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Date: July 1, 2005
Refer to: ER2005-0445

Mr. James Bearzi
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303



SUBJECT: RESUBMITTAL OF RESPONSE TO "APPROVAL WITH MODIFICATIONS, INVESTIGATION WORK PLAN FOR MATERIAL DISPOSAL AREA T, SOLID WASTE MANAGEMENT UNIT 21-016(a)-99"

Dear Mr. Bearzi:

Enclosed please find two replacement hard copies with electronic files of the Los Alamos National Laboratory's and the Department of Energy's response to the New Mexico Environment Department's notice of "Approval with Modifications, Investigation Work Plan for Material Disposal Area T, Solid Waste Management Unit 21-016(a)-99," originally delivered to you on June 22, 2005. The document you received was incorrectly collated, and no electronic version was attached. Therefore, per discussions between Sandra Martinez and yourself, we are resubmitting the response to the notice of disapproval and regret any inconvenience the error may have caused. For your records, you may wish to retain the original transmittal letter that contains information on the schedule for delivering the Material Disposal Area T investigation report.

If you have questions, please contact Mark Thacker at (505) 665-5342 (mthacker@lanl.gov) or Woody Woodworth at (505) 665-5820 (lwoodworth@doeal.gov).

Sincerely,

David McInroy, Deputy Program Director
Environmental Remediation & Surveillance
Los Alamos National Laboratory

Sincerely,

David Gregory, Federal Project Director
Department of Energy
Los Alamos Site Office



July 1, 2005

MT/ds

Enclosures: 1) Resubmittal of Response to the notice of "Approval with Modifications Investigation Work Plan for Material Disposal Area T Solid Waste Management Unit 21-016(a)-99"

Cy:(w/ enclosure)

E. Rainey, ENV-ECR, MS M992
M. Thacker, ENV-ECR, MS M992
D. Gregory, DOE LASO, MS A316
J. Young, NMED-HWB
L. King, EPA Region 6
ENV-ECR File, MS M992
RPF, MS M707
S-7, MS F674
CT# 05-033

Cy:(w/o enclosure)

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D. Pepe, NMED-OB

**Response to
Approval with Modifications,
Investigation Work Plan for Material Disposal Area T,
Solid Waste Management Unit 21-016(a)-99,
Los Alamos National Laboratory,
EPA ID #NM0890010515 HWB-LANL-04-003.
Dated May 19, 2005**

INTRODUCTION

This submittal is the response by Los Alamos National Laboratory (LANL) to the "Approval with Modifications, Investigation Work Plan Material Disposal Area T, Solid Waste Management Unit 21-016(a)-99," issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau on May 19, 2005, and received by LANL on May 23, 2005. The investigation work plan (the work plan) for Material Disposal Area (MDA) T (LA-UR-04-0559; ER ID 85641) was submitted by LANL to NMED in February 2004. A notice of disapproval for the work plan was issued by NMED on September 28, 2004. LANL issued a response to the notice of disapproval on October 29, 2004. The responses to the approval with modifications incorporate the outcome of a conference call conducted June 7, 2005, between NMED, the Department of Energy (DOE), and LANL.

To facilitate review of LANL's responses, NMED's comments are included verbatim in italics. LANL's responses follow each NMED comment.

The approval with modifications document states, "The Report, summarizing the results of work plan implementation, must be submitted on or before May 24, 2006." The original notice date in Section XII of the March 1, 2005, Compliance Order on Consent (the Consent Order) for approval of the MDA T work plan is May 31, 2004. DOE received the approval with modifications on May 23, 2005, or 357 days later than the original notice date. In accordance with Section III.M.2 of the Consent Order, the MDA T investigation report will be submitted to NMED on September 22, 2006, 357 days after the original due date of September 30, 2005.

NMED Comment

General Comment:

1. *Inside the cover page of the Work Plan is a disclaimer stating that the Permittees are not responsible for the "accuracy, completeness, or usefulness of any information" contained in the Work Plan. In fact, the Permittees are responsible and accountable for the accuracy, completeness and usefulness of the information cited in the Work Plan and any other document submitted to NMED in accordance with the Permittees Resource Conservation and Recovery Act operating permit and the March 1, 2005 Compliance Order on Consent (Order) (section XI.B.1) referencing 200.4.1.900 NMAC incorporating 40 C.F.R. 270.11(d)(1). If the Permittees can't attest to the accuracy of the information provided in the documents submitted, NMED can't approve any work plan, investigation report or other document where inaccurate, unreliable or useless data and information are cited. If future document submittals from the Permittees contain this message, NMED will reject the document. The Permittees must resubmit the cover page without the disclaimer within 10 days of receipt of this letter.*

LANL Response

1. The response to this general comment and a revised cover page were submitted to NMED on June 2, 2005.

NMED Comment

Section 1.0, Introduction, Footnote 1, page 1:

2. **Permittees' Statement:** *"This document contains data on radioactive wastes, including source, special nuclear, and byproduct material. The management of these materials is regulated under the Atomic Energy Act and is specifically excluded from regulation under the Resource Conservation and Recovery Act and the New Mexico Hazardous Waste Act. These data are provided to the New Mexico Environment Department for informational purposes only."*

NMED Comment

3. **NMED Comment:** *There is no need to include the disclaimer regarding radioactive waste data in this section or on the title page of the document. As part of the finalized Consent Order, the Permittees agreed to voluntarily test for, and report on radionuclides, as detailed in a letter from Everet Beckner, NNSA Deputy Director, to NMED Secretary Ron Curry, dated August 26, 2004.*

LANL Response

3. LANL has agreed to provide radionuclide information to the State in accordance with the letter from Everet Beckner, National Nuclear Security Administration (NNSA) Deputy Director, to NMED Secretary Ron Curry, dated August 26, 2004. LANL believes that from a legal perspective that it is important to continue to use the disclaimer.

NMED Comment

Notice of Disapproval Response #43:

4. **NMED Comment:** *The Permittees shall submit within 30 days of receipt of this approval with modifications the referenced more descriptive IDW Management plan. NMED requires that all decontamination fluid must be containerized and analyzed prior to disposal. It can't be discharged to the ground.*

LANL Response

4. Attachment 1 to this response is the revised investigation-derived waste management plan for MDA T. All decontamination fluid will be containerized and analyzed before disposal and will not be discharged to the ground.

NMED Comment

Work Plan Sections 4.7 and 5.4:

5. **NMED Comment:** *NMED requires that, for the deeper borings proposed around the MDA T absorption beds and shafts pore-gas samples be collected delineating a vertical profile rather than collecting two samples from discrete intervals (i.e., one from the depth matching the depth of the nearest targeted disposal unit and one from total depth). NMED recommends targeting pore gas sample collection at higher permeability intervals such as surge beds, the "old alluvium", the Cerro*

Toledo Interval and fracture zones and/or regular intervals of 30, 60, 100, 150, 200, 250, 300 feet below ground surface and at total depth of the deeper boreholes.

LANL Response

5. For the three 385-ft-deep boreholes proposed around the MDA T absorption beds and shafts, LANL will collect pore-gas samples to delineate a vertical profile rather than collect two samples from discrete intervals (i.e., one from the depth matching the depth of the nearest targeted disposal unit and one from total depth). LANL will target pore-gas sample collection at higher permeability intervals such as surge beds, the “old alluvium,” the Cerro Toledo interval, and fracture zones. The pore-gas samples from the three 385-ft boreholes will be collected early in the field campaign, before the drilling of the 280-ft boreholes. The results of the pore-gas samples from the 385-ft boreholes will be reviewed to determine whether pore-gas sampling of the 280-ft boreholes is necessary.

NMED Comment

6. *Section 4.7 of the MDA T Work Plan also refers to groundwater samples being collected if perched water is encountered. If perched water is encountered in any of the boreholes, a groundwater monitoring well construction plan must be submitted to NMED for approval within 15 days of borehole and sampling completion. Groundwater monitoring wells must be installed in accordance with Sections IV.C.3.c vi; IV.C.3.c.viii and X of the Order.*

LANL Response

5. No response necessary.

NMED Comment

Work Plan Appendix B:

7. ***NMED Comment:*** *The Permittees shall provide the NMED approved document citing the fill “background” values listed in some of the Tables (e.g., Tables B-23 and B-25).*

LANL Response

7. The referenced information is in the 1998 report entitled “Inorganic and Radionuclide Background Data for Soils, Sediments, and Bandelier Tuff at Los Alamos National Laboratory” (LANL 1998, 59730). Section 3 of this report states, “at sites where potentially contaminated surface material represents imported fill or a combination of soil and fill, soil is considered to be the most appropriate background comparison material.” LANL has provided this report to NMED and resubmittal is not necessary.

NMED Comment

8. ***Response Table 1, Summary of Borehole Sample Target and Figure 12 Revised Borehole Locations:***
9. ***NMED Comment:*** *Boreholes 1-5 shall be moved as close as possible to the absorption beds.*

LANL Response

9. LANL will move the location of boreholes 1 through 5 as close as possible to the absorption beds. Attachment 2 is a revised figure showing the new locations of boreholes 1 through 5. This figure also shows the minimum setback distance from disposal units needed to meet current authorization basis requirements.

NMED Comment

- 10. Borehole 6 shall be moved to the southeast as close to the shaft field as possible.*

LANL Response

10. LANL will move the location of borehole 6 to the southeast as close as possible to the shaft field. Attachment 2 is a revised figure showing the new location of borehole 6.

NMED Comment

- 11. One 280-foot borehole shall be added at the northwest corner of Absorption Bed 3.*

LANL Response

11. LANL will install one 280-ft borehole (borehole 8) at the northwest corner of Absorption Bed 3. Attachment 2 is a revised figure showing the location of the new borehole.

NMED Comment

- 12. In order to investigate potential water infiltration along the surface drainage on the northwest corner of MDA T near the edge of the former Retrievable Waste Storage Area, a 40-foot boring every 40-50 feet along the surface drainage shall be added to the scope of work for MDA T investigations.*

LANL Response

12. LANL will install three 40-ft boreholes to investigate potential water infiltration along the surface drainage on the northwest corner of MDA T near the edge of the former Retrievable Waste Storage Area. Attachment 2 is a revised figure showing the location of these new boreholes.

NMED Comment

- 13. Three boreholes shall be added to the investigation of MDA T (20-40 feet) in the former footprint of Building 35 to investigate possible releases from historic operations from this building.*

LANL Response

13. LANL will install three 20-ft boreholes in the former footprint of Building 35 to investigate possible releases from historic operations from this building. Attachment 2 is a revised figure showing the location of these new boreholes.

NMED Comment

As a reminder, the Permittees must collect vapor samples in SUMMA canisters for laboratory analysis of VOCs using EPA Method TO-15 or equivalent method and also determine percent moisture. Sample selection must be based on the vapor field screening results, or other evidence of potential contamination (e.g., presence of surge beds). NMED understands that the Permittees will voluntarily submit vapor samples for tritium analysis in accordance with the DOE letter from Everet Beckner to NMED Secretary Ron Curry, dated August 26, 2004.

NMED requires that for volatile organic compound (VOC) field screening, the Permittees must isolate the base of the boreholes at each sampling interval during drilling and purge the subsurface air in sufficient quantities to ensure that formation air is sampled. The Permittees must use a photoionization detector (PID) equipped with an 11.7 eV lamp for VOC screening and also measure percent carbon dioxide and oxygen. NMED understands that the Permittees will collect vapor samples from each interval using silica gel cartridges in series for analysis of tritium using EPA Method 114 (NESHAP Part 61, Appendix B) or equivalent method.

Finally, if an air rotary drilling method is needed to advance the proposed Cerro Toledo borings to total depth once auger drilling is no longer practicable, the Permittees must use appropriate methods to ensure that quality subsurface air samples are obtained from each borehole (e.g., lengthy purging and stabilization of parameters). The Permittees must ensure the boreholes are left open for use during future monitoring and that contaminant migration down the borehole does not occur in while vapor monitoring wells are being contemplated. In accordance with Section IV.C.3.c.v of the Order, the Permittees must submit a long-term subsurface vapor monitoring and sampling work plan to NMED for approval after the investigation results have been reported to NMED.

LANL Response

LANL will characterize volatile organic compounds (VOCs) and tritium in pore gas by collecting samples from the 385-ft boreholes and, if necessary, the 280-ft boreholes (see response to NMED Comment 5). Because of this sampling, LANL will not perform the VOC screening procedure described in the comment (i.e., isolate the base of the boreholes at each sampling interval during drilling, purge the subsurface air in sufficient quantities to ensure that formation air is sampled, and use a photoionization detector (PID) for field screening of the samples). LANL will perform head-space screening of subsurface core samples using a PID. LANL will also use a packer to isolate the total depth sample interval of each borehole, purge the subsurface air in sufficient quantities to ensure that formation air is sampled, and use a PID to ensure the borehole has been advanced to nondetect for VOCs using a PID.

Attachment 1

Revised Investigation-Derived Waste Management Plan for MDA T

Appendix C

Management Plan for Investigation-Derived Waste

This appendix to the work plan describes how investigation-derived waste (IDW) generated during the investigation of Material Disposal Area (MDA) T at Los Alamos National Laboratory (the Laboratory) will be managed. IDW is solid waste generated as a result of field investigation activities and may include, but is not limited to, drill cuttings; purge water; contaminated personal protective equipment (PPE), sampling supplies, and plastic; fluids from the decontamination of PPE and sampling equipment; and all other wastes potentially contacting contaminants. IDW generated during the investigation of MDA T will be managed to protect human health and the environment, comply with applicable regulatory requirements, and adhere to the Laboratory waste minimization goals.

All IDW generated during field investigation activities will be managed in accordance with applicable Environmental Stewardship–Environmental Characterization and Remediation (ENV-ECR) Group Standard Operating Procedures (SOPs). These SOPs incorporate the requirements of all applicable Environmental Protection Agency (EPA) and New Mexico Environment Department (NMED) regulations, Department of Energy (DOE) orders, and Laboratory Implementation Requirements (LIRs). ENV-ECR SOPs applicable to the characterization and management of IDW are

- ECR-SOP-01.06, Management of Environmental Restoration Project Waste and
- ECR-SOP-01.10, Waste Characterization

These SOPs are among the SOPs applicable to the investigation at MDA T and are available at the following URL: <http://erproject.lanl.gov/documents/procedures.html>. Before the start of field investigation activities, a Waste Characterization Strategy Form (WCSF) will be prepared and approved per requirements of ECR-SOP 01.10. The WCSF will provide detailed information on IDW characterization, management, containerization, and possible volumes. IDW characterization will be completed through review of existing data and/or documentation, by direct sampling of the IDW, and/or by sampling the media being investigated (i.e., surface soil, subsurface soil, etc.). If direct waste characterization sampling is necessary, it will be described in the WCSF.

The Laboratory's 2004 Pollution Prevention Roadmap will be implemented during field investigations at MDA T to minimize waste generation. This plan is updated annually as a requirement of Module VIII of the Laboratory's Hazardous Waste Facility Permit.

The IDW waste streams associated with the investigation of MDA T are identified in Table C-1 and are briefly described below. Table C-1 also summarizes the waste type, estimated volume, and method of on-site management.

Drill cuttings. The drill cuttings waste stream will consist of cuttings from all boreholes drilled during field activities. Drill cuttings will be collected and containerized at the point of generation (i.e., at the drill rig). The drill cutting waste stream will be characterized with analytical results from core samples augmented by direct sampling of the containerized waste, if needed. The maximum detected concentrations of radionuclides will be compared with background/fallout values. If maximum concentrations are above background/fallout values, the waste cuttings will be designated as low-level radioactive waste (LLW). Total concentrations of toxicity characteristic leaching procedure (TCLP) constituents will be compared with 20 times the TCLP regulatory level. If total concentrations are less than 20 times the TCLP regulatory level, the waste cuttings will be designated nonhazardous by characteristic. If total concentrations exceed 20 times the TCLP regulatory level, the waste cuttings will be sampled and analyzed using the TCLP to determine if it is hazardous by characteristic. If potential listed hazardous waste constituents are detected, the Laboratory will conduct a review of historical records and data in an effort to determine whether the source of each constituent was a listed hazardous waste at its point of generation. If the source is determined to be a listed hazardous waste, the cuttings will be managed as hazardous or mixed waste (depending on the levels of radioactivity). Otherwise, the cuttings will be managed as nonhazardous solid waste or LLW (depending on the levels of radioactivity). Based on the results of

previous investigations, the Laboratory expects these wastes to be designated as LLW that will be disposed of at Technical Area (TA) 54 or at an off-site LLW disposal facility.

Spent PPE. The spent PPE waste stream will consist of PPE that has potentially “contacted” contaminated environmental media (i.e., core and/or drill cuttings) and that cannot be decontaminated. The bulk of this waste stream will consist of protective clothing such as coveralls, gloves, and shoe covers. Spent PPE will be collected in containers at personnel decontamination stations. Characterization of this waste stream will be performed through acceptable knowledge of the waste materials, the methods of generation, and the analytical results from the sampling of the environmental media with which the materials were in contact. The Laboratory expects these wastes to be designated as LLW that will be disposed of at TA-54 or at an off-site LLW disposal facility.

Disposable sampling supplies. The disposable sampling supplies waste stream will consist of all equipment and materials necessary for collecting samples that come into direct contact with contaminated environmental media and that cannot be decontaminated. This waste stream also includes wastes associated with dry decontamination activities. This waste stream will consist primarily of paper and plastic items collected in bags at the sampling location and transferred to accumulation drums. Characterization of this waste stream will be performed through acceptable knowledge of the waste materials, the methods of generation, and the analytical results from the sampling of the environmental media with which the materials were in contact. The Laboratory expects these wastes to be designated as LLW that will be disposed of at TA-54 or at an off-site LLW disposal facility.

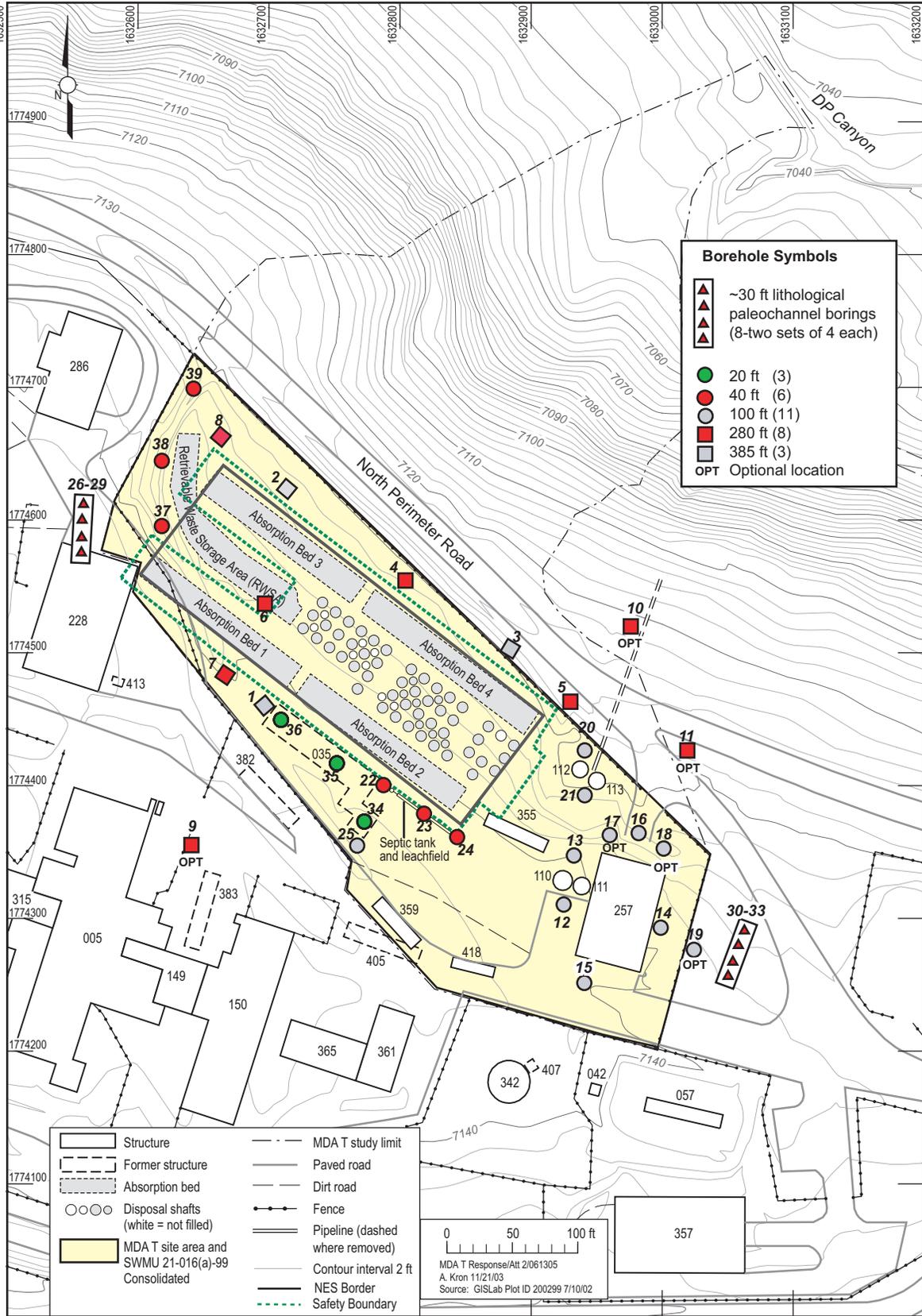
Decontamination fluids. The decontamination fluids waste stream will consist of liquid wastes from decontamination activities (i.e., decontamination solutions and rinse waters). Consistent with waste minimization practices, the Laboratory employs dry decontamination methods to the extent possible. If dry decontamination cannot be performed, liquid decontamination wastes will be collected in containers at the point of generation and characterized with analytical results from direct sampling of the containerized waste. The Laboratory expects these wastes would be designated as liquid LLW that would be sent to the radioactive liquid waste treatment facility at TA-50 for disposal.

The selection of waste containers will be based on appropriate U.S. Department of Transportation requirements, waste types, and estimated volumes of IDW to be generated. Immediately following containerization, each waste container will be individually labeled with a unique identification number and with information regarding waste classification, item(s), radioactivity (if applicable), and date generated. If wastes are pending analytical results to make a final characterization determination, the containers will be labeled as such until analytical results are available. The wastes will be contained in clearly marked and appropriately constructed waste accumulation areas. Waste accumulation area postings, regulated storage duration, and inspection requirements will be based on the type of IDW and its classification. Container and storage requirements will be detailed in the WCSF and approved before any waste is generated.

**Table C-1
Summary of Estimated IDW Generation and Management**

Waste Stream	Estimated Volume	On-Site Management
Drill cuttings	110 yd ³	20 yd ³ roll-off containers
Spent PPE and disposable sampling supplies	10 yd ³	Accumulation in 55-gal. drums
Decontamination fluids	<100 gal.	Accumulation in 55-gal. drums.

Attachment 2
Planned Borehole Locations at MDA T



Planned borehole locations at MDA T