109769

Waste Characterization Strategy Form

Project Title:	**MDA-B Anomalies, Unknowns, and Chemicals**
Solid Waste Management Unit or Area of Concern #:	**TA-21, 21-015**
Activity Type:	**Characterization of Anomalies, Unknowns, and Chemicals at the MDA-B Definitive Identification Facility (DIF)**
Project Manager/Waste Generator:	**Mitch Goldberg**
LANL Waste Management Coordinator:	**Gordon Jio**
Completed by:	**Glenn Siry**
Date:	**10 June 2010**

Description of Activity: This Waste Characterization Strategy Form (WCSF) specifies how anomalies, unknowns, and chemicals excavated at MDA-B will be managed and characterized. It also includes wastes generated due to operations at the MDA-B Definitive Identification Facility (DIF).

The waste generating activities that may generate anomalies include:

- Draining of liquid from equipment, piping, motors, transformers and/or other items excavated at MDA-B.
- Visual inspection of various container type contents.
- Characterization sampling.
- Transportation of samples.
- HAZCat sampling and on-site analysis of unknown chemical liquids, residues, sludges, and/or solids.
- Packaging of waste materials/items for shipment to off-site treatment/disposal facilities.
- Combining/consolidating waste materials/items into lab packs for shipment to off-site treatment facilities.
- Treatment to meet LDR (in an established <90 Day Storage Area ONLY).
- Decontamination of containers/personnel.

The inspection and characterization activities at the DIF are expected to generate the following waste streams:

1. Canisters/Paint Cans/Metal Containers
2. Drums
3. Caustic Liquids, Residues, Sludges, and Solids
4. Acidic Liquids, Residues, Sludges, and Solids
5. Reactive Metals and Metal Hydroxides
6. Alcohols and Aqueous Solutions
7. Water Reactive Residues, Sludges, and Solids
8. Reactive Organic Compounds and Solvents
9. Spent Cyanide and Sulfide Solutions
10. Strong Oxidizers
11. Flammables/Combustibles
12. Aerosol Cans
13. Pressurized Containers/Vessels/Tanks/Gas Cylinders
14. Contact Waste
15. Decontamination Fluids
16. Transuranic Debris/Soil/Items

Detailed characterization, handling, storage, and disposal requirements for these waste streams are provided in the following documents:

- TA21-MDAB-PLAN-00014, *Waste Management Plan for Material Disposal Area (MDA) B*
- TA21-MDAB-PLAN-00017, *Material Disposal Area B Sampling and Analysis Plan*

Relevant Site History and Description: The MDA-B consists of approximately 6 acres of non-industrialized land at TA-21 located on DP Mesa. MDA-B is a less than Hazard Category 3 or Radiological and Low Chemical Hazard Site, which is posted as a Radiation Control Area. MDA-B was the first common disposal site for contaminated materials from the Laboratory, operating from 1944 to 1948. MDA-B may contain both hazardous and radiological chemicals. No formal records of the wastes or construction design exist for MDA-B. The MDA-B Process Waste Review (EP2007-0236) provides the context for knowledge of waste generation and management during the operational period. From 1966 to 1990 the surface for MDA-B and adjacent property was open to the public for recreational vehicle and automobile parking. The following documents are important references for this WCSF:

- LA-UR-06-6918, *EP2006-0783, Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Revision1*
- NMED 1/31/07, *Approval with Modifications for the Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Revision1, Los Alamos National Laboratory*
- ENV-RCRA: 07-223, *Request for Approval of an Area of Contamination for the Investigation of Solid Waste Management Unit 21-015, Material Disposal Area B, at Technical Area 21, Los Alamos National Laboratory.*
- NMED 10/2/07, *Approval of An Area of Contamination for the Investigation and Remediation of SWMU 21-015, Material Disposal Area B, at Technical Area 21, Los Alamos National Laboratory.*

CHARACTERIZATION STRATEGY

This WCSF identifies the types of wastes expected. However, other types of waste may be an encountered. An amendment to this WCSF shall be prepared and submitted for review and approval if any of the waste streams change in description or characterization approach or a new waste stream is generated. All wastes will be managed in accordance with SOP-5238, *Characterization and Management of Environmental Program Waste*.

All waste generated due to excavation at MDA-B will initially be managed within the boundary of the Area of Contamination until characterization data are available to make a waste determination for treatment and/or disposal. Characterization of waste will be completed using the following:

- **Acceptable knowledge (AK):** Process knowledge and waste disposal records for the waste materials at MDA-B are very limited. In this case AK refers to the following:
  - Waste Materials/Items with a composition that is known to be hazardous (e.g., batteries, thermometers, pumps with mercury seals, leaded glass, lead bricks, lead shielding, asbestos insulated furnaces). These items do not have to be sampled to be characterized as hazardous. They do require characterization for radiological composition to meet the WAC of the treatment and/or disposal facility.
  - Unspent chemicals from sealed (never opened) containers with readable labels.
  - Consistent/homogeneous waste streams (e.g., several 100 cubic yards of concrete from the same area that is relatively homogenous). These materials can be sampled every 100 yd3 to verify consistency.

- Waste materials/items with liquids and/or residues that can be sampled. In this case the analytical results from the liquid and/or residue can be used as AK to support treatment and/or disposal of the material/item that it originally came from.

- **Environmental Sampling Data:** Excavation of MDA-B includes the collection of environmental samples to confirm waste removal and/or provide nature and extent for future investigations. This data can be used as AK for the disposal of some waste materials/items.

- **Process Knowledge/Existing Documents:**

- The excavation of MDA-B will include operations that will generate materials/items not associated with the historical waste being excavated (e.g., personnel protective equipment, fire suppression foam, used for HazCat® kits). Information that is known due an MSDS and/or procedures can be used as AK to characterize these types of materials/items. However, if they have contacted contaminated materials (e.g., soil) from MDA B, the data for the contacted materials must also be used for waste characterization.

-

- **Radiological Analysis:** The type of radiological analysis required will be determined by the isotopic distribution and quantity of contamination detected by Field Screening and AK. Since the majority of known isotopes at MDA B are alpha emitters, the use of gamma spectroscopy is limited to identification of fission daughters when present and certain decay products. Alpha spectroscopy and liquid scintillation will be used in conjunction with gamma readings to provide a complete isotopic distribution and quantification of radiological contamination. If field measurements indicate a material to be radioactively contaminated, analysis will be performed for isotopic uranium, isotopic plutonium, tritium, and strontium-90.

  In situ gamma field measurements (e.g.; ISOCS) can be used to determine gamma emitting radioactivity quantification and isotopic identification. When used in conjunction with an isotopic distribution, in-situ gamma measurements can provide characterization data and an assessment of MAR.

- **Direct Sampling:** Samples collected by trained sampling personnel in accordance with TA21-MDAB-PLAN-00017.

- **HazCat ® Identification**: The excavation of waste from the disposal trenches/cells at MDA-B are expected to generate anomalies, unknowns, and chemicals that must be segregated into RCRA compatibility groups and identified to determine the appropriate facility to which it will be relocated or shipped. Sampling personnel may utilize HazCat® Kits (or equivalent) to perform field sampling and testing to categorize and identify anomalies, unknowns, and chemicals using common reagents, logic charts, and simple tests (e.g., pH paper). Identification of materials using HazCat methods will generally be performed at the DIF but may also be performed inside the excavation enclosures under limited conditions. Procedures for handling Anomalies at MDA B are TA21-MDAB-DOP-00011, MDA B Waste Anomaly and Unidentified Item Identification and Handling and TA21-MDAB-DOP-00019, DIF Operations.

The selection of waste containers for shipment off-site will be based on U.S. Department of Transportation requirements, waste types, and estimated volumes of waste to be generated. A RCRA waste determination must be made within 45 days of the generation of the waste. A Waste Acceptance Criteria (WAC) waste exception form (WEF) can be used if the generator does not meet the 45 day deadline. Each waste container will be individually labeled with a unique container identification number and with information regarding waste classification, contents, and date generated.

If potentially listed waste is encountered, a due diligence document review may be performed to identify whether the contaminants are from a listed process. If no or inconclusive documentation of a listed source exists, the waste will not carry the listed hazardous waste numbers(s). If documentation exist that the contaminant(s) originated from a listed source but the levels are below residential screening levels and the land disposal restriction treatment standards, a "contained-in" request may be submitted to the New Mexico Environment Department (NMED), who

may approve dropping the listings from the waste stream. A copy of either the ENV-RCRA approved due diligence or the NMED contained-in approval letter must accompany all waste profiles prepared for the subject waste(s).

Transuranic (TRU) waste is not expected to be generated during the MDA B excavation processes. TRU waste stream is not an approved waste stream for generation during MDA B project activities. If TRU waste is generated, it must be reported to the Radiological Waste Management Basis through the LANL Waste Certification Program for DOE approval. All TRU waste will be delivered on site to the DIF for characterization, packaging, and on-site storage prior to shipping to the approved TSDF.

Waste #1: Canisters/Paint Cans/Containers - This waste stream is comprised of canisters; drums(<20 gallons); paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that are sealed, punctured, and/or contain other items/materials. It is estimated that approximately 50 yd^3 will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Characterization of these items will include opening each container to visually confirm and/or inspect its contents. Characterization will be based upon AK; wipe samples (to determine presence of radiological/hazardous materials that are not fixed); radiological surveys/gamma spectroscopy; direct sampling of liquid, residue, sludges, and/or solids; and/or core sampling. Samples will be collected and analyzed as follows in accordance with TA21-MDAB-PLAN-00017:

- Hazardous wipe samples will be collected in accordance with NIOSH methods and procedures to determine the presence but not the concentration of contaminants on the surface of the material/item wiped. The analysis of these wipes will include PCBs, VOCs, SVOCs, TAL metals, beryllium, perchlorate, and/or other contaminants as appropriate.

- Canisters/paint cans/containers found to contain liquid (aqueous or otherwise) will be sampled as described in Wastes #3 - 11. The item containing the liquid will be characterized based upon the analytical results of the liquid (e.g., glass jar of hydrochloric acid).

- Canisters/paint cans/containers found to contain residues/solids will be sampled as described in Wastes #3 - 11. The item containing the residues/solids will be characterized based upon the analytical results of the residues/solids (e.g., paint can with powder).

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown contents will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT sampling identifies the material and/or direct sampling analytical data is available to make a waste determination.

Containers characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Containers characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #2: Drums - This waste stream is comprised of various sized drums (>20 gallons) excavated from MDA-B that may contain other items/materials. It is estimated that 500 yd^3 will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Characterization of a drum excavated at MDA-B will include opening to visually confirm and/or inspect its contents. Characterization will be based upon AK; wipe samples (to determine presence of radiological/hazardous materials that are not fixed); radiological surveys/gamma spectroscopy; direct sampling of liquid, residue, sludges, and/or solids; and/or core sampling. Samples will be collected and analyzed as follows in accordance with TA21-MDAB-PLAN-00017:

- Hazardous wipe samples will be collected in accordance with NIOSH methods and procedures to determine the presence but not the concentration of contaminants on the surface of the material/item wiped. The analysis of these wipes will include PCBs, VOCs, SVOCs, TAL metals, beryllium, perchlorate, and/or other contaminants as appropriate.

- Drums found to contain liquid (aqueous or otherwise) will be sampled as described in Wastes #3 - 11. The item containing the liquid will be characterized based upon the analytical results of the liquid.

- Drums found to contain residues/solids will be sampled as described in Wastes #3 - 11. The item containing the residues/solids will be characterized based upon the analytical results of the residues/solids.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Drums with unknown contents will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT sampling identifies the material and/or direct sampling analytical data is available to make a waste determination.

Drums characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Drums characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #3: Caustic Liquids - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain caustic liquids. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container, based on composition, in accordance with the following:

1. SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* If the container does not permit COLIWASA, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-02-002, August 2002).

Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown caustic liquids will be

screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known caustic liquids will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Caustic liquids characterized as LLW, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Caustic liquids characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #4: Acidic Liquids - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain acidic liquids. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container, based on composition, in accordance with the following:

1. SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* If the container does not permit COLIWASA, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-02-002, August 2002).

Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown acidic liquids will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known acidic liquids will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Acidic liquids characterized as LLW, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Acidic liquids characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #5: Reactive Metals and Metal Hydroxides - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain reactive metals and/or metal hydroxides. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container using SOP-06.11, *Spade and Scoop Method for Collection of Soil Samples*. Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown reactive metals and/or metal hydroxides will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known reactive metals and/or metal hydroxides will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Reactive metals and/or metal hydroxides characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Reactive metals and/or metal hydroxides characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #6: Alcohols and Aqueous Solutions - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain alcohols and aqueous solutions. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container in accordance with SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* If the container does not permit COLIWASA, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-02-002, August 2002). Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown alcohols and aqueous solutions will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known alcohols and aqueous solutions will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Alcohols and aqueous solutions characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Alcohols and aqueous solutions characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014

Waste #7: Water Reactive Residues, Sludges, and Solids - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain water reactive residues, sludges, and solids. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container using SOP-06.11, *Spade and Scoop Method for Collection of Soil Samples*. Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown water reactive residues, sludges, and solids will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known water reactive residues, sludges, and solids will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Water reactive residues, sludges, and solids characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Water reactive residues, sludges, and solids characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #8: Reactive Organic Compounds and Solvents - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain reactive organic compounds and solvents. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container in accordance with SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* If the container does not permit COLIWASA, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-02-002, August 2002). Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90; VOC; SVOC, PCB; and TPH.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown reactive organic compounds and solvents will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known reactive organic compounds and solvents will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Reactive organic compounds and solvents characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Reactive organic compounds and solvents characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #9: Spent Cyanide and Sulfide Solutions - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain spent cyanide and sulfide solutions. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container in accordance with SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* If the container does not permit COLIWASA, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-02-002, August 2002). Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90; sulfate/sulfite; and cyanide.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown spent cyanide and sulfide solutions will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known spent cyanide and sulfide solutions will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Spent cyanide and sulfide solutions characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Spent cyanide and sulfide solutions characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #10: Oxidizers - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain stong oxidizers. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous, TRU Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container, based on composition, in accordance with the following:

1. SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* If the container does not permit COLIWASA, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-02-002, August 2002).

2. SOP-06.11, *Spade and Scoop Method for Collection of Soil Samples.*

Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90; perchlorate, and nitrate/nitrite.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown strong oxidizers will be screened by radiation control and industrial hygiene personnel for safety (i.e., ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known strong oxidizers will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Strong oxidizers characterized as LLW or TRU, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Strong oxidizers characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014

Waste #11: Flammables/Combustibles - This waste stream is comprised of canisters; drums; paint cans; and/or metal, glass, or plastic containers excavated from MDA-B that contain flammables/combustibles. It is estimated that 500 gallons will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous

Characterization Approach: Waste characterization will be based upon the results from HazCAT® sampling performed at the DIF and/or the analytical results obtained from the direct sampling of the waste. Samples will be collected from the container in accordance with SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* If the container does not permit COLIWASA, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-02-002, August 2002). Samples will be analyzed for TAL metals; radionuclides (by alpha and gamma spectroscopy); and if determined to be radioactively contaminated isotopic uranium, isotopic plutonium, tritium, strontium-90; VOC; SVOC, PCB; and TPH.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and separated from the soil into compatible materials for identification. Containers with unknown flammables/combustibles will be screened by radiation control and industrial hygiene personnel for safety (i.e.,

ignitable, corrosive, explosive or shock sensitive), and overpacked into a temporary storage container for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack container will be removed from the enclosure, transported, and stored inside the Area of Contamination boundary. All overpack containers containing unknowns will be labeled "Hazardous Pending Characterization" until HazCAT® sampling identifies the material and/or direct sampling analytical data is available to make a waste determination. Both unknown and known flammables/combustibles will be stored in accordance with the RCRA Chemical Compatibility List provided as Attachment 1 to this WCSF.

Flammables/combustibles characterized as LLW, will be repackaged at the DIF into appropriate containers, removed from the Area of Contamination, and managed in a LLW staging and/or storage area pending shipment to an off-site disposal facility. Flammables/combustibles characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the Area of Contamination boundaries or managed in a <90 Day Storage Area outside of the Area of Contamination pending shipment to an appropriate treatment and/or disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #12: Aerosol Cans - This waste stream is comprised small pressurized dispensers (usually about 16 oz.) that forces a liquid out as a fine spray when a button is pressed. It is estimated that 50 yd^3 will be generated.

Anticipated Regulatory Status: MLLW, Hazardous

Characterization Approach: Waste characterization will be based upon AK and/or sampling performed at the DIF.Aerosol cans that do not meet the definition of empty (see below) are considered characteristically hazardous under RCRA. Aerosol cans could also conceivably be P- and U-listed wastes; however, the P- or U-listed material must be the only active ingredient in the can and this is usually not true. An aerosol can that is excavated from MDA-B will be considered empty if:

- AK (i.e., a readable label) indicates that it did not hold a P- listed material (P-listed wastes).
- The can is punctured.
- The can is in good working order (i.e. proper nozzle present and not plugged), and it passes the following two tests:
  - After shaking the can, if the nozzle is depressed and there is no discharge of aerosol or propellant from the can, then it can be determined there is no internal pressure (i.e. the can is at atmospheric pressure).
  - While shaking the can if there is no evidence of liquid remaining (i.e. the generator cannot hear or feel liquid moving in the can) then it can be determined there is no discernable liquid remaining in the can.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and segregated into compatible materials for waste packaging. Aerosol cans will be assessed for safety, put into a safe configuration, and containerized for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The containerized aerosol cans will be removed from the enclosure, transported, and stored inside the AOC boundary in secure, designated accumulation areas. All aerosol cans that are unknown will be labeled "Hazardous Waste" and assigned the D003 and D001 codes until it can be confirmed otherwise. Aerosol cans characterized as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the AOC boundaries or managed in a <90 Day Storage Area outside of the AOC pending shipment to an appropriate treatment/disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #13: Pressurized Containers/Vessels/Tanks - This waste stream is comprised of pressurized containers, gas cylinders, vessels, tanks, and other containers excavated at MDA-B. It is estimated that 200 yd^3 will be generated.

Anticipated Regulatory Status: LLW, MLLW, Hazardous

Characterization Approach: Waste characterization will be based upon AK and/or sampling performed at the DIF.Waste samples must be taken by qualified and experienced personnel with specialized training.

Storage and Disposal Method: Materials/items excavated from MDA-B will be raked/screened/sifted and segregated. Pressurized containers/vessels/tanks will be assessed for safety, put into a safe configuration, and overpacked for inspection and characterization at the DIF in accordance with TA21-MDAB-PLAN-00017. The overpack containers will be removed from the enclosure, transported, and stored inside the AOC boundary in secure, designated accumulation areas. All overpacked containers containing unknowns will be labeled "Hazardous Pending Characterization" until data is available to make a waste determination.

Pressurized containers/vessels/tanks characterized as LLW, will be repackaged at the DIF into appropriate containers, removed from the AOC, and managed in a LLW staging and/or storage pending shipment and disposal. Pressurized containers/vessels/tanks as Hazardous or MLLW, will be repackaged at the DIF into appropriate containers, and either stored within the AOC boundaries or managed in a <90 Day Storage Area outside of the AOC pending shipment to an appropriate treatment/disposal facility. Detailed storage and disposal requirements are provided in TA21-MDAB-PLAN-00014.

Waste #14: Contact Waste - This waste stream is comprised of PPE, equipment, sampling equipment and other materials that contacted or potentially contacted contaminated materials that cannot be decontaminated. This includes but is not limited to plastic sheeting (e.g., tarps and liners), gloves, coveralls, booties, paper towels, plastic and glass sample bottles, laboratory coats, beakers, pipettes, vials/containers, disposable sampling supplies, glove bags, and tents. It is estimated that approximately 500 yd^3 of contact waste will be generated due to operations in the MDA-B DIF.

Anticipated Regulatory Status: Industrial, LLW, MLLW, Hazardous, Green is Clean

Characterization Approach: Contact waste will be characterized using AK based on the characterization of the associated material with which it came into contact.

Storage and Disposal Method: The contact waste may be separately containerized or it may be placed into the same containers as the media with which it is contaminated. For disposal, separately containerized contact waste may be also be combined with the material that it contacted (the WPF will document the decision to combine the waste streams). Wastes will be treated and/or disposed of at an authorized off-site facility.

Waste #15: Decontamination Fluids - This waste stream consists of liquid wastes generated from the decontamination of sampling equipment, waste containers, and personnel due to operations at the DIF. This waste stream will be generated only if dry decontamination methods are not effective. It is estimated that approximately 200 gallons of decontamination fluids will be generated from this activity.

Anticipated Regulatory Status: LLW, Radioactive Liquid Waste (RLW), Sanitary Waste Water (SWW)

Characterization Approach: Waste characterization of decontamination fluids will be based upon the analytical results obtained from the direct sampling of containerized waste fluids.

Samples will be collected from the storage container in accordance with LANL SOP-06.15, *COLIWASA Sampler for Liquids and Slurries* or subcontractor equivalent procedure. If the container does not permit COLIWASA or bailer sampling, the type of sampling equipment used will be appropriate for the waste container and properly operated in accordance with Chapter 7 and Appendix E of the RCRA Waste Sampling Draft Technical Guidance (EPA 530-D-

02-002, August 2002, http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/rwsdtg.pdf). Samples will be analyzed for radionuclides (by alpha and gamma spectroscopy); if determined to be radioactively contaminated isotopic uranium, plutonium, americium, strontium-90, and tritium; VOCs; SVOCs; TAL metals PCBs; perchlorate; nitrates; and cyanide. Other constituents must be analyzed as needed to meet the receiving disposal facility's WAC.

Storage and Disposal Method: Decontamination fluids will be managed in approved containers within the boundaries of the Area of Contamination until analytical data are available to make a waste determination. It is anticipated that this waste will be a candidate for treatment on-site at the TA-50 Radioactive Liquid Waste Treatment facility (RLWTF) or the LANL Sanitary Waste Water System (SWWS) treatment facility. If it cannot be disposed of at the RLWTF, due to operational limitations or inability to meet the WAC, it will be adsorbed/solidified and disposed of at TA-54 or an appropriate off-site disposal facility.

Waste #16: Transuranic Debris/Soil/Items

-This waste stream consists of materials that have been shown to be radiologically contaminated above the TRU threshold and also possibly Characteristically Hazardous. The general types of waste to be found in this stream are: gloves, leaded gloves, booties, wipes, smears, laboratory coats, beakers, pipettes, rubber hoses, plastic vials/containers, various glass bottles/containers, ventilation equipment, piping, pumps, tanks, ductwork, hoods, scales, machining equipment, other operational equipment, glove boxes, and other materials, such as soil, that were buried at MDA-B.

Anticipated Regulatory Status: TRU/MTRU

Characterization Approach: Radiological waste characterization will be conducted in accordance with radiological characterization techniques identified in MDA B Excavation WSCF EP2010-0203. Hazardous waste characterization will be based upon AK and/or the analytical results obtained from direct sampling of the materials. Sampling will be performed in accordance with Table 1 when the AK and field screening results do not provide sufficient information to characterize the waste as defined for this waste stream in order to meet transportation and waste acceptance criteria. Samples collected to characterize equipment will be collected and analyzed in accordance with TA21-MDAB-PLAN-00017.

Storage and Disposal Method: Material excavated from the MDA-B waste cells will be raked, screened, and/or sifted to segregate waste items from the surrounding soil. The containers will be removed from the enclosure(s) and managed within the boundaries of the Area of Contamination until analytical data are available to make a waste determination. When materials are identified as radiologically TRU waste, then specific handling, packaging, and certification requirements will be invoked in accordance with the LANL TRU program.

CHARACTERIZATION TABLE

Waste Description	Waste #1 Canisters/ Paint Cans/ Containers	Waste #2 Drums	Waste #3 Caustic Liquid, Residues, Sludges, and Solids	Waste #4 Acidic Liquids, Residues, Sludges, and Solids	Waste #5 Reactive Metals and Metal Hydroxides	Waste #6 Alcohols and Aqueous Solutions	Waste #7 Water Reactive Residues, Sludges, and Solids	Waste #8 Reactive Organic Compounds and Solvents	Waste #9 Spent Cyanide and Sulfide Solutions	Waste #10 Strong Oxidizers	Waste #11 Flammables/ Combustibles	Waste #12 Aerosol Cans	Waste #13 Pressurized Containers/ Tanks/ Gas Cylinders	Waste #14 Contact Waste	Waste #15 Decon Fluid	Waste #16 Transuranic Debris, Soil, Items
Volume	50 yd3	500 yd3	500 gal	500 gal	500 gal	500 gal	500 gal	500 gal	500 gal	500 gal	500 gal	50 yd3	200 yd3	500 yd3	500 gal	20 yd3
Packaging	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriate Container	Appropriat e Container	WIPP Approved Containers
Regulatory Classification:																
Radioactive Waste	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Reusable Material/Recycle														X (OREX)		
Municipal Solid Waste (MSW)														X (GIC)		
Waste Destined for LANL's SWWS or RLWTF[1]															X	
Hazardous Waste	X	X	X	X	X	X	X	X	X	X	X	X	X			
Mixed (hazardous and radioactive) Waste	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Polychlorinated Biphenyls (PCB) Contaminated Waste																X
New Mexico Special Waste (NMSW)																
Industrial Waste														X		
Characterization Method																
Acceptable knowledge (AK): Existing Data/Documentation			X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (ONLY if a sealed, original container with a readable label)	X (If Label is Readable)		X		
AK: Site Characterization																X
Direct Sampling of Waste and/or HazCAT®	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
Analytical Testing																
Volatile Organic Compounds (EPA 8260-B)	X (If Needed)	X (If Needed)						X			X	X	X		X	X
Semivolatile Organic Compounds (EPA 8270-C)	X (If Needed)	X (If Needed)						X			X	X	X		X	X
Organic Pesticides (EPA 8081-A)															X	X
Organic Herbicides (EPA 8151-A)															X	X
PCBs (EPA 8082)								X			X				X	X
Total Metals (EPA 6010-B/7471-A or EPA 6020)	X (As Needed)	X (As Needed)	X	X	X	X	X			X	X				X	x
Total Cyanide (EPA 9012-A)			X	X					X						X	x

CHARACTERIZATION TABLE

Waste Description	Waste #1 Canisters/ Paint Cans/ Containers	Waste #2 Drums	Waste #3 Caustic Liquid, Residues, Sludges, and Solids	Waste #4 Acidic Liquids, Residues, Sludges, and Solids	Waste #5 Reactive Metals and Metal Hydroxides	Waste #6 Alcohols and Aqueous Solutions	Waste #7 Water Reactive Residues, Sludges, and Solids	Waste #8 Reactive Organic Compounds and Solvents	Waste #9 Spent Cyanide and Sulfide Solutions	Waste #10 Strong Oxidizers	Waste #11 Flammables/ Combustibles	Waste #12 Aerosol Cans	Waste #13 Pressurized Containers/ Tanks/ Gas Cylinders	Waste #14 Contact Waste	Waste #15 Decon Fluid	Waste #16 Transuranic Debris, Soil, Items
High Explosives Constituents (EPA 8330/8321-A)								X			X					
Asbestos (EPA 600M4)																
Total petroleum hydrocarbon (TPH)-GRO (EPA 8015-M)								X			X					
TPH-DRO (EPA 8015-M)															X	X
Toxicity characteristic leaching procedure (TCLP) Metals (EPA 1311/6010-B)															X	X
TCLP Organics (EPA 1311/8260-B & 1311/8270-C)															X	X
TCLP Pest. & Herb. (EPA 1311/8081-A/1311/8151-A)															X	X
Gross Alpha (alpha counting) (EPA 900)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Gross Beta (beta counting) (EPA 900)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tritium (liquid scintillation) (EPA 906.0)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Gamma spectroscopy (EPA 901.1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Isotopic plutonium (HASL-300)	X (As Needed)	X (As Needed)	X	X	x	X	x	X	x	X	X				X	X
Isotopic uranium (HASL-300)	X (As Needed)	X (As Needed)	X	X	X	X	X	X	X	X	X				X	X
Total uranium (EPA 6020)	X (As Needed)	X (As Needed)	X	X	X	X	X	X	X	X	X				X	X
Strontium-90 (EPA 905)	X (As Needed)	X (As Needed)	X	X	X	X	X	X	X	X	X				X	X
Americium-241 (HASL-300)	X (As Needed)	X (As Needed)	X	X	X	X	X	X	X	X	X				X	X
Perchlorates (EPA 6850)										X					X	X
Nitrates/Nitrites (EPA 300.09-soil or 343.2-water)										X					X	X
Dioxins/Furans (EPA 1613 B)															X	X
Oil/Grease (EPA 1665)															X	X
Fluorine, chlorine, Sulfate (EPA 300)									X	X		X	X		X	X
TTO (EPA 8260-B and EPA 8270-C)[2]															X	X
Total Suspended Solids (TSS) & Total Dissolved Solids (TDS (EPA 160.1 and 160.2)															X	X

CHARACTERIZATION TABLE

Waste Description	Waste #1 Canisters/ Paint Cans/ Containers	Waste #2 Drums	Waste #3 Caustic Liquid, Residues, Sludges, and Solids	Waste #4 Acidic Liquids, Residues, Sludges, and Solids	Waste #5 Reactive Metals and Metal Hydroxides	Waste #6 Alcohols and Aqueous Solutions	Waste #7 Water Reactive Residues, Sludges, and Solids	Waste #8 Reactive Organic Compounds and Solvents	Waste #9 Spent Cyanide and Sulfide Solutions	Waste #10 Strong Oxidizers	Waste #11 Flammables/ Combustibles	Waste #12 Aerosol Cans	Waste #13 Pressurized Containers/ Tanks/ Gas Cylinders	Waste #14 Contact Waste	Waste #15 Decon Fluid	Waste #16 Transuranic Debris, Soil, Items
Chemical Oxygen Demand (COD) (EPA 410.4)															X	X (As Needed)
pH (EPA 904c)			X	X	X	X	X	X	X	X	X				X	X (As Needed)
Microtox[3]															X (As Needed)	X (As Needed)
Waste Profile Form #	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

1 In addition to other analytes needed to characterize the waste, analyze for TSS, TDS, Oil and Grease, gross alpha, gross beta, tritium, and pH for liquids destined for the LANL Sanitary Waste Water System (SWWS). For wastes destined for the RLWTF additional constituents include TTO, TSS, COD, Ph Total nitrates/nitrites, and gross alpha, gross beta (not including tritium), and gross gamma or the sum of individual alpha-, beta-, and gamma-emitting nuclides.

2 TTO is the total of volatile organic and semi-volatile organic compound contaminants. Request methods EPA 8260-B and EPA 8270-C.

3 Microtox analysis is currently not available. Request and exemption from the SWWS.

4 The waste volumes listed in this table are preliminary estimates. Each project will track actual volumes of waste excavated and shipped. This WCSF will not be amended if the actual waste volumes do not correspond to these preliminary estimates.

Waste Characterization Strategy Form (continued)

Signatures	Date
Preparer: Glenn Siry	6.14.2010
ENV-RCRA Representative: Alan Church	6/14/10
WES-WGS-DO: Michelle Coriz	6/14/10
WDP: Andy Elicio	06/16/10
ADEP- Reg Management: Kathryn Lynnes	06/14/2010
Waste Management Coordinator: Gordon Jio	
Project Lead: Mitchell Goldberg	6/15/10

	Los Alamos National Laboratory

ATTACHMENT 1
RCRA CHEMICAL WASTE COMPATIBILITY LIST

Mixing of Group A Materials with Group B Materials may have the potential consequences noted.	
Group 1-A	**Group 1-B**
Acetylene Sludge Alkaline Caustic Liquids Alkaline Cleaner Alkaline Corrosive Liquids Alkaline corrosive Battery Fluid Caustic Wastewater Lime Sludge and other Corrosive Alkalies Lime Wastewater Lime and Water Spent Caustic	Acid Sludge Acid and Water Battery Acid Chemical Cleaners Electrolyte, Acid Etching Acid Liquid or Solvent Pickling Liquor & Other Corrosive Acids Spent Acid Spent Mixed Acid Spent Sulfuric Acid
Potential Consequences: Heat generations; violent reaction	
Group 2-A	**Group 2-B**
Aluminium Beryllium Calcium Lithium Magnesium Potassium Sodium Zinc Powder Other Reactive Metals and Metal Hydroxides	Group 1-A or 1-B
Potential Consequences: Fire or explosion; generation of flammable hydrogen gas	
Group 3-A	**Group 3-B**
Alcohols Water	Any Concentrated Group 1-A or 1-B Calcium Lithium Metal hydrides Potassium SO2CL2, SOCl2, PCL3, CH3SiCl3 Other water-reactive waste
Potential Consequences: Fire, explosion, or heat generation; generation of flammable or toxic gas	

ATTACHMENT 1 (continued)
RCRA CHEMICAL WASTE COMPATIBILITY LIST

Mixing of Group A Materials with Group B Materials may have the potential consequences noted.	
Group 4-A	**Group 4-B**
Alcohols Aldehydes Halogenated Hydrocarbons Nitrated Hydrocarbons Unsaturated Hydrocarbons Other Reactive Organic Compounds and Solvents	Concentrated Group 1-A or 1B Group 2-A
Potential Consequences: Fire, explosion, or violent reaction	
Group 5-A	**Group 5-B**
Spent cyanide and sulfide solutions	Group 1-B
Potential Consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas	
Group 6-A	**Group 6-B**
Chlorates Chlorine Chlorites Chromic Acid Hypochlorites Nitrates Nitric Acid, Fuming Perchlorates Permanganates Peroxides Other Strong Oxidizers	Acetic acid and other Organic Acids Concentrated Mineral Acids Group 2-A Group 5-A Other Flammable and Combustible Waste
Potential Consequences: Fire, explosion, or violent reactions	

TA-21-MDA B-PLAN-00010 r.0	Excavation Control Plan
TA-21-MDA B-PLAN-00011 r. 0	Traffic Control Plan
TA-21-MDA B-PLAN-00013 r. 0	Above-Ground Inventory Management Plan
TA-21-MDA B-PLAN-00014 r. 0	Waste Management Plan
TA-21-MDA B-PLAN-00017 r. 0	Sampling and Analysis Plan

TA-21-MDA B-DOP-00006 r. 0	Waste Container Handling Operations
TA-21-MDA B-DOP-00011 r. 0	Waste Anomaly and Unidentified Item Identification and Handling
TA-21-MDA B-DOP-00012 r. 0	Dig Face Field Waste Sorting, Segregation and Handling
TA-21-MDA B-DOP-00014 r. 0	Waste Packaging
TA-21-MDA B-DOP-00019 r. 0	Definitive Identification Facility (DIF) Operations