

TA-03



Risk Reduction & Environmental Stewardship Division
Water Quality & Hydrology Group (RRES-WQH)
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Date: May 23, 2003
Refer to: RRES-WQH: 03-119

Mr. Kevin Krause
Environmental Scientist
New Mexico Environment Department
Hazardous Waste Bureau
P.O. Box 26110
Santa Fe, NM 87502



**SUBJECT: SAMPLING AND ANALYSIS PLAN (SAP) FOR DIESEL FUEL
CONTAMINATED SOIL DISCOVERED NEAR TA-3-26 ABOVEGROUND
STORAGE TANK (AST)**

Dear Mr. Krause:

On April 3, 2003 the Laboratory's Water Quality and Hydrology Group (RRES-WQH) notified your office of the discovery of diesel contaminated soil during the installation of cathodic protection near the TA-3 Power Plant AST (SM-26). This notification was pursuant to the New Mexico Water Quality Control Commission (NMWQCC) Regulations (20 NMAC 6.2). The 15-Day Release Discharge Notification is attached as Enclosure 1. Enclosed for your review is the "Assessment of Fuel Oil Contamination Near Fuel Storage Tank TA-3-26: Sampling and Analysis Plan (SAP)" (Enclosure 2).

Please contact Mark Haagenstad at (505) 665-2014 or Mike Saladen at (505) 665-6085 should you have any questions on this matter.

Sincerely,

A handwritten signature in black ink that reads 'Steven Rae'.

Steven Rae
Group Leader
Water Quality & Hydrology Group

MS:MH/tml



Enclosures: a/s

Cy: John Young, NMED-HWB, Santa Fe, w/enc.
Vickie Maranville, NMED-HWB, Santa Fe, w/enc.
Steve Yanicak, NMED-OB, w/enc., MS J993
Joseph Vozella, DOE-OLASO, w/o enc., MS A316
Gene Turner, DOE-OLASO, w/enc., MS A316
David Padilla, FWO-UI, w/o enc., MS K718
Jerome Gonzales, FWO-UI, w/enc., MS K718
Beverly Ramsey, RRES-DO, w/o enc., MS J591
Kenneth Hargis, RRES-DO, w/o enc., MS J591
Tori George, RRES-DO, w/o enc., MS J591
Doug Stavert, RRES-EP, w/o enc., MS J591
Mike Saladen, RRES-WQH, w/enc., MS K497
Mark Haagenstad, RRES-WQH, w/enc., MS K497
Suzanne Moore, KSL-HENV, w/enc., MS A199
Bruce Baumgartner, KSL-HENV, w/enc. MS A199
RRES-WQH File, w/enc., MS K497
IM-5, w/enc., MS A150

ENCLOSURE 1

RELEASE / DISCHARGE NOTIFICATION

LOS ALAMOS NATIONAL LABORATORY

Permit Number: .

Calendar Year

[Empty box for Calendar Year]

NPDES or Operational Spill/Release

ER Spill/Release

Other Spill/Release

Indicate with "X" in appropriate box.

Release ID Number:

121

Responsible Facility/User Group: FMU-8 FWO-UI

Contact Person: David Padilla

Pager #: 996-4583

Phone #: 667-2408

Cell Phone #: 699-2812

Release/Discharge Location:

TA: 3

Building: AST 26

Contractor was conducting excavation and coring operations for installing cathodic protection instrumentation at the 150K tank (SM-26) at the TA-3 Power Plant (LANL). Diesel odor coming from soil borings.

If the release/discharge is associated with a NPDES Outfall, Potential Release Site (PRS) or Solid Waste Management Unit (SWMU), indicate the site/unit number and its relationship to the release/discharge:

NPDES Outfall: PRS: SWMU: PRS/SWMU Number: N/A

Indicate with "X" in appropriate box(es).

Relationship of the Discharge to a SWMU or PRS:

NA

Discharge Occurred: TBD Date & Time

Discharge Discovered: 4/2/2003 2:30 p.m. Date & Time

Discharge Stopped: TBD Date & Time

Cleanup Started: TBD Date & Time

Cleanup Completed: TBD Date & Time

Material(s) Released / Discharged:

No. 2 Diesel Fuel

Release/Discharge Mitigation Method:

To Be Determined (TBD)

Weather Conditions:

Sunny, cool

Duration of Release/ Discharge, in HOURS: TBD

Est. Volume Released/ Discharged, in GAL. TBD

Est. Volume Recovered, in GAL. TBD

Corrective Actions Taken (ie, type of BMPs, etc):

Coring operations drilled 7 holes around the tank to depths between 5 and 10 feet. Soil samples were collected and submitted for DRO and BTEX analysis. Analytical results will be provided upon receipt and data validation.

Nearest Watercourse (Canyon Name)

Not Applicable

If the release/discharge reached a watercourse, describe the estimated surface area affected, presence of release/discharge now in the watercourse, and the media the release/discharge was detected in:

NA

Depth to Groundwater, in FT, if known: ~1000

Distance to Nearest Drinking Water Well, in FT, if known: ~13500 Well ID# PM-5

24-HOUR RELEASE / DISCHARGE NOTIFICATIONS

| | Contact Person | Phone | Fax | Date & Time (or Comment) | |
|--------------|-------------------------|--------------|--------------|--------------------------|-----|
| EPA: | E. Spencer | 214-665-6475 | 214-665-2168 | 4/17/2003 | FAX |
| NMED/SWQB: | Bret Lucas | 827-2933 | 827-0160 | 4/17/2003 | FAX |
| NMED/GWQB: | Curt Frischkorn | 827-2918 | 827-2965 | 4/17/2003 | FAX |
| NMED/HRMB: | John Young | 428-2538 | 428-2567 | 4/17/2003 | FAX |
| NMED/DOE-OB: | Steve Yanicak | 672-0448 | 672-0466 | 4/17/2003 | FAX |
| RRES-WQH: | Mike Saladen | 665-6085 | 665-9344 | 4/17/2003 | FAX |
| DOE: | Gene Turner | 667-5794 | 505-665-4872 | 4/17/2003 | FAX |
| OTHER: | Patricia Vadaro-Charles | 665-6976 | 665-6977 | 4/17/2003 | FAX |
| OTHER: | Kevin Krause | 425-2500 | 425-2567 | 4/17/2003 | FAX |

Comments: Mike Saladen of RRES-WQH provided a verbal 24-Hour Notification to Kevin Krause of NMED-HZWB on 4/3/2003 at 2:58 p.m.. Site evaluation is on-going.

Form Completed By: Mark Haagenstad

7 DAY RELEASE / DISCHARGE ACTIONS

7 Day Notice 7 Day Notice Date: 4/9/2003 7 Day Notice By: Mark Haagenstad

Mark "X" when done.

Comments: Site evaluation is on-going.

15 DAY RELEASE / DISCHARGE ACTIONS

15 day Follow-up Due: 4/17/2003 15-day Follow-Up By: Mark Haagenstad

Comments: Preliminary and provisional analytical results from initial sampling of soil indicates diesel contamination. Contractor personnel developing Sampling and Analysis Plan (SAP) to continue assessment of nature and extent of diesel contamination. Site evaluation continues.

NMED 30 DAY APPROVAL / DISAPPROVAL

NMED 30 Day Response Date:

Comments:

Ralph Erickson, Director
Office of Los Alamos Site Operations
Department of Energy
Los Alamos, New Mexico 87544
(505) 667-5105

Beverly Ramsey, RRES Division Director
University of California
Los Alamos National Laboratory
P.O. Box 1663, MS K491
Los Alamos, New Mexico 87544
(505) 667-4218

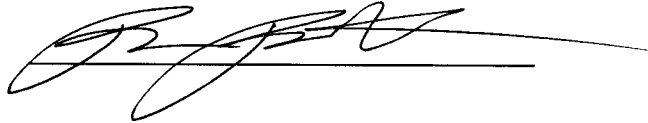
Sampling and Analysis Plan
Assessment of Fuel Oil Contamination
Near Fuel Storage Tank TA-3-26
Revision 0

May 22, 2003

Project Number: 9901-310

Prepared by:
Eberline Services/KSL-HENV
1900 Diamond Drive, Room 203
Los Alamos, New Mexico 87544

Author:



Prepared under Work Order No. 00116960.91 for:

FWO-UI
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Reviewed by:

LANL Representatives:

RRES-WQH

FWO-UI

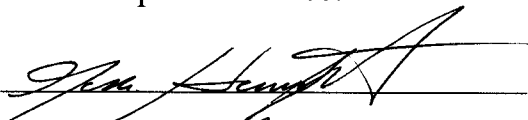




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List of Acronyms

| | |
|-----------|---|
| AHA | Activity Hazard Analysis |
| AST | Aboveground Storage Tank |
| DOE | Department of Energy |
| DRO | Diesel Range Organics |
| EPA | Environmental Protection Agency |
| FWO-SWO | Facility Waste Operations-Solid Waste Operations |
| FWO-UI | Facility Waste Operations – Utilities and Infrastructure |
| KSL | KBR-Shaw-LATA |
| KSL-CDDO | KSL-Construction Department Department Office |
| KSL-HENV | KSL Environmental Group (a.k.a. Eberline Services) |
| KSL-HSEO | KSL-Health, Safety, and Environment Office |
| LANL | Los Alamos National Laboratory |
| NMED | New Mexico Environment Department |
| QA | Quality Assurance |
| QC | Quality Control |
| QCP | Quality Control Plan |
| RRES-SWRC | Risk Reduction Environmental Stewardship-Solid Waste Regulatory Compliance |
| RRES-WQH | Risk Reduction Environmental Stewardship-Water Quality and Hydrology |
| SAP | Sampling and Analysis Plan |
| TPH | Total Petroleum Hydrocarbons |
| VOA | Volatile Organic Analytes |

1.0 INTRODUCTION

Eberline Services/KSL-HENV has prepared this site sampling and analysis plan (SAP) to describe sampling and contaminated material handling activities associated with soil contamination discovered near the above ground storage tank (Tank SM-26) at the TA-3 Power Plant at Los Alamos National Laboratory (LANL). Sampling and analysis is required to further define the extent of contamination discovered during modifications to Tank SM-26. Sampling and analysis activities will also investigate the release source of the contaminated soil. This SAP will be implemented in conjunction with a detailed Quality Control Plan (QCP) and Activity Hazard Analysis (AHA).

This SAP is organized into three main sections: project description, a work plan and a quality control and procedure. The work activities for this SAP include:

- Mobilization
- Drilling
- Core Sampling
- Sample Collection and Analysis
- Project Report Preparation
- Material Management

1.1 Scope of Work

The scope of work for this project is to drill investigative boreholes in the area around Tank SM-26 in an attempt to define the horizontal and vertical extent of contamination in this area and to perform core sampling in the sand beneath the tank and within the concrete retaining ring in an attempt to determine if the tank is leaking. Specific activities to accomplish the drilling and core sampling are provided in the Work Plan Section of this document.

The purpose of this SAP is to document the objectives, rationale and procedures for collecting, analyzing, and managing environmental samples taken from this site. Sampling methods for the investigation are in accordance with the objectives and procedures described in Chapter 1, Soil and Groundwater, Sampling and Disposal of the Guidelines For Corrective Action (New Mexico Environment Department [NMED] Petroleum Storage Tank Bureau, March 13, 2003). This plan outlines the methods and procedures to collect samples and gather data of sufficient quality and quantity to adequately verify the extent of the contaminated soil discovered to the north and east of Tank SM-26 at the TA-3 Power Plant. The project will receive appropriate LANL reviews and will be performed in accordance with approved site health, safety, and emergency response plans. The project will be performed in accordance with applicable DOE, LANL, and State of New Mexico requirements.

If the extent of the contaminated soil goes beyond the parameters of this SAP, further actions will be taken to determine the extent of the contamination and path forward action. This contingent plan information will be presented in an amendment to this SAP.

1.2 Project Organization and Responsibilities

LANL Facility Waste Operations (FWO) - Utilities and Infrastructure (UI) Division has overall responsibility for the project. Eberline Services/KSL-HENV is responsible for planning and directing of site sampling, conducting field screening, arranging for shipping of samples and laboratory analysis of samples, and reporting of results. KSL construction is responsible for removal of the soil and any mobilization/site preparation tasks required for obtaining necessary clearances and site access. A contract laboratory, under subcontract to LANL, will provide analytical services.

1.3 Key Individuals

Key project participants for this effort include the Project Manager, Site Manager, Health and Safety Officer, Sampling Personnel, Construction Supervisor. The proposed project assignments and responsibilities are provided as follows:

- Facility Manager (FWO-UI) - Responsible for operations and management of the Facility.
- LANL Water Quality & Hydrology Personnel (RRES-WQH) - Responsibility for institutional interface with external regulatory agencies for water quality issues, report notification and project recommendation support.
- LANL Solid Waste Regulatory Compliance (RRES-SWRC) – Responsible for institutional interface with external regulatory agencies for solid waste issues and project recommendation support.
- Project Manager (FWO-UI) - Responsible for overall management of the investigation. Coordinates between internal and client organizations, manages administrative requirements, schedules, technical approach, implementation, and report preparation.
- Site Manager (KSL)- Supervises all field investigation activities and is responsible for implementation of appropriate site health, safety and emergency response plans and quality control and sampling plans during the fieldwork phase of this project.
- Health and Safety Officer (KSL-HSEO) - Oversees and ensures proper implementation of the appropriate site health, safety and emergency response requirements and coordinates with the Site Manager to resolve site safety issues.
- Sampling Personnel (KSL-HENV) - Responsible for collecting soil samples from drilling boreholes and core samples for field test screening and laboratory analysis.
- Construction Supervisor (KSL-CDDO)- Responsible for coordinating all construction activities pertaining to the investigation activities.
- Geologist (Eberline Services/KSL-HENV) - Responsible for logging boreholes.

- Data validation personnel (KSL-HENV) – Responsible for ensuring the analytical data meets the data quality objectives.

1.4 Site Characteristics

A site diagram of the TA-3 Power Plant fuel tank area depicting the aboveground storage tanks (ASTs) is provided in Figure 1. There are two large #2 fuel oil ASTs located in the northeast corner of the property. Tank SM-26 has a capacity of 158,300 gallons and Tank SM-779 has a capacity of 230,300 gallons. Each tank is contained in an unlined earthen berm. Tank SM-26 was installed in 1950 while Tank SM-779 was constructed to replace another tank at the site in 1999. Fuel from the tanks is supplied to the power plant by underground lines from a pump house located between the tanks just to the south of the tanks berms. Fuel is transferred between the tanks and the pump house via underground piping. Fuel is delivered to the tanks by trucks which off load at a fuel station to the west of the pump house. There are also two previously unidentified pipes that have been capped that originate under valves on the north side of the two tanks. The approximate layout of the two lines is shown on Figure 1.

During work to install cathodic protection for Tank SM-26, a trench was cut at a distance of approximately 5-feet from the outer edge of the tank. The trench is approximately 6-inches wide and 2-feet deep. Six holes were augered to a depth of approximately 9.5 feet in the trench, distributed at approximately even distances around the tank. A seventh partial hole (3A) was augered just to the south of Hole 3. Figure 2 provides a more detailed diagram of the area around Tank SM-26 including the location of the augered holes. Hole 3A was the first hole augered and soil contaminated with diesel fuel was encountered at 4-5 feet in depth. Augering at this hole was suspended and the auger was moved to Hole 1. Hole 1 was augered to a depth of 9.5 feet with no fuel odor or visible signs of contamination. The remaining holes were augered to a total depth of 9.5 feet in the following order: Hole 3, Hole 4, Hole 2, Hole 6, and Hole 5. For holes in which contamination was evident, samples were collected from the midpoint of the hole and at total depth. Samples were collected at total depth (9.5 feet) from holes in which no contamination was evident. Results of the cathodic protection augering analysis are provided in Table 1.

Table 1
Cathodic Protection Auger Hole Analytical Results

| Sample ID | Hole | Description | Results (mg/kg) |
|-----------|------|------------------------------------|------------------|
| 3-0292 | 1 | Composite from cuttings in drum 1 | Benzene ND |
| | | | Ethyl benzene ND |
| | | | Toluene ND |
| | | | Xylene ND |
| | | | TPH ND |
| 3-0291 | 1 | Composite from cuttings in drum 1A | Benzene ND |
| | | | Ethyl benzene ND |
| | | | Toluene ND |
| | | | Xylene 0.011 |

| | | | | |
|-----------|---|------------------------------------|---------------|-------|
| | | | TPH | ND |
| 0326H29.5 | 2 | Sample from auger at 9.5' depth | Benzene | ND |
| | | | Ethyl benzene | ND |
| | | | Toluene | ND |
| | | | Xylene | ND |
| | | | TPH | ND |
| 3-0287 | 3 | Sample from auger at 5' depth | Benzene | ND |
| | | | Ethyl benzene | 0.077 |
| | | | Toluene | ND |
| | | | Xylene | 0.14 |
| | | | TPH | 310 |
| 3-0290 | 3 | Sample from auger at 9.5' depth | Benzene | ND |
| | | | Ethyl benzene | ND |
| | | | Toluene | ND |
| | | | Xylene | 0.010 |
| | | | TPH | 150 |
| 3-0288 | 3 | Composite from cuttings in drum 3 | Benzene | ND |
| | | | Ethyl benzene | 0.056 |
| | | | Toluene | ND |
| | | | Xylene | 0.12 |
| | | | TPH | 290 |
| 3-0289 | 3 | Composite from cuttings in drum 3A | Benzene | ND |
| | | | Ethyl benzene | ND |
| | | | Toluene | ND |
| | | | Xylene | ND |
| | | | TPH | 45 |
| 3-0293 | 4 | Sample from auger at 4' depth | Benzene | ND |
| | | | Ethyl benzene | 0.79 |
| | | | Toluene | ND |
| | | | Xylene | 3.5 |
| | | | TPH | 4800 |
| 3-0294 | 4 | Sample from auger at 9.5' depth | Benzene | ND |
| | | | Ethyl benzene | 0.21 |
| | | | Toluene | ND |
| | | | Xylene | 0.9 |
| | | | TPH | 1700 |
| 0326H55 | 5 | Sample from auger at 5' depth | Benzene | ND |
| | | | Ethyl benzene | 0.59 |
| | | | Toluene | ND |
| | | | Xylene | 1.83 |
| | | | TPH | 3100 |
| 0326H59.5 | 5 | Sample from auger at 9.5' depth | Benzene | ND |
| | | | Ethyl benzene | 1.1 |
| | | | Toluene | ND |
| | | | Xylene | 3.4 |
| | | | TPH | 18000 |
| 0326H69.5 | 6 | Sample from auger at 9.5' depth | Benzene | ND |
| | | | Ethyl benzene | ND |
| | | | Toluene | ND |
| | | | Xylene | ND |
| | | | TPH | 620 |

Cathode protection augering results indicate soil contamination extending from the west side of the tank around the north to the east side of the tank to a depth of at least 9.5 feet.

The source of the contamination has not been identified. All active lines for the two tanks were pressure tested in February of 2003 and no leaks were indicated. Reviews of the daily records of digital tank levels as well as a review of the monthly tank measurements do not reveal any large unexplained losses of fuel. There are no large stained areas on the ground surface and no fuel was encountered during the trenching operation. No organic vapor levels above background were detected in the pump house, which is the closest structure to the contamination. The only known utility in the contaminated area is the previously unidentified piping. No fuel was evident around the pipe where it was encountered in the trench indicating that the trench for this pipe is not providing a migration path for the contamination.