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LA-UR-09-0643  
February 2009  
EP2009-0047

# **Management Plan for Investigation-Derived Waste for the Delta Prime Site Aggregate Area Phase II Investigation**

Prepared by the Environmental Programs Directorate

Los Alamos National Laboratory, operated by Los Alamos National Security, LLC, for the U.S. Department of Energy under Contract No. DE-AC52-06NA25396, has prepared this document pursuant to the Compliance Order on Consent, signed March 1, 2005. The Compliance Order on Consent contains requirements for the investigation and cleanup, including corrective action, of contamination at Los Alamos National Laboratory. The U.S. government has rights to use, reproduce, and distribute this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

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## 1.0 INTRODUCTION

This management plan describes how investigation-derived waste (IDW) generated during the investigation and remediation of the Phase II Delta Prime Site Aggregate Area at Los Alamos National Laboratory (LANL or the Laboratory) will be managed. All IDW generated will be managed in accordance with the current version of standard operating procedure (SOP) EP-ERSS-SOP-5022, Characterization and Management of Environmental Restoration (ER) Project Waste ([http://www.lanl.gov/environment/all/docs/qa/ep\\_qa/EP-ERSS-SOP-5022.pdf](http://www.lanl.gov/environment/all/docs/qa/ep_qa/EP-ERSS-SOP-5022.pdf)). This SOP incorporates the requirements of applicable U.S. Environmental Protection Agency and New Mexico Environment Department (NMED) regulations, U.S. Department of Energy (DOE) orders, and Laboratory implementation requirements. In accordance with this procedure, a waste characterization strategy form (WCSF) will be prepared that will provide information on the wastes expected to be generated, their respective waste characterization approaches, and applicable on-site storage and disposition.

This management plan identifies the types of wastes expected, based on the data for previous investigations; however, other types of wastes may be encountered. All wastes will be managed in secure, designated areas appropriate to the type of the waste. Waste accumulation area postings, regulated storage duration, and inspection requirements will be based on the type of 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 regarding waste classification, contents, radioactivity, and date generated. IDW characterization will be completed through review of sampling data (e.g., core cuttings) or by direct sampling of the IDW. Waste characterization may include a review of historical information and process knowledge to identify whether listed hazardous waste may be present. If low levels of listed hazardous waste are identified, a "contained-in" determination may be submitted for approval to NMED. Data currently available for the aggregate area identify polychlorinated biphenyl (PCB) concentrations greater than 1 ppm at Consolidated Unit 21-003-99 and Solid Waste Management Unit (SWMU) 21-024(c). The Laboratory will submit a request to the U.S. Environmental Protection Agency (EPA), with a copy to NMED and Los Alamos County, to handle the waste as PCB remediation waste.

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 2008 "Los Alamos National Laboratory Hazardous Waste Minimization Report" (LANL 2008, 104174). Waste streams will be recycled/reused, as appropriate.

Considerable amounts of material will be excavated during the remediation of Consolidated Unit 21-003-99 and SWMU 21-024(c). To facilitate the staging and segregation of the remediation waste, the Laboratory is submitting an area of contamination designation request for these two areas to the NMED. The request specifies the boundaries of the proposed area of contamination and describes the activities to be conducted within the area of contamination.

## 2.0 WASTE STREAMS

The principal waste streams that will be generated and managed during the field investigation and remediation are described below.

## 2.1 Drill Cuttings

This waste stream consists of soil and rock cuttings generated from the drilling of boreholes. Drill cuttings will be containerized in 20 yd<sup>3</sup> rolloff containers, 55-gal. drums, B-12 containers, or other appropriate containers at the point of generation. The drill cuttings will be characterized using the analytical results from core samples and/or direct sampling of the cuttings. If directly sampled, the following analyses will be performed as needed to supplement existing data: volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), radionuclides, target analyte list (TAL) metals, cyanide, nitrates, perchlorates; radionuclides, PCBs, and toxicity characteristic metals. 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).

The cuttings may be land applied if they meet the criteria in the NMED-approved Notice of Intent (NOI) Decision Tree for Land Application of Investigation-Derived Waste Solids from Construction of Wells and Boreholes. If they cannot be land-applied, they will be treated/disposed of at an authorized facility. Based on existing data, the Laboratory expects drill cuttings that cannot be land-applied to be designated as industrial waste or low-level waste (LLW). The LLW will be disposed of at TA-54, Area G, or sent to an authorized off-site radioactive waste facility. The industrial waste is expected to be disposed of at an authorized off-site industrial waste landfill. The approximate volume of drill cuttings waste generated is expected to be less than 50 yd<sup>3</sup>.

## 2.2 Excavated Wastes

Wastes will be generated during the excavation of environmental media and debris from Consolidated Unit 21-003-99 and SWMU 21-024(c) to achieve the cleanup levels of 1 ppm, or risk-based levels of PCBs. To facilitate the staging and segregation of the remediation waste, the Laboratory is submitting an area of contamination designation request for these two areas to the NMED. The request specifies the boundaries of the proposed area of contamination and describe the activities to be conducted within the area of contamination. All staging and segregation of waste and environmental media on-site will be conducted in an environmentally protective manner, using a combination of containers and appropriately designed and controlled (e.g., bermed and covered) staging piles. Materials that are determined to be hazardous waste will be containerized and managed in full accordance with regulatory requirements upon transfer outside of the area of contamination boundary.

The Laboratory will submit a request to EPA (with a copy to NMED and Los Alamos County) to handle the waste as PCB remediation waste.

Most waste will likely be PCB remediation waste or LLW; however, New Mexico Special Waste (NMSW), hazardous waste, or industrial waste may be encountered. These wastes will be sent to authorized on-site or off-site treatment or disposal facilities, as appropriate, to the waste's regulatory classification. The volume of excavated waste generated is estimated to be approximately 1500 yd<sup>3</sup>.

## 2.3 Contact Waste

The contact waste stream includes spent personal protective equipment, contaminated sampling supplies, and dry decontamination waste that may have come in contact with contaminated media. Characterization of the waste will be conducted using acceptable knowledge (AK) of the waste material, the extent of contamination of the contact waste, the methods of generation, as well as analytical data available for the media with which it came in contact. Contact waste will be stored in plastic lined 30-gal. or 55-gal. drums or other appropriate containers. Based on existing data, the Laboratory expects most of



the contact waste to be designated as industrial waste, or LLW. LLW will be disposed of at TA-54, Area G, or an authorized off-site radioactive waste landfill. Industrial and municipal waste will be treated/disposed of at off-site facilities. The approximate volume of contact waste generated is estimated to be less than 10 yd<sup>3</sup>.

## 2.4 Decontamination Fluids

The decontamination fluids waste stream will consist of liquid wastes from decontamination activities (e.g., 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. The decontamination fluids will be characterized using AK of the waste materials and analytical results from the media with which it came in contact, augmented by direct sampling of the containerized waste, if needed. If directly sampled, it will be analyzed for VOCs, SVOCs, radionuclides, TAL metals, and toxicity characteristic metals, as needed to supplement the existing data. Based on existing data, the Laboratory expects these wastes to be designated as industrial or LLW that will be treated at the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50. If the waste does not meet the waste acceptance criteria for the RLWTF, it may be treated or disposed of at another on-site facility (e.g., Sanitary Waste System) or at an authorized off-site facility. The approximate volume of decontamination fluids waste generated is estimated to be less than 100 gal.

## 2.5 Municipal Solid Waste

This waste stream primarily consists of office trash, including but not limited to, paper, cardboard, wood, plastic, food and beverage containers, empty solution containers which are derived from project activities. It is anticipated that the waste will be stored in plastic trash bags or other appropriate containers and disposed of at an authorized facility. The approximate volume of municipal solid waste generated is estimated to be less than 10 yd<sup>3</sup>.

## 3.0 REFERENCES

*The following list includes all documents cited. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.*

*Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.*

LANL (Los Alamos National Laboratory), November 2008. "Los Alamos National Laboratory Hazardous Waste Minimization Report," Los Alamos National Laboratory document LA-UR-08-7274, Los Alamos, New Mexico. (LANL 2008, 104174)



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

Waste Stream	Expected Waste Type*	Volume	Characterization Method	On-Site Management	Disposition
Drill Cuttings	Industrial or LLW	<50 yd <sup>3</sup>	Data for environmental media or direct sampling, Material Safety Data Sheet for additives	Managed in containers	Land application or disposal on-site at TA-54, Area G, or off-site at authorized radioactive or industrial facility
Excavated Environmental Media and Debris	PCB Remediation Waste, LLW, NMSW, Hazardous, Industrial	1500 yd <sup>3</sup>	AK, data for environmental media or direct sampling	Managed in containers or on ground (with best management practices) within the area of contamination	Disposal on-site at TA-54, Area G (LLW), or off-site at authorized hazardous, PCB, NMSW, or radioactive waste facility
Contact Waste	Industrial or LLW	<10 yd <sup>3</sup>	AK and data for environmental media	Managed in containers	Disposal on-site at TA-54, Area G (LLW) or off-site authorized industrial or radioactive waste facility
Decontamination Fluids	Industrial or LLW	<100 gal.	AK, data for environmental media, or direct sampling	Managed in containers	RLWTF at TA-50 or another on- or off-site authorized facility
Municipal Solid Waste (trash)	Municipal	<10 yd <sup>3</sup>	AK	Managed in containers	Municipal landfill

\*Anticipated possible waste types based on existing data.

