Attachment G-1

Waste Characterization Strategy Form
(on CD included with this document)

Waste Characterization Strategy Form

Project Title	Lower Sandia Canyon Aggregate Area and Lower Mortandad/Cedro Canyons Aggregate Area Investigations
Solid Waste Management Unit or Area of Concern #	**SWMUs:** 05-003, 05-004, 05-005(b), 05-006(c), 20-001(a), 20-001(b), 20-001(c), 20-002(a), 20-002(b), 20-002(c), 20-002(d), 20-005, 53-001(a), 53-001(b), 53-005, 53-006(f) **AOCs:** 20-003(b), 20-003(c), 20-004, 53-008, 53-009, 53-010, 53-012(e), 53-013
Activity Type	**Investigation and Remediation**
LATA Task Manager	**Jacinto Garduno**
Waste Management Coordinator	**Michael Le Scouarnec**
Completed by	**Kevin Krause**
Date	**06/16/2010**

1.0 Description of Activity

The work will be performed in accordance the New Mexico Environment Department (NMED)-approved Investigation Work Plan for Lower Sandia Canyon Aggregate Area, the Investigation Work Plan for Lower Mortandad/Cedro Canyons Aggregate Area and EXHIBIT "D" Scope of Work and Technical Implementation of the Lower Sandia Canyon Aggregate Area, Subcontract No. 82819-001-10, R0, 01/14/2010.

This waste characteristic strategy form (WCSF) describes the management of investigation-derived waste (IDW) that is expected to be generated during the investigation and limited remediation in Technical Area (TA)-05, TA-20, and TA-53. The IDW may include, but is not limited to, drill cuttings, contact waste, excavated environmental media and debris, decontamination fluids, petroleum-contaminated soils, and all other waste that has potentially come into contact with contaminants.

2.0 Relevant Site History and Description

2.1 TA-05

TA-05, also known as Beta Site, was established in 1944 as an adjunct test firing site to TA-04 (Alpha Site). Firing activities were conducted at two small firing sites located within the Middle Mortandad/Ten Site portion of TA-05 and one large firing site, known as Far Point Site, within the Lower Mortandad/Cedro portion of TA-05. Far Point Site was used briefly during 1944 and 1945 for half-scale mockup tests of the Trinity device. TA-05 was used as a firing site for implosion studies until 1947. After firing activities were halted, several Laboratory groups used the site for a variety of experiments, including the study of hydrogen fires, animal radiation experiments, and beryllium combustion experiments. In late 1959, two experimental reactors known as "Little Eva" and "Godiva" were brought to TA-05 and operated briefly. Little Eva was located inside a trailer, and Godiva was located in an underground chamber

(SWMU 05-003). TA-05 was taken out of service in 1959 and underwent decontamination and demolition in 1985 as part of the Los Alamos Site Characterization Program (LASCP).

2.2 Former TA-20

Former TA-20 was located near the west end of Sandia Canyon and the SWMUs and AOCs associated with it are now contained within TA-53 and TA-72. The TA-20 site consisted of a series of firing areas spaced along a small road heading west from NM 4. TA-20 was used from 1945 to 1948 to test initiators (devices used to generate neutrons needed to initiate nuclear chain reactions) and to conduct implosion studies.

2.3 TA-53

TA-53 is located in the northeast portion of the Laboratory on Mesita de Los Alamos, which is the mesa bounded by Los Alamos Canyon to the north and Sandia Canyon to the south. TA-53 is the location of the Los Alamos Neutron Science Center (LANSCE). The primary component of LANSCE is a 0.5-mi-long linear proton accelerator that produces subatomic particles for experimental physics activities and isotope production. TA-53 also contains office buildings, laboratories, and other facilities associated with the operation of the accelerator.

3.0 Characterization Strategy

This WCSF identifies the types of wastes expected, based on the data from previous investigations; however, other types of wastes may be encountered. An amendment to this strategy form will 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 IDW will be managed in accordance with Los Alamos National Laboratory (LANL) Standard Operating Procedure (SOP) 5238, *Characterization and Management of Environmental Program Waste.*

In accordance with the work plan, waste will initially be managed as hazardous or non-hazardous (unless stored within an Area of Contamination) in accordance with the due diligence reviews already prepared for all potential release sites covered by these investigations. Table 3.0-1 identifies whether initial management should be hazardous or non-hazardous. Waste accumulation area postings, regulated storage duration, and inspection requirements will be based on the type waste and its regulatory classification. The selection of waste containers will be based on 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 such as waste classification, contents, radioactivity, and date generated, if applicable. A non-hazardous waste label, date of generation, the generator's name, and container contents should be placed on non-hazardous waste containers as a best management practice. Waste streams with the same regulatory classification that are destined for the same receiving facility may be combined into a single container for disposal (e.g. contact waste with drill cuttings).

IDW characterization will be completed using investigation sampling data or by direct sampling of the IDW. If the waste is directly sampled, it will be sampled within 10 days of generation, and a 21 day turnaround time for analyses will be requested, unless the waste is generated and managed in an Area of Contamination. Samples must be collected using the methods described in this WCSF by trained and qualified sampling personnel. Sampling personnel must record waste sampling information in accordance with LANL's procedure, EP-ERSS-SOP-5058, *Sample Control and Field Documentation* and EP-ERSS-SOP-5181, Documentation of Waste and Environmental Technical Field Activities.

A waste determination will be made within 45 days of the generation date of waste unless the waste is stored in a Satellite Accumulation Area or an approved Area of Contamination. A Waste Acceptance Criteria (WAC) exception form (WEF) can be used if the generator does not meet the 45 day deadline. The generation of no path forward wastes must be approved by Department of Energy (DOE) prior to generation of the waste; however, no such wastes are anticipated for this project.

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 removing the listings from the waste stream. A request to submit a "contained-in" determination to NMED must be submitted to Environmental Protection (ENV-RCRA) through the Subcontract Technical Representative (STR) within 70 days of generating the waste. A copy of the due diligence reviews already prepared for this investigation or the NMED "contained-in" approval letter should accompany all waste profiles prepared for the waste(s) with potentially listed contaminants.

Investigation activities will be conducted in a manner that minimizes the generation of waste. Waste minimization will be accomplished by implementing the most recent version of the "Los Alamos National Laboratory Hazardous Waste Minimization Report.: Waste streams will be recycled/reused, as appropriate.

3.1 Waste # 1: Drill Cuttings (IDW)

This waste stream consists of soil and rock cuttings generated from the drilling of boreholes. This may include small chips or unused core samples collected with a hollow-stem auger core barrel. Drill cuttings may include excess core samples not submitted for analysis and any returned drill cutting samples. Drill cuttings may be land applied if they meet the criteria in Quality Procedure QP-011, Land Application of Drill Cuttings. Approximately 20 yd^3 of drill cuttings are expected to be generated.

Anticipated Regulatory Status: Industrial, Beryllium, Hazardous, Low-level radioactive waste (LLW), Mixed low-level radioactive waste (MLLW), New Mexico Special Waste (NMSW), Land Applied

Characterization Approach: The drill cuttings will be characterized by direct sampling of the containerized cuttings. Cuttings not generated and managed within an Area of Contamination will be sampled within 10 days of generation and submitted for analysis with a 21 day turnaround time. A hand auger or thin-wall tube sampler will be used in accordance with LANL SOP-06.10, *Hand Auger and Thin-Wall Tube Sampler* to collect waste material from each container, augering from the surface to the bottom of the waste in a sufficient number of locations to obtain a representative sample. Samples will be analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), radionuclides, total metals, and toxicity characteristic (TCLP) metals, if needed (see Table 3.1-1). Herbicides and pesticides will be analyzed only if the work plan requires analysis of these contaminants in investigation samples. High explosives (HE), perchlorates, nitrate, and total cyanide will be analyzed only for SWMUs 20-001(a,b,c). If process knowledge, odors, or staining indicate the cuttings may be contaminated with petroleum products, the materials will also be analyzed for total petroleum hydrocarbons (TPH [DRO/GRO]) and polychlorinated biphenyls (PCBs). Other constituents may be analyzed as necessary to meet the WAC for a receiving facility.

Storage and Disposal Method: Drill cuttings will be containerized at the point of generation in LANL approved 55-gallon steel drums, 1 yd^3 Wrangler Bags or other containers appropriate for the quantity of waste generated. Wastes will be stored in secure, designated areas. Drill cuttings from a single potential release site (PRS) may be combined into a single container before sampling but cuttings from different PRSs will not be combined before sampling. If container sizes are small, the representative sample may be collected from more than one container (e.g., one sample for every 20 cy^3 generated from a single

potential release site). Waste generated and managed within an Area of Contamination will initially be managed as non-hazardous. Wastes generated outside an Area of Contamination will initially be managed as hazardous or non-hazardous in accordance with Table 3.0-1. If analytical data changes the waste classification (e.g., PCB waste) or hazardous wastes are moved outside the boundary of the Area of Contamination, the waste will be stored in an area appropriate for the type of waste. Cuttings may be land applied if they meet the criteria of the NMED-approved NOI decision tree for land application. Land application will be conducted in accordance with ENV-RCRA-QP-011, *Land Application of Drill Cuttings.* Drill cuttings that cannot be land applied will be treated and/or disposed of at authorized off-site facilities appropriate for the waste classification.

3.2 Waste # 2: Contact Waste

This waste stream includes personnel protective equipment (PPE), contaminated sampling supplies, and dry decontamination waste that may have come in contact with contaminated environmental media and cannot be decontaminated. This includes, but is not limited to plastic sheeting (e.g., tarps and liners), gloves, coveralls (e.g. Tyvek), booties, paper towels, plastic and glass sample bottles, and disposable sampling supplies. Approximately 1 yd^3 of contact waste are expected to be generated.

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

Characterization Approach: Contact waste will be characterized using AK based on data from the media with which they came into contact, as follows:

- If generated during drilling, data from the associated drill cuttings will be used.
- If generated during hand augering, associated investigation sample data will be used.
- If generated during excavations, data from the associated excavated environmental media will be used.

All contact waste will be inspected before being placed in containers to determine if environmental media or staining is present, indicating contamination. If staining is present, an estimate of the portion or percentage of the item stained will be recorded. Results from the analytical data will be weighted by the extent of contamination for determining whether wastes are characteristic. If the material with which the contact waste came into contact is listed, the contact waste will be assumed to be listed unless a "container-in" approval is obtained.

Storage and Disposal Method: The contact waste may be separately containerized in drums or it may be placed into the same containers as the media with which it is contaminated if the media will not be land applied. Wastes will be stored within secure, designated areas. Waste generated and managed within an Area of Contamination will initially be managed as non-hazardous. Wastes generated outside an Area of Contamination will initially be managed as hazardous or non-hazardous in accordance with Table 3.0-1. If analytical data changes the waste classification, the waste will be stored in an area appropriate for the type of waste. For disposal, separately containerized contact waste may 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 in authorized off-site facilities appropriate for the waste classification.

3.3 Waste #3: Decontamination Fluids (potential)

The decontamination fluids waste stream will consist of liquid wastes generated from decontamination of excavation, sampling and drilling equipment. 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 appropriate containers at the point of generation. Less than 55 gal of decontamination fluids are expected to be generated.

Anticipated Regulatory Status: Industrial, Hazardous, LLW, MLLW

Characterization Approach: All drilling equipment and tooling will be steam-cleaned by the drilling subcontractor prior to arriving onsite. If tooling appears unclean or odors are detected, the equipment must be steam-clean onsite in accordance with EP-ERSS-SOP-5061, *Field Decontamination of Equipment* or an approved equivalent procedure. The rinsate must be separately collected and sampled (do not mix with any other decontamination fluids).

Decontamination fluids will be characterized by investigation samples from the media they contacted or by direct sampling. Unless decontamination fluids are generated and managed within an Area of Contamination, representative samples (if sampling is required) will be collected within 10 days of generation and submitted for analysis with a 21 day turnaround time. Samples will be collected from the storage container in accordance with LANL SOP-06.15, *COLIWASA Sampler for Liquids and Slurries.* 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 VOCs, SVOCs, radionuclides, and total metals (see Table 3.1-1). HE will be analyzed only if the decontamination water is generated from potential release site for which the work plan requires HE analysis for investigation samples. Other constituents may be analyzed as necessary to meet the WAC for a receiving facility. If wastes will be treated on-site at the Sanitary Waste Water System (SWWS) or the Radioactive Liquid Waste Treatment Facility (RLWTF), submit a sampling request to http://esp-esh-as01-f5.lanl.gov/~esh19/database/rfa_form.shtml for additional constituents identified in Table 3.1-1, footnote 1. If the fluids cannot be treated on-site, they may be solidified for disposal off-site. The Material Safety Data Sheet (MSDS) for any absorbent used for solidification will be used as AK for waste characterization.

Storage and Disposal Method: Decontamination fluids will be collected in appropriate containers at the point of generation and managed in secure, designated waste areas. Waste generated and managed within an Area of Contamination will initially be managed as non-hazardous. Wastes generated outside an Area of Contamination will initially be managed as hazardous or non-hazardous in accordance with Table 3.0-1. If analytical data changes the waste classification (e.g., PCB wastes) or hazardous wastes are moved outside the Area of Contamination boundaries, the waste will be stored in an area appropriate for the type of waste. It is expected that the decontamination fluids will be treated on-site at the TA-16 High Explosives Wastewater Treatment Facility (HEWTF), the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF), or the Sanitary Waste Water System (SWWS). Decontamination wastes not meeting the WAC for on-site facilities will be treated and/or disposed of in authorized off-site treatment/disposal facilities. If solidification of decontamination fluids is required for disposal, it may be solidified using an approved absorbent. Solidification activities must be reviewed by the ENV-RCRA before being conducted.

3.4 Waste #4: Excavated Media

Layback and overburden spoils (including environmental media mixed with buried debris after the debris is segregated from the media) will consist of soil and rock removed from within or next to (e.g., from benching to stabilize a trench) areas to be excavated. The amount of media removed is expected to be approximately 25 yd^3.

Anticipated Regulatory Status: Industrial, Beryllium, Hazardous, LLW, MLLW, NMSW, PCB, Fill

Characterization Approach: Because the amount of soil to be excavated from each location is estimated to be less than 5 yd^3, a minimum of one incremental sample of the spoils will be collected for each excavation location as the spoils are excavated. More frequent samples will be collected if screening or visual observations indicate areas with potentially higher contamination. The incremental samples will be collected in accordance with SOP-06.11, *Spade and Scoop Method for Collection of Soil Samples.* Representative samples will be submitted for analysis with a 21 day turnaround time. Samples will be analyzed for VOCs, SVOCs, radionuclides, total metals, and TCLP metals, as needed (see Table 3.1-1). Herbicides and pesticides will be analyzed only if the work plan requires analysis of these contaminants in investigation samples. HE, perchlorates, nitrate, and total cyanide will be analyzed only if the work plan requires HE analysis for investigation samples from the potential release site. If process knowledge, odors, or staining indicate the excavated media may be contaminated with petroleum products, the materials will also be analyzed for TPH and PCBs. Other constituents may be analyzed as necessary to meet the WAC for a receiving facility.

Storage and Disposal Method: An Area of Contamination will be requested for each excavation area and materials generated and managed within the area will be managed as non-hazardous waste. If the material is removed from the Area of Contamination, it will be managed as hazardous or non-hazardous in accordance with Table 3.0-1 unless data are available to show that it is non-hazardous. This material will be field screened for radioactivity and VOCs during the excavation process. If contamination is not detected during screening, the spoils will be stored either in rolloff bins other suitable containers or on the ground surface with appropriate best management practices. If field screening indicates the potential for contamination, the layback and overburden spoils will be placed in rolloff bins or other suitable containers If analytical data changes the waste classification or hazardous waste is moved outside the boundaries of the Area of Contamination, the waste will be stored in an area appropriate for the type of waste. If the spoils are determined to be suitable for reuse (i.e., meets residential cleanup standards as determined using NMED's and DOE's soil screening guidance), the Laboratory will segregate any man-made debris from the soil, if practical, and use the soil to backfill the excavations. If the spoils do not meet residential cleanup standards, they will be treated and/or disposed of at an authorized facility appropriate for the waste regulatory classification.

3.5 Waste #5: Excavated Man-Made Debris

Excavated man-made debris may be generated during excavation of test pits at SWMUs 20-001(c) and 53-005, during remediation of AOC 53-013, and during cleanup of the surface debris at SWMUs 05-005(b) and 05-006(c). The amount of debris removed is expected to be approximately 4 yd^3.

Anticipated Regulatory Status: Industrial, Beryllium, Hazardous, LLW, MLLW, PCB, NMSW, Recycle

Characterization Approach: Debris will be segregated as it is excavated, to the extent practical, based on factors such as the type and size of debris, field screening, process knowledge, and/or staining or odors. For debris that is difficult to characterize; acceptable knowledge (AK) will be used whenever possible, supplemented by sampling as needed. Sampling methods may be identified on a case-by-case basis by qualified sampling personnel. All decisions will be documented in the field activity notebook. If generated outside an Area of Contamination, samples must be collected within 10 days of waste generation and a 21-day analytical turnaround must be requested. Samples will be analyzed for asbestos for articles expected to be asbestos-containing, VOCs, SVOCs, radionuclides, total metals, and TCLP metals, if necessary (see Table 3.1-1). PCBs will be analyzed if oil staining on debris or PCB articles (e.g., capacitors) is unearthed. HE on the external portions of the debris generated at SWMU 20-001(c) will initially be analyzed by HE screening (DX HE Spot Test) or if the investigation samples indicate that HE is present. Waste configurations, process knowledge and additional HE analysis will be performed as needed to identify whether the debris is detonable. Other constituents may be analyzed as necessary to

meet the WAC for a receiving facility. Non-radioactive materials (no LANL-added radioactivity) or those that can be decontaminated will be recycled, if practicable. For the lead shot and other non-porous debris with only surface, non-fixed contamination, smears will be used to detect the presence of radiation. If the lead shot cannot be recycled/reused, it will be assumed to be hazardous for lead.

Storage and Disposal Method: Debris will be containerized at the point of generation in LANL approved 55-gallon steel drums or other appropriate containers. Any debris that leaks as it is excavated must immediately be placed in an area with secondary contamination. The debris will initially be managed in a secure, designated area within the Area of Contamination. If analytical data changes the waste classification (e.g., PCB wastes) or the waste is hazardous and is moved outside the Area of Contamination boundaries, the waste will be stored in an area appropriate for the type of waste. The waste will be treated and/or disposed of at an authorized off-site facility appropriate for the waste classification.

3.6 Waste #6: Municipal Solid Waste (MSW)

This waste stream primarily consists of non- contact trash including, but not limited to paper, cardboard, wood, plastic, food and beverage containers, empty solution containers, but may also include commercial solid wastes which are derived from project activities. It is estimated that less than 1 yd^3 of MSW will be generated, but may change if vegetation removal is required.

Anticipated Regulatory Status: MSW

Characterization Approach: MSW will be characterized based on acceptable knowledge (AK) of the waste materials (including MSDS) and methods of generation.

Management and Disposal Method: MSW will be segregated from all other waste streams and managed in approved containers. It is anticipated that the waste will be stored in plastic trash bags or other appropriate containers and disposed of at the County of Los Alamos Transfer Station or other authorized solid waste landfill.

3.7 Waste #7: Petroleum Contaminated Soils (PCS), (potential)

PCS may be generated from releases of products such as hydraulic fluid, motor oil, unleaded gasoline, or diesel fuel (e.g. from the rupture of hydraulic or fuel hoses, or spills during maintenance or filling equipment) onto soil. PCS created by legacy contamination may also be encountered during investigations. Absorbent padding, paper towels, spill pillows or other absorbent material used to contain the released material may be added to the PCS waste for storage and disposal. It is estimated that less than one cubic yard of PCS will be generated.

Anticipated Regulatory Status: NMSW, Beryllium, Industrial, Hazardous, LLW, MLLW, PCB

Characterization Approach: The contaminated soil may either be sampled in-place (by gridding the spill location and collecting and combining incremental samples into one sample) or after containerization in accordance with LANL SOP-06.10, *Hand Auger and Thin-Wall Tube Sampler*. If the spill is shallow (in-place sampling) or containers are small, Spade and Scoop Method for Collection of Soil Samples (LANL SOP-06.11) may also be appropriate. If the spill is new, it must be immediately reported to ENV-RCRA and the contaminated material must be containerized the same day it is spilled unless permission is received from ENV-RCRA to leave it longer (generally only granted for large spills). Representative samples of containerized waste will be collected within 10 days of generation and submitted for analysis with a 21 day turnaround time. Samples will be analyzed at a minimum for VOCs, SVOCs, TPH (DRO/GRO), and total metals (see Table 3.1-1). Herbicides and pesticides will be analyzed only if the work plan requires analysis of these contaminants for investigation samples. HE, perchlorates, nitrate,

and total cyanide will be analyzed only if screening indicates the presence of HE or if analysis of these constituents is required by the work plan for the contaminated area. If legacy petroleum contamination is present, the soils will also be analyzed for PCBs. Other constituents may be analyzed as necessary to meet the WAC for a receiving facility.

Storage and Disposal Method: PCS will be stored in clearly marked and appropriately constructed waste accumulation areas. Waste accumulation area postings, regulated storage duration, and inspection requirements will be based on the most restrictive waste classification appropriate to the area where the spill occurred. If the PCS is suspect or known hazardous or MLLW, it will initially be managed in a registered hazardous waste accumulation area pending analysis. All PCS will be treated and/or disposed of, at an authorized off-site facility appropriate for the waste classification.

3.8 Waste #8: Returned or Excess Samples

This waste stream consists of soil and tuff samples returned from a laboratory or samples collected but not submitted to the analytical laboratory. It is estimated that less than approximately 0.5 yd^3 of material will be generated from this activity.

Anticipated Regulatory Status: Industrial, Beryllium, Hazardous, LLW, MLLW, NMSW

Characterization Approach: Waste characterization will be based upon analytical results obtained from the direct sampling of containerized waste or from investigation or characterization data from media associated with the returned/excess samples. Direct sampling will be conducted in accordance with LANL SOP-06.10, *Hand Auger and Thin-Wall Tube Sampler* or SOP-06.09, *Spade and Scoop Method for Collection of Soil Samples*. Representative samples will be collected within 10 days of the return of the samples and submitted for analysis with a 21 day turnaround time. Samples will be analyzed for VOCs, SVOCs, total metals, and TCLP metals, as needed (see Table 3.1-1). Herbicides and pesticides will be analyzed only if the work plan requires analysis of these contaminants for investigation samples. HE, perchlorates, nitrate, and total cyanide will be analyzed only if the work plan requires HE analysis for investigation samples. If process knowledge, odors, or staining indicate the returned samples may be contaminated with petroleum products, the materials will also be analyzed for TPH and PCBs. Other constituents may be analyzed as necessary to meet the WAC for a receiving facility.

Storage and Disposal Method: These wastes will be containerized in 5 gallon buckets, 55 gallon drums, or placed into the same containers as the environmental media from which they were taken. They will initially be stored in secure, designated waste areas as hazardous or non-hazardous waste in accordance with Table 3.0-1. If analytical data changes the waste classification, the waste will be stored in an area appropriate for the type of waste. The wastes will be sent to an authorized on-site or off-site treatment or disposal facilities, as appropriate to their waste regulatory classification.

4.0 References

LANL (Los Alamos National Laboratory) 2007. "Los Alamos National Laboratory Hazardous Waste Minimization Report," (LANL,2007).

EP2010-0211 Integrated Work Document (IWD) – Implementation of the Investigation Work Plan for Lower Sandia Canyon Aggregate Area

EP2010-0212-Site-Specific Health and Safety Plan (SSHASP) – Implementation of the Investigation Work Plan for Lower Sandia Canyon Aggregate Area

LANL (Los Alamos National Laboratory), July 2009. "Investigation Work Plan for Lower Sandia Canyon Aggregate, Revision 1," Los Alamos, New Mexico. (LANL 2009, 106660)

Table 3.0-1
Initial Waste Management

Potential Release Site	Initial Management	Comments
SWMU 05-005(b), Outfall	Non-hazardous	
SWMU 05-006(c), Former Building 05-5	Non-hazardous	
SWMU 05-003, Former Calibration Chamber	Non-hazardous	
SWMU 05-004(c), Outfall and Septic Tank, Former Building 05-1	Non-hazardous	
SWMU 20-001 (a), Landfill	Non-hazardous	
SWMU 20-001(b), Landfill	Non-hazardous	
SWMU 20-001 (c), Landfill	Non-hazardous	
SWMU 20-002(a), Former Firing Pit	Non-hazardous	
SWMU 20-002(b), Former Steel Tanks (Firing Site)	Non-hazardous	
SWMU 20-002(c), Former Firing Point	Non-hazardous	
SWMU 20-002(d), Former Firing Point	Non-hazardous	
AOC 20-003(b), Former 20-mm Gun-Firing Site	Non-hazardous	
AOC 20-003(c), Former U.S. Navy Gun Site	Non-hazardous	
AOC 20-004, Septic System	Non-hazardous	
SWMU 20-005, Septic System	Non-hazardous	
SWMU 53-001 (a), Former Waste Storage Area	Non-hazardous	
SWMU 53-001 (b), Waste Storage Area	Non-hazardous	
SWMU 53-005, Former Waste Disposal Pit	Hazardous	
SWMU 53-006(f), Underground Storage Tank	Hazardous	
AOC 53-008, Storage Area	Non-hazardous	Analyze IDW for toxicity characteristic metals (lead)
AOC 53-009, Former Storage	Non-hazardous	
AOC 53-010, Former Storage Area	Non-hazardous	
AOC 53-012(e), Outfall	Non-hazardous	
AOC 53-013, Lead Shot Area	Hazardous	Analyze IDW for toxicity characteristic metals (lead), Recycle if possible.

Table 3.1-1
Waste Characterization Table

Waste Description	Waste Stream # 1 Drill Cuttings	Waste Stream #2 Contact Waste	Waste Stream #3 Decon. Fluids	Waste Stream #4 Excavated Media
Estimated Volume	20 CY	1 CY	< 55 gallons	25 CY
Packaging	55-gallon steel drums or 1 yd^3 Wrangler Bags	55 gallon drums	30 or 55 gallon drums	Roll-offs or on ground
Regulatory Classification				
Radioactive Waste	X	X	X	X
Municipal Solid Waste (MSW)				
Waste destined for LANL's SWWS or RLWTF or HEWTF[1]			X	
Hazardous Waste	X	X	X	X
Mixed (hazardous and radioactive) Waste	X	X	X	X
Beryllium	X	X		X
Polychlorinated Biphenyls-Contaminated Waste (PCBs)				X
New Mexico Special Waste	X			X
Industrial Waste	X	X	X	X
Characterization Method				
Acceptable knowledge (AK): Existing Data/Documentation		X	X	X
AK: Site Characterization		X	X	X
Direct Sampling of Waste	X		X	X
Analytical Testing				
Volatile Organic Compounds (VOCs) (EPA 8260-B)	X		X	X
Semivolatile Organic Compounds (SVOCs) (EPA 8270-C)	X		X	X
Organic Pesticides (EPA 8081-A)	X[4]		X[4]	X[4]
Organic Herbicides (EPA 8151-A)	X[4]		X[4]	X[4]
PCBs (EPA 8082)	X[4]		X[4]	X[4]
Total Metals (EPA 6010-B/7471-A or EPA 6020)	X		X	X
Total Cyanide (EPA 9012-A)	X[4]		X[4]	X[4]
High Explosives Constituents (EPA 8330/8321-A)	X[4]		X[4]	X[4]
Asbestos (EPA 600M4)				
Total petroleum hydrocarbon (TPH)-GRO (EPA 8015-M)	X[4]			X[4]
TPH-DRO (EPA 8015-M)	X[4]		X[4]	X[4]
Toxicity characteristic leaching procedure (TCLP) Metals (EPA 1311/6010-B)	X[4]		X[4]	X[4]

Table 3.1-1 (continued)

Waste Description	Waste Stream # 1 Drill Cuttings	Waste Stream #2 Contact Waste	Waste Stream #3 Decon. Fluids	Waste Stream #4 Excavated Media
TCLP Organics (EPA 1311/8260-B & 1311/8270-C)				
TCLP Pest. & Herb. (EPA 1311/8081-A/1311/8151-A)				
Gross Alpha (alpha counting) (EPA 900)	X[4]		X[4]	X[4]
Gross Beta (beta counting) (EPA 900)	X[4]		X[4]	X[4]
Tritium (liquid scintillation) (EPA 906.0)	X		X	X
Gamma spectroscopy (EPA 901.1)	X[4]		X[4]	X[4]
Isotopic plutonium (HASL-300)	X		X	X
Isotopic uranium (HASL-300)	X		X	X
Total uranium (EPA 6020)	X		X	X
Strontium-90 (EPA 905)	X		X	X
Americium-241 (HASL-300)	X		X	X
Perchlorates (EPA 6850)	X[4]		X[4]	X[4]
Nitrates/Nitrites (EPA 300.09-soil or 343.2-water)	X[4]		X[1,4]	X[4]
Oil / Grease (EPA 1665)			X[1]	
Fluorine, Chorine, Sulfate (EPA 300)			X[1]	
TTO (EPA 8260-B and EPA 8270-C)[2]	**Request VOCs and SVOCs above**			
Total Suspended & Dissolved Solids (TSS) and Total Dissolved Solids (TDS) (EPA 160.1 and 160.2)			X[1]	
Chemical Oxygen Demand (COD) (EPA 410.4)			X[1]	
pH (EPA 904c)			X[1]	
Microtox or Biological Oxygen Demand (BOD)[3]			X[1]	

Table 3.1-1 (continued)

Waste Description	Waste Stream # 5 Excavated Man Made Debris	Waste Stream #6 Municipal Solid Waste	Waste Stream #7 Petroleum Contam Soils	Waste Stream #8 Returned or Excess Samples
Estimated Volume	4 CY	< 1 CY	< 1 CY	0.5 CY
Packaging	55-gallon drums or other containers	Plastic trash bags	30 or 55 gallon drums	Same containers as the environmental media from which they were taken or other drums.
Regulatory Classification				
Radioactive Waste	X		X	X
Municipal Solid Waste (MSW)		X		
Waste destined for LANL's SWWS or RLWTF[1]				
Hazardous Waste	X		X	X
Mixed (hazardous and radioactive) Waste	X		X	X
Beryllium	X		X	X
Polychlorinated Biphenyls-Contaminated Waste (PCBs)	X		X	
New Mexico Special Waste	X		X	X
Industrial Waste	X		X	X
Characterization Method				
Acceptable knowledge (AK): Existing Data/Documentation	X	X		
AK: Site Characterization	X			X
Direct Sampling of Waste	X		X	X
Analytical Testing				
Volatile Organic Compounds (VOCs) (EPA 8260-B)	X		X	X
Semivolatile Organic Compounds (SVOCs) (EPA 8270-C)	X		X	X
Organic Pesticides (EPA 8081-A)	X[4]		X[4]	X[4]
Organic Herbicides (EPA 8151-A)	X[4]		X[4]	X[4]
PCBs (EPA 8082)	X[4]		X[4]	X[4]
Total Metals (EPA 6010-B/7471-A or EPA 6020)	X		X	X
Total Cyanide (EPA 9012-A)	X[4]		X[4]	X[4]
High Explosives Constituents (EPA 8330/8321-A)	X[4]		X[4]	X[4]
Asbestos (EPA 600M4)	X[4]			
Total petroleum hydrocarbon (TPH)-GRO (EPA 8015-M)	X[4]		X	X[4]

Table 3.1-1 (continued)

Waste Description	Waste Stream # 5 Excavated Man Made Debris	Waste Stream #6 Municipal Solid Waste	Waste Stream #7 Petroleum Contam Soils	Waste Stream #8 Returned or Excess Samples
TPH-DRO (EPA 8015-M)	X[4]		X	X[4]
Toxicity characteristic leaching procedure (TCLP) Metals (EPA 1311/6010-B)	X[4]		X[4]	X[4]
TCLP Organics (EPA 1311/8260-B & 1311/8270-C)				
TCLP Pest. & Herb. (EPA 1311/8081-A/1311/8151-A)				
Gross Alpha (alpha counting) (EPA 900)	X[4]		X[4]	X[4]
Gross Beta (beta counting) (EPA 900)	X[4]		X[4]	X[4]
Tritium (liquid scintillation) (EPA 906.0)	X		X	X
Gamma spectroscopy (EPA 901.1)	X[4]		X[4]	X[4]
Isotopic plutonium (HASL-300)	X		X	X
Isotopic uranium (HASL-300)	X		X	X
Total uranium (EPA 6020)	X		X	X
Strontium-90 (EPA 905)	X		X	X
Americium-241 (HASL-300)	X		X	X
Perchlorates (EPA 6850)	X		X	X
Nitrates/Nitrites (EPA 300.09-soil or 343.2-water)	X		X	X
Oil / Grease (EPA 1665)				
Fluorine, Chorine, Sulfate (EPA 300)				
TTO (EPA 8260-B and EPA 8270-C)[2]	**Request VOCs and SVOCs above**			
Total Suspended & Dissolved Solids (TSS) and Total Dissolved Solids (TDS) (EPA 160.1 and 160.2)				
Chemical Oxygen Demand (COD) (EPA 410.4)				
pH (EPA 904c)				
Microtox or Biological Oxygen Demand (BOD)[3]				

[1]in addition to other analytes needed to characterize the waste (e.g., VOC, SVOC, total metals), 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. Submit a sampling request to http://esp-esh-as01-f5.lanl.gov/~esh19/database/rfa_form.shtml .

[2]TTO is the total of volatile organic and semi-volatile organic compound contaminants. Request methods EPA 8260-B (VOCs) and EPA 8270-C (SVOCs).

[3] If Microtox analysis is not available, request BOD. Submit a sampling request to http://esp-esh-as01-f5.lanl.gov/~esh19/database/rfa_form.shtml .

[4] If needed

Signatures	Date
Project Manager: Kent Rich	6/23/10
Preparer: Kevin Krause	6/24/10
Waste Management Coordinator: Michael Le Scouarnec	6/23/10
ENV-RCRA Representative: Ann Sherrard	6/23/10
Waste Acceptance Representative: Andy Alecio for Andy Elicio	6/23/10
Waste Certification Program Representative: Michelle Coriz	6/23/10