentation includes, but is not limited to, the following information: (4<sup>th</sup> bullet after 1st paragraph): Waste packaging records."*

**NMED comment WAP8:** NMED expects generator sites to have container-specific packaging records that detail any materials added to a waste drum in order to meet the requirements of the WAP.

- 9) WAP Section C4-3: Acceptable Knowledge Training, Procedures and Other Requirements: *"The Permittees shall require consistency among sites in using acceptable knowledge information to characterize TRU mixed waste by the use of the following: 1) compiling the required and additional acceptable knowledge documentation in an auditable record, 2) auditing acceptable knowledge records, and 3) WSPF approval and waste confirmation. This section specifies qualification and training requirements, describes each phase of the process, specifies the procedures that the Permittees shall require all sites to develop to implement the requirements for using acceptable knowledge, and specifies data quality requirements for acceptable knowledge."*

**NMED comment WAP9:** NMED did not find or observe evidence that the Permittees performed verification that the site has procedures describing acceptable knowledge for each phase of the repackaging process.

- 10) WAP Section C4-3a: Qualification and Training Requirements: *"Site personnel responsible for compiling acceptable knowledge, assessing acceptable knowledge, and*

## Observer Inquiry Form

*resolving discrepancies associated with acceptable knowledge shall be qualified and trained in the following areas at a minimum: (4<sup>th</sup> bullet) Site-specific procedures associated with waste characterization using acceptable knowledge.”*

**NMED comment WAP10:** NMED regards the omission of repackaging information in AK001 to be a discrepancy requiring resolution.

- 11) WAP Section C4-3b: Acceptable Knowledge Assembly and Compilation: *“The Permittees shall obtain from sites acceptable knowledge procedures which require consistent application of the acceptable knowledge process and requirements. Site-specific acceptable knowledge procedures shall address the following: (3<sup>rd</sup> bullet) Sites shall develop and implement a written procedure that ensures unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from TRU mixed waste populations sent to WIPP.”*

**NMED comment WAP11:** NMED has reviewed procedures at other generator sites that specify details concerning neutralization and/or addition of absorbents, and NMED believes that CCP has not been consistent in the application of the AK process.

- 12) WAP Section C4-3b: Acceptable Knowledge Assembly and Compilation (end of 5<sup>th</sup> bullet paragraph): *“For newly generated wastes, procedures shall be developed and implemented to characterize hazardous waste using acceptable knowledge prior to packaging the waste.”*

**NMED comment WAP12:** NMED believes that the processes and requirements of neutralization and/or addition of absorbent is identical between newly generated waste and repackaging of retrievably stored waste.

- 13) WAP Section C4-3b: Acceptable Knowledge Assembly and Compilation (7<sup>th</sup> bullet): *“Sites shall identify all process controls (implemented to ensure that the waste contains no prohibited items and to control hazardous waste content and/or physical form) that may have been applied to retrievably stored waste and/or may presently be applied to newly generated waste.”*

**NMED comment WAP13:** NMED expects that the processes of neutralization and absorption of liquids should be identified as process controls to meet requirements of the WAP, and that procedures documenting the proper use of these controls should be followed by the operator at all times.

- 14) WAP Section C4-3g: Audits of Acceptable Knowledge (1<sup>st</sup> bullet): *“Audit checklists shall include Table C6-3 in Permit Attachment C6, and will include but not be limited to the following elements for review during the audit: Documentation of the process used to*

## Observer Inquiry Form

*compile, evaluate, and record acceptable knowledge is available and implemented; (2<sup>nd</sup> bullet) Personnel qualifications and training are documented;"*

**NMED comment WAP14:** NMED expects that the documented site process to evaluate AK should include language addressing neutralization, addition of absorbents, and any other material that is added to the drum during packaging/repackaging.

- 15) WAP Section C4-3g: Audits of Acceptable Knowledge (2<sup>nd</sup> paragraph after bullets): *"For these waste streams, auditors will review all procedures and associated processes developed by the site for documenting the process of compiling acceptable knowledge documentation; correlating information to specific waste inventories; assigning hazardous waste numbers; and identifying, resolving, and documenting discrepancies in acceptable knowledge records."*

**NMED comment WAP15:** NMED believes that the CTAC auditors were not thorough in their review of AK001, and that a site-specific procedure should have been used to identify discrepancies, such as lack of sufficiently detailed information regarding the repackaging process.

- 16) WAP Section C4-3g: Audits of Acceptable Knowledge (3<sup>rd</sup> paragraph after bullets): *"The criteria that will be used by auditors to evaluate the logic and defensibility of the acceptable knowledge documentation include completeness and traceability of the information, consistency of application of information, clarity of presentation, degree of compliance with this Permit Attachment with regard to acceptable knowledge data, nonconformance procedures, and oversight procedures."*

**NMED comment WAP16:** NMED does not believe that AK001 was complete.

- 17) WAP Section C4-3g: Audits of Acceptable Knowledge (4<sup>th</sup> paragraph after bullets): *"Auditors will verify and document that sites use administrative controls and follow written procedures to characterize hazardous waste for newly-generated and retrievably stored wastes."*

**NMED comment WAP17:** NMED expects the auditors to investigate such procedures, or to document the lack thereof.

- 18) WAP Section C4-3g: Audits of Acceptable Knowledge (last paragraph): *"The Permittees will maintain an operating record for review during regulatory agency audits. NMED may also review any information relevant to the scope of the audit during site audits."*

**NMED comment WAP18:** This Permit condition allows NMED to request additional information that is related to the WAP.

## Observer Inquiry Form

- 19) WAP Section C4, Figure C4-1: Acceptable Knowledge Auditing (2<sup>nd</sup> through 5<sup>th</sup> activity in flowchart): *“Assess site procedures for acceptable knowledge compilation, interpretation and discrepancy resolution”; “All procedures complete and adequate?”; “Review acceptable knowledge documentation for selected waste stream”; “Is the documentation complete, logical, and defensible? Are records traceable to waste streams and hazardous waste information?”*

**NMED comment WAP19:** NMED does not believe that this flowchart was followed in a comprehensive manner. Please provide an explanation.

- 20) WAP Section C4a(4): Data Verification: *“NMED may request, through the Permittees, copies of any BDR, and/or the raw data validated by the generator/storage sites, to check DOE’s audit of the validation process.”*

**NMED comment WAP20:** NMED was not provided and did not observe raw data regarding use of neutralizers and/or the addition of absorbents, and NMED does not believe that the validation process was complete. . Please provide a specific citation to the document (name of document and location within the document) that addresses this.

- 21) WAP Section C5-1: Quality Assurance Project Plans: *“Prior to management, storage, or disposal of a generator/storage site’s TRU mixed waste at WIPP, the Permittees shall require that each participating site develops and implements a quality assurance project plan (QAPjP) that addresses all the applicable requirements specified in Waste Isolation Pilot Plant waste analysis plan (WAP) in Permit Attachment C. The U.S. Department of Energy (DOE) will approve QAPjPs from all generator/storage sites that intend to send TRU mixed waste to the Waste Isolation Pilot Plant. DOE shall ensure that these QAPjPs include the qualitative or quantitative criteria for determining whether waste characterization program activities are being satisfactorily performed. DOE shall also ensure that QAPjPs identify the organization(s) and position(s) responsible for their implementation. Additionally, the QAPjPs shall also reference site-specific documentation that details how each of the required elements of the characterization program will be performed. DOE shall ensure that prior to the implementation of characterization activities at participating sites, standard operating procedures (SOPs) were developed for all activities which affect the quality of the waste characterization program elements specified in the WAP. For the purposes of the quality assurance program, the term SOP refers to any site-specific implementing document. Compliance with SOPs will ensure that tasks are performed in a consistent manner that results in achieving the quality required for the quality assurance program. The organization, format, content, and designation of SOPs shall be described in the QAPjPs. Site-specific SOPs will be reviewed for consistency with the QAPjP according to the Audit and Surveillance Program specified in Permit Attachment C6.”*

## Observer Inquiry Form

**NMED comment WAP21:** NMED believes that the QAPjP must require sufficient formality so that detailed repackaging information is required to be explained in the AK Summary. Please provide a specific citation to the document (name of document and location within the document) that addresses this.

- 22) WAP Section C-5a(3) Audit and Surveillance Program states: *“An important part of the Permittees’ verification process is the Audit and Surveillance Program. The focus of this audit program is compliance with this WAP and the Permit. This audit program addresses all AK implementation and testing activities, from waste stream classification assignment through waste container certification, and ensures compliance with SOPs and the WAP. Audits will ensure that containers and their associated documentation are adequately tracked throughout the waste handling process. Operator qualifications will be verified, and implementation of QA/QC procedures will be surveyed.... These audits will allow NMED to verify that the Permittees have implemented the WAP and that generator/storage sites have implemented a QA program for the characterization of waste and meet applicable WAP requirements. The accuracy of physical waste description and waste stream assignment provided by the generator/storage site will be verified by review of the radiography results, and visual examination of data records and radiography images (as necessary) during audits conducted by DOE.”*

**NMED comment WAP22:** NMED believes that by exclusion of the neutralization and addition of absorbent processes, AK001 does not include descriptions of all AK implementation and testing procedures, and calls into question compliance with the WAP.

### C6 checklist inconsistencies:

- 23) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #40, last bullet: “Waste certification procedures for retrievably stored and newly generated wastes to be sent to the WIPP facility.” Ref: Section C4-2a

**NMED comment WAP23:** NMED believes that certification procedures should include a requirement to check for inclusion of neutralization and/or addition of absorbent information. NMED does not believe that this requirement has been adequately addressed in AK001. . Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 24) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #41, Item F: “Material inputs of other information that identifies the chemical content of the waste stream and the physical waste form (e.g., glove box materials and chemical handled during glove box operations, events or processes that may have modified the chemical or physical properties of the waste stream after generation, data obtained through visual examination of newly generated waste that later undergoes radiography;

## Observer Inquiry Form

information demonstrating neutralization of U134 [hydrofluoric acid] and waste compatibility.” Ref: Section C4-2b

**NMED comment WAP24:** NMED believes that AK001 should include neutralization and/or addition of absorbent information as these processes can modify the chemical and physical properties of the waste. NMED does not believe that this requirement has been adequately addressed in AK001. . Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 25) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #44, Item F: “Procedures to ensure radiography and visual examination include a list of prohibited items that the operator shall verify are not present in each container (e.g., liquid exceeding TSDf-WAC limits, corrosives, ignitables, reactives, and incompatible wastes).” Ref: Section C4-2b

**NMED comment WAP25:** NMED did not find or observe any procedure that ensures operators can recognize and reconcile existence of codes D001, D002, or D003 in the waste through radiography or VE. NMED does not believe that this requirement has been adequately addressed in AK001. . Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 26) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #45: “Does the generator provide procedures or written commitment to collect additional acceptable knowledge information, as available and as necessary to augment mandatory information?” Ref: Section C4-2c

**NMED comment WAP26:** NMED believes that additional acceptable knowledge information regarding neutralization and/or addition of absorbents should have been requested by the auditors to augment mandatory information. NMED does not believe that this requirement has been adequately addressed in AK001. . Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 27) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #46: “Does the generator site document that all additional specific, relevant information used in the acceptable knowledge process will be identified and its use explained? Is all necessary information assembled and has it been appropriately used?” Ref: Section C4-2c

**NMED comment WAP27:** NMED does not believe that these requirements have been adequately addressed in AK001. . Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

## Observer Inquiry Form

- 28) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #48, Item D:  
“Does the generator site have procedures to ensure that all personnel involved with acceptable knowledge waste characterization have the following training, and is this training documented? (Item D:) Site-specific procedures associated with waste characterization using acceptable knowledge” Ref: Section C4-3a

**NMED comment WAP28:** NMED did not find or observe site procedures regarding characterization that includes details of the neutralization and/or addition of absorbent processes. NMED does not believe that this requirement has been adequately addressed in AK001. . Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 29) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #49, Item C:  
“Sites must develop and implement a written procedure that ensures unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from TRU mixed waste populations sent to WIPP.” Ref: Section C4-3b

**NMED comment WAP29:** NMED did not find or observe any site procedures that ensures unacceptable wastes that may have codes D001, D002, or D003 are positively identified. NMED does not believe that this requirement has been adequately addressed in AK001. . Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 30) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #49b, Item G:  
“Sites shall identify all process controls (implemented to ensure that the waste contains no prohibited items and to control hazardous waste content and/or physical form) that have been applied to retrievably stored waste and/or may presently applied to newly generated waste...” Ref: Section C4-3b

**NMED comment WAP30:** NMED did not find or observe any site process controls or related procedures to control the inadvertent inclusion of D002 wastes. NMED does not believe that this requirement has been adequately addressed in AK001. Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 31) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #50, Item E:  
“Container inventories for TRU mixed waste in retrievable storage shall be delineated into waste streams by correlating the container identification to all of the required and additional AK information.” Ref: Section C4-3c

**NMED comment WAP31:** NMED did not find or observe evidence that container identification was correlated to all of the required and additional AK information. NMED does not believe this was possible because the processes related to neutralization

## Observer Inquiry Form

and/or addition of absorbents were not described in AK001. Please provide a specific citation to the source document (name of document and location within the document) that addresses this.

- 32) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #68, Item C: "Completeness – The acceptable knowledge record must contain 100 percent of the information (Permit Attachment C4-3). The usability of the acceptable knowledge information will be assessed for completeness during audits." Ref: C3-3

**NMED comment WAP32:** NMED does not believe that this requirement has been adequately addressed in AK001, as the exclusion of information regarding neutralization and/or addition of absorbents resulted in AK001 containing less than 100 percent of the information. Please provide a specific citation to the source document (name of document and location within the document) that addresses the addition of neutralization and/or absorbents.

- 33) WAP Section C6, Table C6-2: Acceptable Knowledge (AK) Checklist, INL #69: "Does the generator site address quality control by tracking its performance with regard to the use of acceptable knowledge by: 1) assessing the frequencies of inconsistencies among information, and 2) documenting the results of waste discrepancies identified by the generator/storage site during waste characterization or the Permittees during waste confirmation using radiography, review of radiography audio/video recordings, or visual examination, or review of visual examination records. In addition, the acceptable knowledge process and waste stream documentation must be evaluated through internal assessments by generator/storage site quality assurance organizations." Ref: Section C4-3e

**NMED comment WAP 33:** NMED did not find or observe any documentation related to neutralization and/or addition of absorbents. NMED believes that this is a discrepancy that should have been identified by site quality assurance organizations. NMED does not believe that this requirement has been adequately addressed in AK001. Please provide a specific citation to the source document (name of document and location within the document) that addresses the addition of neutralization and/or absorbents.

As required by Permit condition C6-4, which states: "NMED may submit a written Observer Inquiry to DOE if necessary to seek resolution to a question raised or issue posed during the audit. DOE shall be responsible for obtaining a response to the Observer Inquiry and submitting a written response to NMED within 30 days of inquiry submission." , please respond by September 4, 2014 addressing items 1-5 concerning the method of operator training, items 1-9 related to compliance with procedure TP005, and by addressing items 1-33 concerning compliance with the WAP. As stated in C6-4, NMED will examine the response and consider this information as part of the audit review and approval process.

## Observer Inquiry Form

**ATL Response:**

**Observer/NMED: Accept Response    Do Not Accept Response**

**Inquiry Closed: [Enter Date]**