

# ***Melrose Operating Company***

## ***Closure Report***

***JALMAT Field Yates Sand Unit #235 Drilling Reserve Pit***

***Unit A, Section 11, Township 22 South Range 35 East***

***Lea County, New Mexico***

***Blade Services, LLC***

***March 2010***

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## **I. Project Overview**

*At the direction of the New Mexico Oil Conservation Division (NMOCD), Melrose Operating Company contracted Blade Services LLC of Hobbs New Mexico to remove and remediate reserve pit drill cuttings for pit closure.*

*The Jalmat Field Yates Sand Unit #234 is located in Unit letter P of Section 02 Township 22 South, Range 35 East. The land, in and around the site, is primarily used as domestic pasture for ranching and the production of oil and gas.*

- **Ground Water**

*According to the New Mexico Office of the State Engineer (NMOSE) Water Well Database, groundwater is approximately 250' feet below ground level.*

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- **NMOCD Site Ranking**

*After the vertical extent is determined, the "Unlined Surface Impoundment Closure Guidelines" New Mexico Oil Conservation Division, February 1993, will be used to determine which one of the following methods of closure will be utilized for closure of the subject site.*

- a. <5,000 ppm--Total Petroleum Hydrocarbons (TPH)*
- b. <50 ppm--Benzene, Toluene, Ethylbenzene, and Xylene (BTEX).*
- c. <500 ppm--Chloride (Cl<sup>-</sup>)*

## **II. Chronology of Operations**

*On November 24-26, 2009, Blade Services, LLC requested a One-Call for line spot clearance before any excavation at the site is started. After all companies on the New Mexico One Call list had been notified and cleared/marked the location, the equipment and personnel were onsite to begin remediation of the site. A tailgate safety meeting was conducted to review any potential safety concerns of the site.*

*On November 26-27, 2009, Blade Services, LLC, continued to mix and blend mud from the reserve pit.*

*On November 28, 2009, Blade Services, LLC began excavation of the deep bury entombment pit.*

On November 29, 2009, once excavation was complete, the bottom of the deep bury pit was smoothed and leveled to prevent damage to liner.

On November 30, 2009 impacted soils were mixed on a 3 to 1 ratio, and then a grab sample was retrieved from mixture and transferred with Chain of Custody to Trace Analysis for a paint filtration testing method.

<b>3-to-1 Mix (SOIL)</b>							
<b>Sample Field Code</b>	<b>Benzene (mg/kg)</b>	<b>Toluene (mg/kg)</b>	<b>Ethylbenzene (mg/kg)</b>	<b>Xylene (mg/kg)</b>	<b>TPH 418.1 (mg/kg)</b>	<b>DRO (mg/kg)</b>	<b>GRO (mg/kg)</b>
<b>3-to-1 Mix</b>	<0.0200	<0.0200	<0.0200	<0.0200	<10.0	<50.0	<2.00

On February 15, 2010, the deep bury entombment pit was lined with 20 mil liner.

On February 16, 2010 approximately 2,900 cubic yards of material (drilling mud) were transferred from the reserve drilling pit to the deep bury pit. The bottom of the reserve drilling pit was cleaned and final samples were taken and sent to a third party laboratory for analysis of TPH, BTEX, and Chlorides for verification of the limits met. Sampling was conducted to ensure the removal of said soils is below the NMOCD requirements for TPH levels. The bottom and side of the hole were sampled at the final excavation depths. The samples were tested for BTEX, TPH and Chlorides with a third laboratory for confirmation of the contamination levels present. The results of the test samples from the final excavation were received and the confirmations of the excavated area soils were obtained. The spoils pile was then blended onsite with clean soils. The blended soils were sampled and sent to a third party laboratory for confirmation to ascertain that the appropriate TPH, BTEX and Chloride levels are attained.

<b>Sample Field Code</b>	<b>Cl- (mg/kg)</b>	<b>Benzene (mg/kg)</b>	<b>Toluene (mg/kg)</b>	<b>Ethylbenzene (mg/kg)</b>	<b>Xylene (mg/kg)</b>	<b>TPH 418.1 (mg/kg)</b>	<b>DRO (mg/kg)</b>	<b>GRO (mg/kg)</b>
<b>NW Quadrant</b>	303	<0.0200	<0.0200	<0.0200	<0.0200	<10.0	<50.0	<2.00
<b>NE Quadrant</b>	294	<0.0200	<0.0200	<0.0200	<0.0200	<10.0	<50.0	<2.00



<b>SE Quadrant</b>	155	<0.0200	<0.0200	<0.0200	<0.0200	<10.0	<50.0	<2.00
<b>SW Quadrant</b>	484	<0.0200	<0.0200	<0.0200	<0.0200	<10.0	<50.0	<2.00
<b>Back- ground</b>	<32.5	<0.0200	<0.0200	<0.0200	<0.0200	<10.0	<50.0	<2.00

*Results concluded that the mixture was under regulatory limits.*

*On February 17, 2010, the pit was capped with an approved 20-ml HPDE top from West Texas Plastics.*

*On February 29, 2010 the reserve drilling pit was then backfilled with clean material and final contouring and compaction was implemented to return the site back to grade. Contouring was completed with a crown to prevent rainwater ponding and reseeded with a seed blend agreeable with the NMOCD.*

### **III. Conclusion**

*It is requested that no further action be required at the site.*

**IV. Limitations**

*Blade Services LLC. has prepared this report to the best of its ability. No other warranty expressed, implied or intended is made.*

*This report has been prepared for Melrose Operating Company our client. The information contained in this report including all exhibits and attachments, may not be used by any other party without the express consent from Blade Services LLC. and/or the client.*

## ***Attachment I—Regulatory Filing***

RECEIVED

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Lordsburg, NM 88305  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

DEC 02 2008

State of New Mexico  
Energy Minerals and Natural Resources  
Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-144  
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.  
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Closed-Loop System, Below-Grade Tank, or  
Proposed Alternative Method Permit or Closure Plan Application

WTR 75

Type of action: ☐ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method  
☐ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method  
☐ Modification to an existing permit  
☒ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

**Instructions:** Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.  
Operator: Melrose Operating Company OGRID #: 184 860  
Address: 1000 W. Wilshire Suite #223 Oklahoma City, OK 73116  
Facility or well name: Jalmar Field Yates Sand unit #235  
API Number: 30-025-38928 OCD Permit Number: P1-002729  
U/L or Qtr/Qtr A Section 11 Township 22S Range 35E County: Lea  
Center of Proposed Design: Latitude 32.24.42.3 Longitude 103.19.59.7 NAD: ☒ 1927 ☐ 1983  
Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.  
☒ **Pit:** Subsection F or G of 19.15.17.11 NMAC  
Temporary: ☒ Drilling ☐ Workover  
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A  
☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☐ LLDPE ☒ HDPE ☐ PVC ☐ Other \_\_\_\_\_  
☒ String-Reinforced  
Liner Seams: ☒ Welded ☐ Factory ☐ Other \_\_\_\_\_ Volume: 2900 bbl Dimensions: L 100 x W 40 x D 20

3.  
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC  
Type of Operation: ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)  
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other \_\_\_\_\_  
☐ Lined ☐ Unlined Liner type: Thickness \_\_\_\_\_ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_  
Liner Seams: ☐ Welded ☐ Factory ☐ Other \_\_\_\_\_

4.  
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
Volume: \_\_\_\_\_ bbl Type of fluid: \_\_\_\_\_  
Tank Construction material: \_\_\_\_\_  
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other \_\_\_\_\_  
Liner type: Thickness \_\_\_\_\_ mil ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_

5.  
☐ **Alternative Method:**  
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

6.

**Fencing:** Subsection D of 19.15.17.11 NMAC (*Applies to permanent pits, temporary pits, and below-grade tanks*)

- ☐ Chain link, six feet in height, **two strands of barbed wire at top** (*Required if located within 1000 feet of a permanent residence, school, hospital, institution or church*)
- ☐ Four foot height, four strands of **barbed wire** evenly spaced between one and four feet
- ☐ Alternate. Please specify \_\_\_\_\_

7.

**Netting:** Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

- ☐ Screen ☐ Netting ☐ Other \_\_\_\_\_
- ☐ Monthly inspections (If netting or screening is not physically feasible)

8.

**Signs:** Subsection C of 19.15.17.11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☐ Signed in compliance with 19.15.3.103 NMAC

9.

**Administrative Approvals and Exceptions:**

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

**Please check a box if one or more of the following is requested, if not leave blank:**

- ☐ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.
- ☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10.

**Siting Criteria (regarding permitting):** 19.15.17.10 NMAC

**Instructions:** The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to temporary, emergency, or cavitation pits and below-grade tanks) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to permanent pits) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

11.

**Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

12.

**Closed-loop Systems Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_

☐ Previously Approved Operating and Maintenance Plan API Number: \_\_\_\_\_ (Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

13.

**Permanent Pits Permit Application Checklist:** Subsection B of 19.15.17.9 NMAC*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H<sub>2</sub>S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

14.

**Proposed Closure:** 19.15.17.13 NMAC*Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.*

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Closed-loop System

☐ Alternative

Proposed Closure Method: ☐ Waste Excavation and Removal

☐ Waste Removal (Closed-loop systems only)

☒ On-site Closure Method (Only for temporary pits and closed-loop systems)

☐ In-place Burial ☒ On-site Trench Burial

☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.

**Waste Excavation and Removal Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

16.

**Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19.15.17.13.D NMAC)

*Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.*

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☐ No

*Required for impacted areas which will not be used for future service and operations:*

- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

17.

**Siting Criteria (regarding on-site closure methods only):** 19.15.17.10 NMAC

*Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.*

- |   |   |
|---|---|
| Ground water is less than 50 feet below the bottom of the buried waste.   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> NA   |
| Ground water is between 50 and 100 feet below the bottom of the buried waste  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> NA   |
| Ground water is more than 100 feet below the bottom of the buried waste.  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> NA   |
| Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - Topographic map; Visual inspection (certification) of the proposed site   |   |
| Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image   |   |
| Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site  |   |
| Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - Written confirmation or verification from the municipality; Written approval obtained from the municipality   |   |
| Within 500 feet of a wetland.   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site  |   |
| Within the area overlying a subsurface mine.  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division   |   |
| Within an unstable area.  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map   |   |
| Within a 100-year floodplain.   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| - FEMA map  |   |

18.

**On-Site Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☒ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC.
- ☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☒ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☒ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.

**Operator Application Certification:**

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Cam Robbins Title: Foreman  
 Signature: Cam Robbins Date: 12-01-08  
 e-mail address: \_\_\_\_\_ Telephone: 575-390-4677

20.

**OCD Approval:** ☐ Permit Application (including closure plan) ☒ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: [Signature] Approval Date: 11.9.08  
 Title: ENVIRONMENTAL ENGINEER OCD Permit Number: P1-00779

21.

**Closure Report (required within 60 days of closure completion):** Subsection K of 19.15.17.13 NMAC

*Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

☒ Closure Completion Date: 03/01/10

22.

**Closure Method:**

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)  
☐ If different from approved plan, please explain.

23.

**Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

*Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.*

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_  
 Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

*Required for impacted areas which will not be used for future service and operations:*

- ☐ Site Reclamation (Photo Documentation)  
☐ Soil Backfilling and Cover Installation  
☐ Re-vegetation Application Rates and Seeding Technique

24.

**Closure Report Attachment Checklist:** *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Proof of Closure Notice (surface owner and division)  
☐ Proof of Deed Notice (required for on-site closure)  
☐ Plot Plan (for on-site closures and temporary pits)  
☐ Confirmation Sampling Analytical Results (if applicable)  
☐ Waste Material Sampling Analytical Results (required for on-site closure)  
☐ Disposal Facility Name and Permit Number  
☐ Soil Backfilling and Cover Installation  
☐ Re-vegetation Application Rates and Seeding Technique  
☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD: ☐ 1927 ☐ 1983

25.

**Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Cam Robbins Title: Foreman  
 Signature: Cam Robbins Date: 6/7/10  
 e-mail address: maximum@valornet.com Telephone: 575-390-4666

CLOSURE CERTIFICATION APPROVED BY: Jeffrey Sekim 06/17/10  
Environmental Engineer  
NMACD-Hobbs





November 25, 2008

Melrose Operating Company  
1000 W. Wilshire, Suite 223  
Oklahoma City, OK 73116

Attn: Mr. Cam Robbins  
Production Supervisor

**RE: Work Plan For Pit Closure Located at Jalmat Field Yates Sand, Unit # 235;  
U/L A Sec 11 T22S and R35E, API #30-025-38928 of Lea County, New Mexico**

Dear Mr. Robbins:

Blade Services LLC, Inc. would like to take this time to thank you and Melrose Operating Co., for the opportunity to provide our professional services. Attached you will find our work plan and cost for the above listed site.

If you have any questions and/or need more data in regards to projects please call at any time. You can reach me at 575-390-5004

Sincerely,

A handwritten signature in black ink, appearing to read "Rick Navarrette", with a stylized flourish at the end.

Rick Navarrette,  
Sr. Project Manager  
Blade Services LLC

## **Summary/Overview**

The Jalmat Field Yates Sand unit site should be completed and remediated in accordance with the standards of the NMOCD. Pit closure of the temporary drilling pit will be addressed accordingly.

The potential contaminates of concern are mid to high-level concentrations of production water and drill cuttings circulated into a temporary drilling pit from well bore.

The lands primary use is domestic pasture for ranching and the production of oil and gas.

The USGS-OCD water map for this area shows the depth to ground water to be in the 250' range BGS.

Pursuant to the standards of the NMOCD, the clean up level for this site will be at <5,000ppm of TPH, <50ppm for BTEX and chlorides less than <500ppm.

The following scope of work was based on data from our site visit and the requirements of the NMOCD for site clean up.

## **Scope of Work for Entombment and site reclamation**

**Note:** Melrose Operating Co. has requested for Blade Services, LLC., to remove and remediate reserve pit drill cuttings for pit closure. Melrose has also requested that Blade Services submit a copy of results and reclamation plan to NMOCD for entombment of impacted soils.

- ✓ First Blade Services will call One-Call for line spot clearance before any excavation at the site is started.
- ✓ Blade Services will mobilize to the site located in the area Southwest of Eunice, NM equipment and personnel necessary to start and complete the site remediation as required to get the site back into compliance.

- ✓ Blade Services will have Ricky Navarrette delineate the site vertical and horizontal for chloride's to determine the extent of impacted soil. Samples will then be sent to Trace Analysis lab for analysis. Once analysis are sent back with the results NMOCD will then be contacted for approval before any capping or pit closure is resumed. Due to the size of reserve pit, Blade Services will split the site into quadrants testing 25% of impacted soils. Blade Services will test the vertical; starting one foot from mud removal into deep bury pit.
- ✓ Blade Services LLC., will then start excavation of impacted soil for on-site deep bury pit. Impacted soils will then be mixed on a 3 to 1 ratio, then taking a grab sample from mixture and taking sample to Trace Analysis for a paint filtration testing method. Once method is determined that mixture has passed and approved by OCD. Mixture will then be placed in an approved reinforced 20ml poly liner from West Texas plastics for entombment. The entombment pit will be approximately 100x40x20 foot deep; which will hold 2,900 cubic yards of material. Once all contents are placed in entombment pit; Blade Services will cap pit with an approved 20ml poly liner from West Texas Plastics. Then pit will be backfilled so that contents are 4 foot below ground level.
- ✓ Blade Services will have Ricky Navarrette field screen the site during the excavation and once the levels have dropped below NMOCD guidelines, final samples will be personally taken to Trace Analysis lab for analysis.
- ✓ If site does not clear NMOCD guidelines on the 3 to 1 mix ratio; this will be determined with a paint filter testing method at Trace Analysis. Blade Services will then submit a request for waste removal to the NMOCD office. Then waste material will be transferred to (Sundance Disposal) or and approved NMOCD disposal site.
- ✓ Once all of the remediation criteria has been met for site closure and compliance, the site will be backfilled with clean material from the site. The site will be contoured with a slight crown to prevent the ponding of any rain water and reseeded; with the

proper seed according to the NMOCD. Vegetative cover will equal 70% of the native perennial vegetative cover consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons or until successful growth is established.

- ✓ Trench burial pit will be marked by an approved steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial. The marker will be flushed with the ground to allow access of the active well pad and for safety concerns. The marker will include a threaded collar to be used for future abandonment. The top of the marker will contain a welded steel plate 12" square that indicates the onsite burial of the temporary pit. The plate will be easily removable and a four foot tall riser will be threaded into the top of the collar marker and welded around the base with the operator's information. The operator's information will include the following: Operator name, ease name, well name and number, unit number, section, township, range and an indicator that the marker is an onsite burial location.
- ✓ Once all of the closure criteria have been met, a final closure report will be prepared by Blade Services. This report will include a summary of remediation operations, findings on-site and lab analysis, site maps and project photos.

If you have any questions and/or need more data in regards to this project please call 575-390-5004 at any time.

Sincerely,



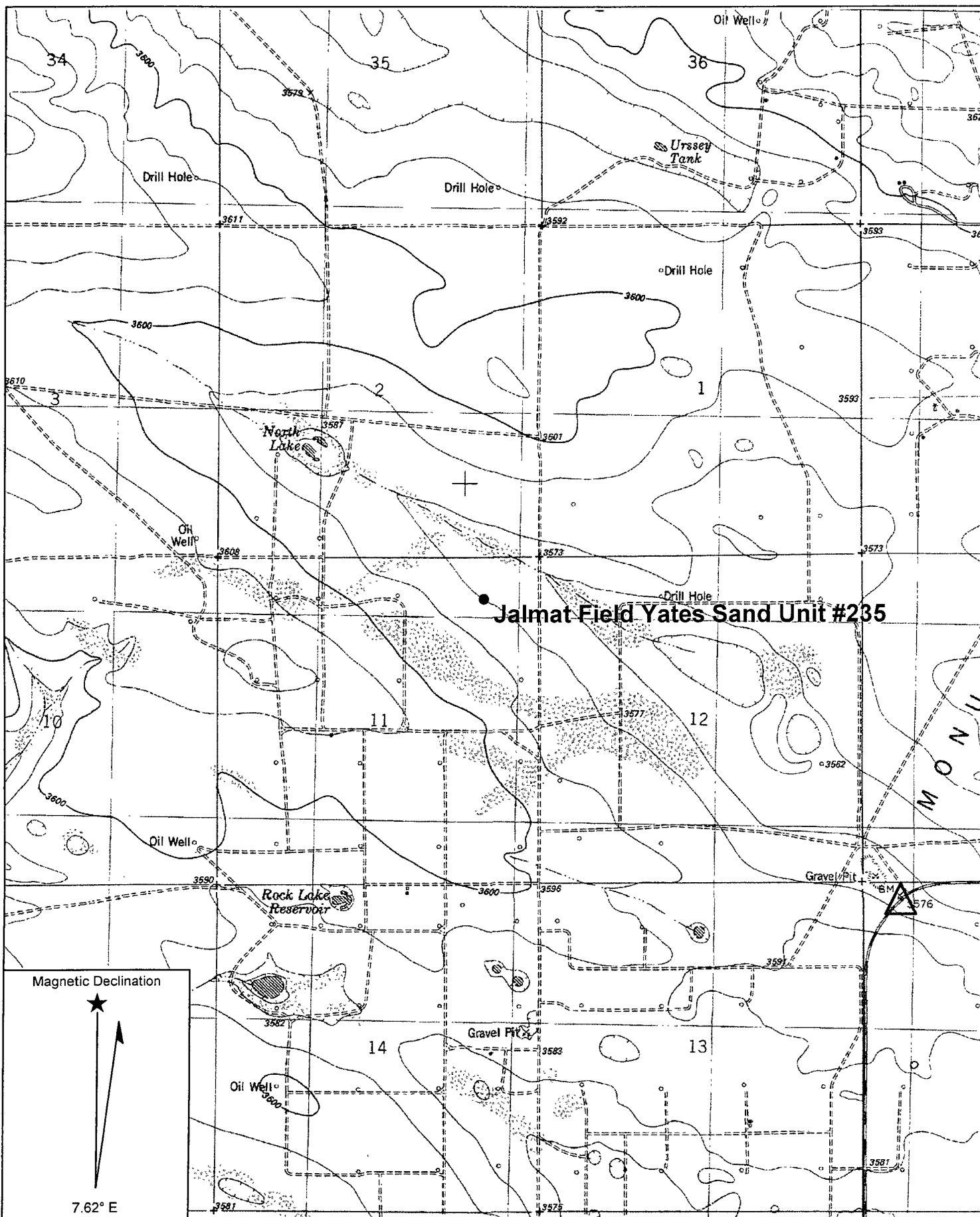
Rick Navarrette,  
Sr. Project Manager  
Blade Services LLC.

# ***Temporary Drilling Pit On-site Closure Notice***

## ***Associated with Oil Well: Jalmat Field Yates Sand Unit #235***

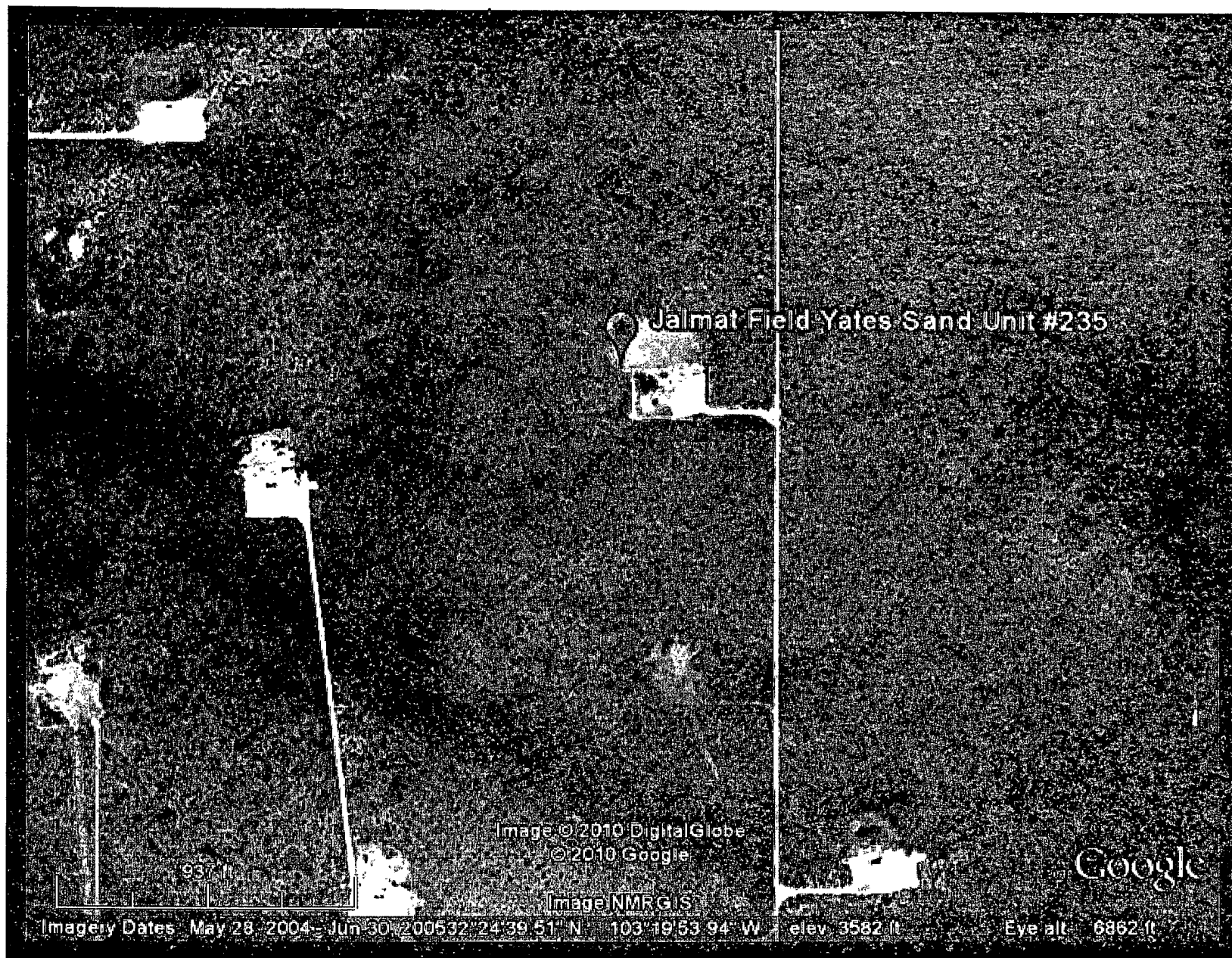
*In accordance with the New Mexico Oil Conservation Commission "Pit Rule (19.15.17 NMAC), Melrose Operating Inc., 1000 W. Wilshire Suite 223, Oklahoma City, OK 73116, is hereby giving the surface owner (State of New Mexico) Notice of the on-site closure for a proposed temporary drilling pit. Melrose Operating is proposing to submit in their application for a temporary drilling pit with the onsite closure method of On-Site Trench Burial. The proposed temporary pit will be associated with the proposed well Jalmat Field Yates Sand Unit #235 located in Unit letter A of Section 11 Township 22 South, Range 35 East of Lea County New Mexico. The temporary pit volume will be tested and must meet regulatory standards prior to closure. Also, the liquids must be removed prior to closure. The temporary pit closure must follow regulatory specification for the cover design, re-vegetation, sit reclamation, and burial marker (steel). In addition, no person shall build permanent structures over an on-site burial without written approval from the New Mexico Oil Conservation Division's (OCD) Hobbs district office. No person shall remove the on-site burial marker with the OCD's written permission. If the waste material does not meet the specific regulatory standards, the material will be removed and disposed of at a New Mexico Oil Conservation Division approved facility. The application will be submitted to the New Mexico Oil Conservation Division, Hobbs District Office at 1625 North French Drive, Hobbs, New Mexico 88240, Telephone (575) 393-0720.*

## ***Attachment II—Site Map/Drawings***



Name: OIL CENTER  
 Date: 5/21/2010  
 Scale: 1 inch equals 2000 feet

Location: 032.4109742° N 103.3316509° W WGS84  
 Caption: Jalmat Field Yates Sand Unit #235



Jalmat Field Yates Sand Unit #235

Image © 2010 DigitalGlobe  
© 2010 Google

Image NMRGIS

Google

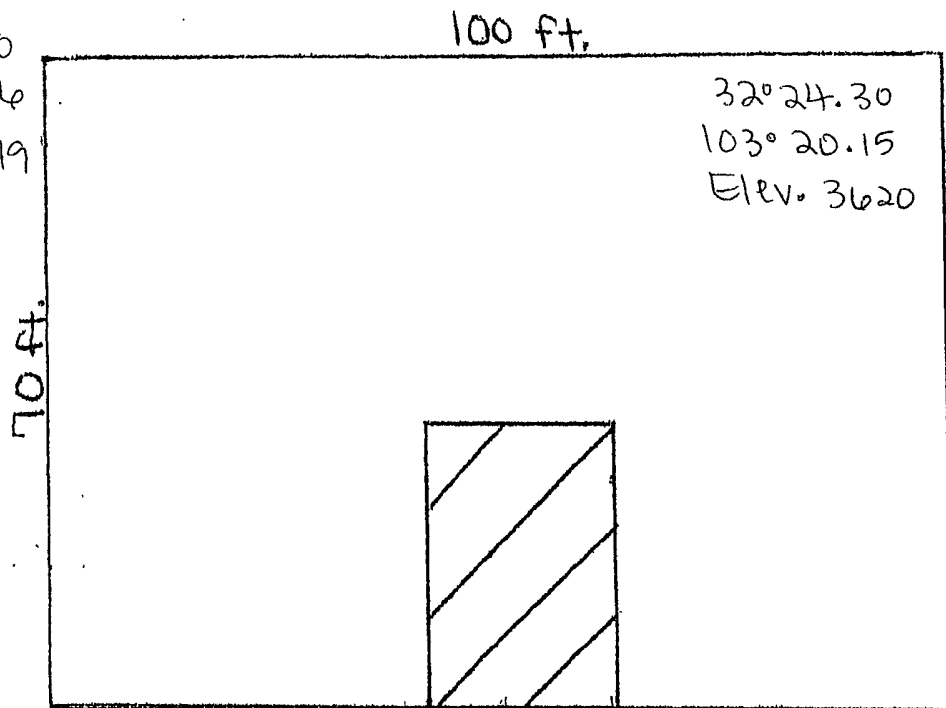
Imagery Dates: May 28, 2004 - Jun 30, 2005 32° 24' 39.51" N 103° 19' 53.94" W elev. 3582 ft Eye alt. 6862 ft



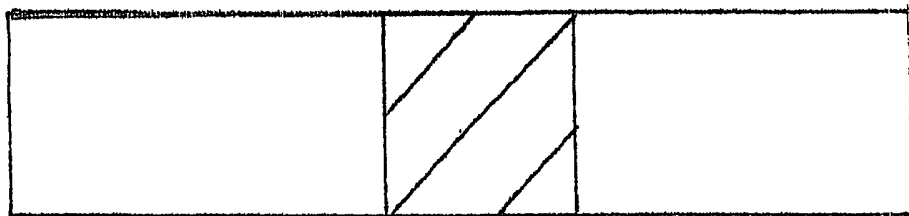
Melrose Operating  
JFSu # 235

N  
—  
S

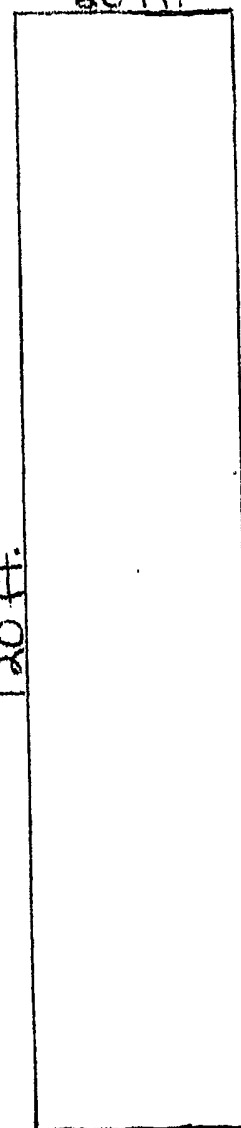
32° 24.30  
103° 20.14  
Elev. 3619



32° 24.29  
103° 20.16  
Elev. 3618



20 ft.



32° 24.31  
103° 20.14  
Elev. 3621

32° 24.29  
103° 20.14  
Elev. 3621

32° 24.42.3  
103° 19.59.7

## ***Attachment III—Analytical Results***

# TRACE ANALYSIS, INC.

3701 Alvarado Avenue, Suite B Lubbock, Texas 79424 806•378•1236 806•794•1296 FAX 806•794•1298  
230 East S. Ross Road, Suite E El Paso, Texas 79922 957•534•3442 957•535•3443 FAX 957•535•4944  
3102 Bascom Street, Suite A1 Midland, Texas 79703 432•639•6301 FAX 432•639•6313  
3125 Harris Parkway, Suite 110 Ft. Worth, Texas 76122 817•201•5263  
E-Mail: [info@traceanalysis.com](mailto:info@traceanalysis.com)

## Certifications

WBENC: 237019

HUB: 1752439743100-86536  
NCTRCA WFWB38444Y0909

DBE: VN 20657

## NELAP Certifications

Lubbock: T104704219-08-TX  
LELAP-02003  
Kansas E-10317

El Paso: T104704221-08-TX  
LELAP-02002

Midland: T104704392-08-TX

## Analytical and Quality Control Report

Rick Navarratte  
Blade Services LLC.  
1100 East Michigan  
Hobbs, NM, 88240

Report Date: December 28, 2009

Work Order: 9120317



Project Name: Jalmat Field Yates Sand Unit #235  
Project Number: Jalmat Field Yates Sand Unit #235

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
216306	3-to-1 Mix	soil	2009-11-30	12:00	2009-12-03

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 42 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



---

Dr. Blair Leftwich, Director  
Dr. Michael Abel, Project Manager

**Standard Flags**

**B** - The sample contains less than ten times the concentration found in the method blank.

## Case Narrative

Samples for project Jalmat Field Yates Sand Unit #235 were received by TraceAnalysis, Inc. on 2009-12-03 and assigned to work order 9120317. Samples for work order 9120317 were received intact at a temperature of 11.9 deg. C (on ice).

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	56219	2009-12-04 at 07:57	65773	2009-12-04 at 07:57
Paint Filter	N/A	56583	2009-12-22 at 11:27	66199	2009-12-22 at 12:28
SPLP Ag	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP As	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP Ba	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP Cd	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP Cl	E 300.0	56298	2009-12-08 at 13:42	65867	2009-12-09 at 04:30
SPLP Cr	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP Cyanide	SM 4500-CN C,E	56359	2009-12-10 at 08:45	65931	2009-12-11 at 14:10
SPLP Fluoride	E 300.0	56270	2009-12-07 at 14:43	65839	2009-12-07 at 16:10
SPLP Hg	S 7470A	56319	2009-12-10 at 08:51	65897	2009-12-10 at 12:49
SPLP NO3 (IC)	E 300.0	56270	2009-12-07 at 14:43	65839	2009-12-07 at 16:10
SPLP PAH	S 8270C	56616	2009-12-18 at 15:00	66242	2009-12-23 at 11:24
SPLP Pb	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP PCB	S 8082	56274	2009-12-08 at 13:00	65842	2009-12-08 at 13:41
SPLP Se	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP U	S 6010B	56428	2009-12-16 at 09:19	66024	2009-12-16 at 11:25
SPLP Volatiles	S 8260B	56236	2009-12-04 at 12:00	65800	2009-12-04 at 12:00
TPH 418.1	E 418.1	56373	2009-12-11 at 20:00	65953	2009-12-11 at 20:15
TPH DRO - NEW	Mod. 8015B	56197	2009-12-03 at 15:00	65756	2009-12-03 at 19:00
TPH GRO	S 8015B	56219	2009-12-04 at 07:57	65774	2009-12-04 at 07:57

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 9120317 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

## Analytical Report

### Sample: 216306 - 3-to-1 Mix

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 65773  
Prep Batch: 56219

Analytical Method: S 8021B  
Date Analyzed: 2009-12-04  
Sample Preparation: 2009-12-04

Prep Method: S 5035  
Analyzed By: ER  
Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.47	mg/Kg	1	2.00	74	71.8 - 112
4-Bromofluorobenzene (4-BFB)		1.71	mg/Kg	1	2.00	86	72.8 - 115

### Sample: 216306 - 3-to-1 Mix

Laboratory: Lubbock  
Analysis: Paint Filter  
QC Batch: 66199  
Prep Batch: 56583

Analytical Method: N/A  
Date Analyzed: 2009-12-22  
Sample Preparation: 2009-12-22

Prep Method: N/A  
Analyzed By: SS  
Prepared By: SS

Parameter	Flag	RL Result	Units	Dilution	RL
Paint Filter		PASS		1	0.00

### Sample: 216306 - 3-to-1 Mix

Laboratory: Lubbock  
Analysis: SPLP Ag  
QC Batch: 66024  
Prep Batch: 56428

Analytical Method: S 6010B  
Date Analyzed: 2009-12-16  
SPLP Extraction: 2009-12-09  
Sample Preparation: 2009-12-16

Prep Method: SPLP 1312  
Analyzed By: RR  
Prepared By: KV  
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Silver		<0.00300	mg/L	1	0.00300

**Sample: 216306 - 3-to-1 Mix**

Laboratory:	Lubbock		
Analysis:	SPLP As	Analytical Method:	S 6010B
QC Batch:	66024	Date Analyzed:	2009-12-16
Prep Batch:	56428	SPLP Extraction:	2009-12-09
		Sample Preparation:	2009-12-16
		Prep Method:	SPLP 1312
		Analyzed By:	RR
		Prepared By:	KV
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Arsenic		<0.0100	mg/L	1	0.0100

**Sample: 216306 - 3-to-1 Mix**

Laboratory:	Lubbock		
Analysis:	SPLP Ba	Analytical Method:	S 6010B
QC Batch:	66024	Date Analyzed:	2009-12-16
Prep Batch:	56428	SPLP Extraction:	2009-12-09
		Sample Preparation:	2009-12-16
		Prep Method:	SPLP 1312
		Analyzed By:	RR
		Prepared By:	KV
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Barium		<0.100	mg/L	1	0.100

**Sample: 216306 - 3-to-1 Mix**

Laboratory:	Lubbock		
Analysis:	SPLP Cd	Analytical Method:	S 6010B
QC Batch:	66024	Date Analyzed:	2009-12-16
Prep Batch:	56428	SPLP Extraction:	2009-12-09
		Sample Preparation:	2009-12-16
		Prep Method:	SPLP 1312
		Analyzed By:	RR
		Prepared By:	KV
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Cadmium		<0.00500	mg/L	1	0.00500

**Sample: 216306 - 3-to-1 Mix**

Laboratory:	Lubbock		
Analysis:	SPLP Cl	Analytical Method:	E 300.0
QC Batch:	65867	Date Analyzed:	2009-12-09
Prep Batch:	56298	SPLP Extraction:	2009-12-04
		Sample Preparation:	2009-12-08
		Prep Method:	SPLP 1312
		Analyzed By:	SS
		Prepared By:	SS
		Prepared By:	SS

Report Date: December 28, 2009  
Jalmat Field Yates Sand Unit #235

Work Order: 9120317  
Jalmat Field Yates Sand Unit #235

Page Number: 6 of 42

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Chloride		86.8	mg/L	5	0.500

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock

Analysis: SPLP Cr

QC Batch: 66024

Prep Batch: 56428

Analytical Method: S 6010B

Date Analyzed: 2009-12-16

SPLP Extraction: 2009-12-09

Sample Preparation: 2009-12-16

Prep Method: SPLP 1312

Analyzed By: RR

Prepared By: KV

Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Chromium		<0.00500	mg/L	1	0.00500

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock

Analysis: SPLP Cyanide

QC Batch: 65931

Prep Batch: 56359

Analytical Method: SM 4500-CN C,E

Date Analyzed: 2009-12-11

SPLP Extraction: 2009-12-07

Sample Preparation: 2009-12-10

Prep Method: SPLP 1312

Analyzed By: AH

Prepared By: AH

Prepared By: AH

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Cyanide		<0.0150	mg/L	1	0.0150

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock

Analysis: SPLP Fluoride

QC Batch: 65839

Prep Batch: 56270

Analytical Method: E 300.0

Date Analyzed: 2009-12-07

SPLP Extraction: 2009-12-04

Sample Preparation: 2009-12-07

Prep Method: SPLP 1312

Analyzed By: SS

Prepared By: SS

Prepared By: SS

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Fluoride		0.627	mg/L	1	0.200



**Sample: 216306 - 3-to-1 Mix**

Laboratory:	Lubbock		
Analysis:	SPLP Hg	Analytical Method:	S 7470A
QC Batch:	65897	Date Analyzed:	2009-12-10
Prep Batch:	56319	Sample Preparation:	2009-12-10
		Prep Method:	N/A
		Analyzed By:	TP
		Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Mercury		<0.000200	mg/L	1	0.000200

**Sample: 216306 - 3-to-1 Mix**

Laboratory:	Lubbock		
Analysis:	SPLP NO3 (IC)	Analytical Method:	E 300.0
QC Batch:	65839	Date Analyzed:	2009-12-07
Prep Batch:	56270	SPLP Extraction:	2009-12-04
		Sample Preparation:	2009-12-07
		Prep Method:	SPLP 1312
		Analyzed By:	SS
		Prepared By:	SS
		Prepared By:	SS

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		<b>0.639</b>	mg/L	1	0.200

**Sample: 216306 - 3-to-1 Mix**

Laboratory:	Lubbock		
Analysis:	SPLP PAH	Analytical Method:	S 8270C
QC Batch:	66242	Date Analyzed:	2009-12-23
Prep Batch:	56616	SPLP Extraction:	2009-12-17
		Sample Preparation:	2009-12-18
		Prep Method:	SPLP 1312
		Analyzed By:	MN
		Prepared By:	MN
		Prepared By:	MN

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000200	mg/L	1	0.000200
Acenaphthylene		<0.000200	mg/L	1	0.000200
Acenaphthene		<0.000200	mg/L	1	0.000200
Dibenzofuran		<0.000200	mg/L	1	0.000200
Fluorene		<0.000200	mg/L	1	0.000200
Anthracene		<0.000200	mg/L	1	0.000200
Phenanthrene		<0.000200	mg/L	1	0.000200
Fluoranthene		<0.000200	mg/L	1	0.000200
Pyrene		<0.000200	mg/L	1	0.000200
Benzo(a)anthracene		<0.000200	mg/L	1	0.000200
Chrysene		<0.000200	mg/L	1	0.000200
Benzo(b)fluoranthene		<0.000200	mg/L	1	0.000200

*continued ...*

sample 216306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Benzo(k)fluoranthene		<0.000200	mg/L	1	0.000200
Benzo(a)pyrene		<0.000200	mg/L	1	0.000200
Indeno(1,2,3-cd)pyrene		<0.000200	mg/L	1	0.000200
Dibenzo(a,h)anthracene		<0.000200	mg/L	1	0.000200
Benzo(g,h,i)perylene		<0.000200	mg/L	1	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorobiphenyl	<sup>1</sup>	0.0275	mg/L	1	0.0800	34	37.4 - 123
Nitrobenzene-d5	<sup>2</sup>	0.0155	mg/L	1	0.0800	19	34.3 - 130
Terphenyl-d14		0.0370	mg/L	1	0.0800	46	10 - 252

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock	Analytical Method: S 6010B	Prep Method: SPLP 1312
Analysis: SPLP Pb	Date Analyzed: 2009-12-16	Analyzed By: RR
QC Batch: 66024	SPLP Extraction: 2009-12-09	Prepared By: KV
Prep Batch: 56428	Sample Preparation: 2009-12-16	Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Lead		<0.0100	mg/L	1	0.0100

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock	Analytical Method: S 8082	Prep Method: SPLP 1312
Analysis: SPLP PCB	Date Analyzed: 2009-12-08	Analyzed By: DS
QC Batch: 65842	SPLP Extraction: 2009-12-03	Prepared By: DS
Prep Batch: 56274	Sample Preparation: 2009-12-08	Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
Total PCB		<0.000500	mg/L	1	0.000500
Aroclor 1016 (PCB-1016)		<0.000500	mg/L	1	0.000500
Aroclor 1221 (PCB-1221)		<0.000500	mg/L	1	0.000500
Aroclor 1232 (PCB-1232)		<0.000500	mg/L	1	0.000500
Aroclor 1242 (PCB-1242)		<0.000500	mg/L	1	0.000500
Aroclor 1248 (PCB-1248)		<0.000500	mg/L	1	0.000500
Aroclor 1254 (PCB-1254)		<0.000500	mg/L	1	0.000500

<sup>1</sup>Surrogate out due to matrix interference.

<sup>2</sup>Surrogate out due to matrix interference.

continued ...

sample 216306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Aroclor 1260 (PCB-1260)		<0.000500	mg/L	1	0.000500
Aroclor 1268 (PCB-1268)		<0.000500	mg/L	1	0.000500

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Deca chlorobiphenyl		0.000414	mg/L	1	0.000500	83	10 - 128

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock  
Analysis: SPLP Se  
QC Batch: 66024  
Prep Batch: 56428

Analytical Method: S 6010B  
Date Analyzed: 2009-12-16  
SPLP Extraction: 2009-12-09  
Sample Preparation: 2009-12-16

Prep Method: SPLP 1312  
Analyzed By: RR  
Prepared By: KV  
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP Selenium		<0.0500	mg/L	1	0.0500

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock  
Analysis: SPLP U  
QC Batch: 66024  
Prep Batch: 56428

Analytical Method: S 6010B  
Date Analyzed: 2009-12-16  
SPLP Extraction: 2009-12-09  
Sample Preparation: 2009-12-16

Prep Method: SPLP 1312  
Analyzed By: RR  
Prepared By: KV  
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
SPLP U		<0.0500	mg/L	1	0.0500

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock  
Analysis: SPLP Volatiles  
QC Batch: 65800  
Prep Batch: 56236

Analytical Method: S 8260B  
Date Analyzed: 2009-12-04  
SPLP Extraction: 2009-12-04  
Sample Preparation: 2009-12-04

Prep Method: SPLP 1312  
Analyzed By: KB  
Prepared By: KB  
Prepared By: KB

Parameter	Flag	RL Result	Units	Dilution	RL
Vinyl Chloride		<1.00	µg/L	1	1.00
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride	B	29.1	µg/L	1	5.00
1,1-Dichloroethane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.0	µg/L	1	50.0	102	92.3 - 115
Toluene-d8		48.0	µg/L	1	50.0	96	89.8 - 109
4-Bromofluorobenzene (4-BFB)		47.8	µg/L	1	50.0	96	89.5 - 112

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock			
Analysis: TPH 418.1	Analytical Method: E 418.1	Prep Method: N/A	
QC Batch: 65953	Date Analyzed: 2009-12-11	Analyzed By: CM	
Prep Batch: 56373	Sample Preparation: 2009-12-11	Prepared By: CM	

Parameter	Flag	RL Result	Units	Dilution	RL
TRPHC		<10.0	mg/Kg	1	10.0

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock			
Analysis: TPH DRO - NEW	Analytical Method: Mod. 8015B	Prep Method: N/A	
QC Batch: 65756	Date Analyzed: 2009-12-03	Analyzed By: AW	
Prep Batch: 56197	Sample Preparation: 2009-12-03	Prepared By: AW	

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Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		109	mg/Kg	1	100	109	38.6 - 167

**Sample: 216306 - 3-to-1 Mix**

Laboratory: Lubbock  
Analysis: TPH GRO  
QC Batch: 65774  
Prep Batch: 56219

Analytical Method: S 8015B  
Date Analyzed: 2009-12-04  
Sample Preparation: 2009-12-04

Prep Method: S 5035  
Analyzed By: ER  
Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.77	mg/Kg	1	2.00	88	86.9 - 113
4-Bromofluorobenzene (4-BFB)		1.88	mg/Kg	1	2.00	94	56.2 - 130

**Method Blank (1) QC Batch: 65756**

QC Batch: 65756  
Prep Batch: 56197

Date Analyzed: 2009-12-03  
QC Preparation: 2009-12-03

Analyzed By: AW  
Prepared By: AW

Parameter	Flag	MDL Result	Units	RL
DRO		<4.66	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		107	mg/Kg	1	100	107	38.6 - 167

**Method Blank (1) QC Batch: 65773**

QC Batch: 65773  
Prep Batch: 56219

Date Analyzed: 2009-12-04  
QC Preparation: 2009-12-04

Analyzed By: ER  
Prepared By: ER

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00331	mg/Kg	0.02
Toluene		<0.00528	mg/Kg	0.02
Ethylbenzene		<0.00448	mg/Kg	0.02
Xylene		<0.00456	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.62	mg/Kg	1	2.00	81	71.8 - 112
4-Bromofluorobenzene (4-BFB)		1.56	mg/Kg	1	2.00	78	72.8 - 115

**Method Blank (1)**      QC Batch: 65774

QC Batch: 65774      Date Analyzed: 2009-12-04      Analyzed By: ER  
Prep Batch: 56219      QC Preparation: 2009-12-04      Prepared By: ER

Parameter	Flag	MDL Result	Units	RL
GRO		<0.403	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.91	mg/Kg	1	2.00	96	86.9 - 113
4-Bromofluorobenzene (4-BFB)		1.74	mg/Kg	1	2.00	87	56.2 - 130

**Method Blank (1)**      QC Batch: 65800

QC Batch: 65800      Date Analyzed: 2009-12-04      Analyzed By: KB  
Prep Batch: 56236      QC Preparation: 2009-12-04      Prepared By: KB

Parameter	Flag	MDL Result	Units	RL
Bromochloromethane		<0.177	µg/L	1
Dichlorodifluoromethane		<0.208	µg/L	1
Chloromethane (methyl chloride)		<0.134	µg/L	1
Vinyl Chloride		<0.135	µg/L	1
Bromomethane (methyl bromide)		<1.23	µg/L	5
Chloroethane		<0.182	µg/L	1
Trichlorofluoromethane		<0.0610	µg/L	1
Acetone		<5.50	µg/L	10
Iodomethane (methyl iodide)		<0.107	µg/L	5
Carbon Disulfide		0.380	µg/L	1
Acrylonitrile		<0.0970	µg/L	1

*continued ...*

method blank continued ...

Parameter	Flag	MDL Result	Units	RL
2-Butanone (MEK)		<0.531	µg/L	5
4-Methyl-2-pentanone (MIBK)		<0.421	µg/L	5
2-Hexanone		<0.168	µg/L	5
trans 1,4-Dichloro-2-butene		<0.517	µg/L	10
1,1-Dichloroethene		<0.136	µg/L	1
Methylene chloride		22.2	µg/L	5
MTBE		<0.123	µg/L	1
trans-1,2-Dichloroethene		<0.126	µg/L	1
1,1-Dichloroethane		<0.0600	µg/L	1
cis-1,2-Dichloroethene		<0.151	µg/L	1
2,2-Dichloropropane		<0.180	µg/L	1
1,2-Dichloroethane (EDC)		<0.113	µg/L	1
Chloroform		<0.141	µg/L	1
1,1,1-Trichloroethane		<0.116	µg/L	1
1,1-Dichloropropene		<0.0540	µg/L	1
Benzene		<0.146	µg/L	1
Carbon Tetrachloride		<0.0790	µg/L	1
1,2-Dichloropropane		<0.111	µg/L	1
Trichloroethene (TCE)		<0.117	µg/L	1
Dibromomethane (methylene bromide)		<0.140	µg/L	1
Bromodichloromethane		<0.161	µg/L	1
2-Chloroethyl vinyl ether		<0.388	µg/L	5
cis-1,3-Dichloropropene		<0.0890	µg/L	1
trans-1,3-Dichloropropene		<0.0760	µg/L	1
Toluene		0.280	µg/L	1
1,1,2-Trichloroethane		<0.135	µg/L	1
1,3-Dichloropropane		<0.0990	µg/L	1
Dibromochloromethane		<0.0900	µg/L	1
1,2-Dibromoethane (EDB)		<0.0700	µg/L	1
Tetrachloroethene (PCE)		<0.270	µg/L	1
Chlorobenzene		<0.0540	µg/L	1
1,1,1,2-Tetrachloroethane		<0.0990	µg/L	1
Ethylbenzene		0.100	µg/L	1
m,p-Xylene		0.300	µg/L	1
Bromoform		<0.0570	µg/L	1
Styrene		<0.0910	µg/L	1
o-Xylene		<0.0960	µg/L	1
1,1,2,2-Tetrachloroethane		<0.125	µg/L	1
2-Chlorotoluene		0.0800	µg/L	1
1,2,3-Trichloropropane		<0.458	µg/L	1
Isopropylbenzene		0.100	µg/L	1
Bromobenzene		<0.106	µg/L	1
n-Propylbenzene		0.150	µg/L	1
1,3,5-Trimethylbenzene		0.0700	µg/L	1

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Parameter	Flag	MDL Result	Units	RL
tert-Butylbenzene		0.110	µg/L	1
1,2,4-Trimethylbenzene		0.130	µg/L	1
1,4-Dichlorobenzene (para)		<0.217	µg/L	1
sec-Butylbenzene		0.260	µg/L	1
1,3-Dichlorobenzene (meta)		0.150	µg/L	1
p-Isopropyltoluene		0.230	µg/L	1
4-Chlorotoluene		0.110	µg/L	1
1,2-Dichlorobenzene (ortho)		0.120	µg/L	1
n-Butylbenzene		0.340	µg/L	1
1,2-Dibromo-3-chloropropane		<0.690	µg/L	5
1,2,3-Trichlorobenzene		0.290	µg/L	5
1,2,4-Trichlorobenzene		0.200	µg/L	5
Naphthalene		<0.594	µg/L	5
Hexachlorobutadiene		0.860	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.1	µg/L	1	50.0	102	92.3 - 115
Toluene-d8		49.0	µg/L	1	50.0	98	89.8 - 109
4-Bromofluorobenzene (4-BFB)		50.0	µg/L	1	50.0	100	89.5 - 112

**Method Blank (1)**      QC Batch: 65839

QC Batch: 65839      Date Analyzed: 2009-12-07      Analyzed By: SS  
Prep Batch: 56270      QC Preparation: 2009-12-07      Prepared By: SS

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0700	mg/L	0.2

**Method Blank (1)**      QC Batch: 65839

QC Batch: 65839      Date Analyzed: 2009-12-07      Analyzed By: SS  
Prep Batch: 56270      QC Preparation: 2009-12-07      Prepared By: SS

Parameter	Flag	MDL Result	Units	RL
SPLP Fluoride		<0.0889	mg/L	0.2



**Method Blank (1)**      QC Batch: 65842

QC Batch: 65842  
Prep Batch: 56274

Date Analyzed: 2009-12-08  
QC Preparation: 2009-12-08

Analyzed By: DS  
Prepared By: DS

Parameter	Flag	MDL Result	Units	RL
Total PCB		<0.000125	mg/L	0.0005
Aroclor 1016 (PCB-1016)		<0.000122	mg/L	0.0005
Aroclor 1221 (PCB-1221)		<0.000118	mg/L	0.0005
Aroclor 1232 (PCB-1232)		<0.0000459	mg/L	0.0005
Aroclor 1242 (PCB-1242)		<0.000125	mg/L	0.0005
Aroclor 1248 (PCB-1248)		<0.0000546	mg/L	0.0005
Aroclor 1254 (PCB-1254)		<0.0000569	mg/L	0.0005
Aroclor 1260 (PCB-1260)		<0.0000331	mg/L	0.0005
Aroclor 1268 (PCB-1268)		<0.0000282	mg/L	0.0005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Deca chlorobiphenyl		0.000384	mg/L	1	0.000500	77	10 - 128

**Method Blank (1)**      QC Batch: 65867

QC Batch: 65867  
Prep Batch: 56298

Date Analyzed: 2009-12-09  
QC Preparation: 2009-12-08

Analyzed By: SS  
Prepared By: SS

Parameter	Flag	MDL Result	Units	RL
SPLP Chloride		0.918	mg/L	0.5

**Method Blank (1)**      QC Batch: 65897

QC Batch: 65897  
Prep Batch: 56319

Date Analyzed: 2009-12-10  
QC Preparation: 2009-12-10

Analyzed By: TP  
Prepared By: TP

Parameter	Flag	MDL Result	Units	RL
SPLP Mercury		<0.0000329	mg/L	0.0002

**Method Blank (1)**      QC Batch: 65931

QC Batch: 65931  
Prep Batch: 56359

Date Analyzed: 2009-12-11  
QC Preparation: 2009-12-10

Analyzed By: AH  
Prepared By: AH

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Parameter	Flag	MDL Result	Units	RL
SPLP Cyanide		<0.0148	mg/L	0.015

**Method Blank (1)**      QC Batch: 65953

QC Batch: 65953      Date Analyzed: 2009-12-11      Analyzed By: CM  
Prep Batch: 56373      QC Preparation: 2009-12-11      Prepared By: CM

Parameter	Flag	MDL Result	Units	RL
TRPHC		<5.28	mg/Kg	10

**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
SPLP Cadmium		<0.00140	mg/L	0.005

**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
SPLP Lead		<0.00320	mg/L	0.01

**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
SPLP Selenium		<0.0131	mg/L	0.05

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**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
SPLP Arsenic		<0.00430	mg/L	0.01

**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
SPLP Barium		<0.00170	mg/L	0.1

**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
SPLP Chromium		<0.000900	mg/L	0.005

**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
SPLP Silver		<0.00210	mg/L	0.003

**Method Blank (1)**      QC Batch: 66024

QC Batch: 66024      Date Analyzed: 2009-12-16      Analyzed By: RR  
Prep Batch: 56428      QC Preparation: 2009-12-16      Prepared By: KV

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Parameter	Flag	MDL Result	Units	RL
SPLP U		<0.0105	mg/L	0.05

**Method Blank (1)**      QC Batch: 66242

QC Batch: 66242  
Prep Batch: 56616

Date Analyzed: 2009-12-23  
QC Preparation: 2009-12-18

Analyzed By: MN  
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000853	mg/L	0.0002
Acenaphthylene		<0.0000768	mg/L	0.0002
Acenaphthene		<0.000103	mg/L	0.0002
Dibenzofuran		<0.000200	mg/L	0.0002
Fluorene		<0.0000861	mg/L	0.0002
Anthracene		<0.000170	mg/L	0.0002
Phenanthrene		<0.0000884	mg/L	0.0002
Fluoranthene		<0.0000969	mg/L	0.0002
Pyrene		<0.0000855	mg/L	0.0002
Benzo(a)anthracene		<0.0000703	mg/L	0.0002
Chrysene		<0.000113	mg/L	0.0002
Benzo(b)fluoranthene		<0.000134	mg/L	0.0002
Benzo(k)fluoranthene		<0.000227	mg/L	0.0002
Benzo(a)pyrene		<0.000200	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.000253	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.000180	mg/L	0.0002
Benzo(g,h,i)perylene		<0.000158	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorobiphenyl		0.0257	mg/L	1	0.0800	32	10 - 146
Nitrobenzene-d5		0.0289	mg/L	1	0.0800	36	10 - 141
Terphenyl-d14		0.0509	mg/L	1	0.0800	64	10 - 266

**Duplicates (1)**      Duplicated Sample: 216307

QC Batch: 66199  
Prep Batch: 56583

Date Analyzed: 2009-12-22  
QC Preparation: 2009-12-22

Analyzed By: SS  
Prepared By: SS

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Paint Filter	PASS	PASS		1	0	0

### Laboratory Control Spike (LCS-1)

QC Batch: 65756  
Prep Batch: 56197

Date Analyzed: 2009-12-03  
QC Preparation: 2009-12-03

Analyzed By: AW  
Prepared By: AW

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	232	mg/Kg	1	250	<4.66	93	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	231	mg/Kg	1	250	<4.66	92	70 - 130	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	105	104	mg/Kg	1	100	105	104	38.6 - 167

### Laboratory Control Spike (LCS-1)

QC Batch: 65773  
Prep Batch: 56219

Date Analyzed: 2009-12-04  
QC Preparation: 2009-12-04

Analyzed By: ER  
Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.80	mg/Kg	1	2.00	<0.00331	90	78.9 - 113
Toluene	1.82	mg/Kg	1	2.00	<0.00528	91	78.3 - 116
Ethylbenzene	1.76	mg/Kg	1	2.00	<0.00448	88	79.1 - 117
Xylene	5.28	mg/Kg	1	6.00	<0.00456	88	79.6 - 116

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.76	mg/Kg	1	2.00	<0.00331	88	78.9 - 113	2	20
Toluene	1.77	mg/Kg	1	2.00	<0.00528	88	78.3 - 116	3	20
Ethylbenzene	1.71	mg/Kg	1	2.00	<0.00448	86	79.1 - 117	3	20
Xylene	5.14	mg/Kg	1	6.00	<0.00456	86	79.6 - 116	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.74	1.63	mg/Kg	1	2.00	87	82	70.8 - 111
4-Bromofluorobenzene (4-BFB)	1.66	1.57	mg/Kg	1	2.00	83	78	68.3 - 117

### Laboratory Control Spike (LCS-1)

QC Batch: 65774  
Prep Batch: 56219

Date Analyzed: 2009-12-04  
QC Preparation: 2009-12-04

Analyzed By: ER  
Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	19.0	mg/Kg	1	20.0	<0.403	95	72.6 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	19.6	mg/Kg	1	20.0	<0.403	98	72.6 - 121	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.02	1.88	mg/Kg	1	2.00	101	94	75.2 - 112
4-Bromofluorobenzene (4-BFB)	1.90	1.87	mg/Kg	1	2.00	95	94	54.9 - 133

### Laboratory Control Spike (LCS-1)

QC Batch: 65800  
Prep Batch: 56236

Date Analyzed: 2009-12-04  
QC Preparation: 2009-12-04

Analyzed By: KB  
Prepared By: KB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
1,1-Dichloroethene	61.4	µg/L	1	50.0	<0.136	123	76.9 - 123
Benzene	48.6	µg/L	1	50.0	<0.146	97	79.5 - 119
Trichloroethene (TCE)	47.1	µg/L	1	50.0	<0.117	94	75.3 - 122
Toluene	50.5	µg/L	1	50.0	0.28	101	81.4 - 118
Chlorobenzene	47.6	µg/L	1	50.0	<0.0540	95	78.2 - 117

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
1,1-Dichloroethene	60.0	µg/L	1	50.0	<0.136	120	76.9 - 123	2	20
Benzene	50.2	µg/L	1	50.0	<0.146	100	79.5 - 119	3	20
Trichloroethene (TCE)	48.6	µg/L	1	50.0	<0.117	97	75.3 - 122	3	20
Toluene	52.5	µg/L	1	50.0	0.28	105	81.4 - 118	4	20
Chlorobenzene	48.5	µg/L	1	50.0	<0.0540	97	78.2 - 117	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

*continued ...*

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	50.3	49.5	µg/L	1	50.0	101	99	91.4 - 114
Toluene-d8	49.6	50.2	µg/L	1	50.0	99	100	89.8 - 108
4-Bromofluorobenzene (4-BFB)	50.5	50.0	µg/L	1	50.0	101	100	90.2 - 116

#### Laboratory Control Spike (LCS-1)

QC Batch: 65839  
Prep Batch: 56270

Date Analyzed: 2009-12-07  
QC Preparation: 2009-12-07

Analyzed By: SS  
Prepared By: SS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	4.96	mg/L	1	5.00	<0.0700	99	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	5.03	mg/L	1	5.00	<0.0700	101	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch: 65839  
Prep Batch: 56270

Date Analyzed: 2009-12-07  
QC Preparation: 2009-12-07

Analyzed By: SS  
Prepared By: SS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Fluoride	4.74	mg/L	1	5.00	<0.0889	95	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Fluoride	4.77	mg/L	1	5.00	<0.0889	95	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch: 65842  
Prep Batch: 56274

Date Analyzed: 2009-12-08  
QC Preparation: 2009-12-08

Analyzed By: DS  
Prepared By: DS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Aroclor 1260 (PCB-1260)	0.00122	mg/L	1	0.00200	<0.0000331	61	10 - 128

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Aroclor 1260 (PCB-1260)	0.00124	mg/L	1	0.00200	<0.0000331	62	10 - 128	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Deca chlorobiphenyl	0.000409	0.000411	mg/L	1	0.000500	82	82	10 - 128

#### Laboratory Control Spike (LCS-1)

QC Batch: 65867  
Prep Batch: 56298

Date Analyzed: 2009-12-09  
QC Preparation: 2009-12-08

Analyzed By: SS  
Prepared By: SS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Chloride	24.2	mg/L	1	25.0	<0.137	97	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Chloride	23.9	mg/L	1	25.0	<0.137	96	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch: 65897  
Prep Batch: 56319

Date Analyzed: 2009-12-10  
QC Preparation: 2009-12-10

Analyzed By: TP  
Prepared By: TP

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Mercury	0.00382	mg/L	1	0.00400	<0.0000329	96	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Mercury	0.00377	mg/L	1	0.00400	<0.0000329	94	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.



**Laboratory Control Spike (LCS-1)**

QC Batch: 65953  
Prep Batch: 56373

Date Analyzed: 2009-12-11  
QC Preparation: 2009-12-11

Analyzed By: CM  
Prepared By: CM

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC	246	mg/Kg	1	250	<5.28	98	84.9 - 124

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
TRPHC	251	mg/Kg	1	250	<5.28	100	84.9 - 124	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Cadmium	0.245	mg/L	1	0.250	<0.00140	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Cadmium	0.243	mg/L	1	0.250	<0.00140	97	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Lead	0.496	mg/L	1	0.500	<0.00320	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Lead	0.496	mg/L	1	0.500	<0.00320	99	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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#### Laboratory Control Spike (LCS-1)

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Selenium	0.454	mg/L	1	0.500	<0.0131	91	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Selenium	0.442	mg/L	1	0.500	<0.0131	88	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Arsenic	0.480	mg/L	1	0.500	<0.00430	96	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Arsenic	0.487	mg/L	1	0.500	<0.00430	97	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Barium	1.02	mg/L	1	1.00	<0.00170	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Barium	1.01	mg/L	1	1.00	<0.00170	101	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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#### Laboratory Control Spike (LCS-1)

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Chromium	0.101	mg/L	1	0.100	<0.000900	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Chromium	0.100	mg/L	1	0.100	<0.000900	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Silver	0.125	mg/L	1	0.125	<0.00210	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Silver	0.124	mg/L	1	0.125	<0.00210	99	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP U	0.525	mg/L	1	0.500	<0.0105	105	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP U	0.536	mg/L	1	0.500	<0.0105	107	90 - 110	2	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 66242  
Prep Batch: 56616

Date Analyzed: 2009-12-23  
QC Preparation: 2009-12-18

Analyzed By: MN  
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0383	mg/L	1	0.0800	<0.0000853	48	10 - 141
Acenaphthylene	0.0436	mg/L	1	0.0800	<0.0000768	54	10 - 152
Acenaphthene	0.0434	mg/L	1	0.0800	<0.000103	54	10 - 151
Dibenzofuran	0.0414	mg/L	1	0.0800	<0.000200	52	10 - 148
Fluorene	0.0501	mg/L	1	0.0800	<0.0000861	63	10 - 172
Anthracene	0.0501	mg/L	1	0.0800	<0.000170	63	19.6 - 172
Phenanthrene	0.0492	mg/L	1	0.0800	<0.0000884	62	22.5 - 172
Fluoranthene	0.0587	mg/L	1	0.0800	<0.0000969	73	17.3 - 187
Pyrene	0.0611	mg/L	1	0.0800	<0.0000855	76	14.9 - 199
Benzo(a)anthracene	0.0597	mg/L	1	0.0800	<0.0000703	75	19.4 - 185
Chrysene	0.0683	mg/L	1	0.0800	<0.000113	85	18.4 - 188
Benzo(b)fluoranthene	0.0642	mg/L	1	0.0800	<0.000134	80	10 - 193
Benzo(k)fluoranthene	0.0956	mg/L	1	0.0800	<0.000227	120	27.8 - 196
Benzo(a)pyrene	0.0961	mg/L	1	0.0800	<0.000200	120	12.4 - 205
Indeno(1,2,3-cd)pyrene	0.0694	mg/L	1	0.0800	<0.000253	87	10 - 198
Dibenzo(a,h)anthracene	0.0747	mg/L	1	0.0800	<0.000180	93	10 - 172
Benzo(g,h,i)perylene	0.0636	mg/L	1	0.0800	<0.000158	80	10 - 186

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0369	mg/L	1	0.0800	<0.0000853	46	10 - 141	4	20
Acenaphthylene	0.0411	mg/L	1	0.0800	<0.0000768	51	10 - 152	6	20
Acenaphthene	0.0407	mg/L	1	0.0800	<0.000103	51	10 - 151	6	20
Dibenzofuran	0.0393	mg/L	1	0.0800	<0.000200	49	10 - 148	5	20
Fluorene	0.0468	mg/L	1	0.0800	<0.0000861	58	10 - 172	7	20
Anthracene	0.0487	mg/L	1	0.0800	<0.000170	61	19.6 - 172	3	20
Phenanthrene	0.0478	mg/L	1	0.0800	<0.0000884	60	22.5 - 172	3	20
Fluoranthene	0.0563	mg/L	1	0.0800	<0.0000969	70	17.3 - 187	4	20
Pyrene	0.0576	mg/L	1	0.0800	<0.0000855	72	14.9 - 199	6	20
Benzo(a)anthracene	0.0576	mg/L	1	0.0800	<0.0000703	72	19.4 - 185	4	20
Chrysene	0.0652	mg/L	1	0.0800	<0.000113	82	18.4 - 188	5	20
Benzo(b)fluoranthene	0.0675	mg/L	1	0.0800	<0.000134	84	10 - 193	5	20
Benzo(k)fluoranthene	0.0961	mg/L	1	0.0800	<0.000227	120	27.8 - 196	0	20
Benzo(a)pyrene	0.0915	mg/L	1	0.0800	<0.000200	114	12.4 - 205	5	20
Indeno(1,2,3-cd)pyrene	0.0674	mg/L	1	0.0800	<0.000253	84	10 - 198	3	20
Dibenzo(a,h)anthracene	0.0702	mg/L	1	0.0800	<0.000180	88	10 - 172	6	20
Benzo(g,h,i)perylene	0.0674	mg/L	1	0.0800	<0.000158	84	10 - 186	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
2-Fluorobiphenyl	0.0393	0.0369	mg/L	1	0.0800	49	46	10 - 165
Nitrobenzene-d5	0.0426	0.0403	mg/L	1	0.0800	53	50	10 - 157
Terphenyl-d14	0.0640	0.0602	mg/L	1	0.0800	80	75	10 - 220

**Matrix Spike (MS-1)** Spiked Sample: 216307

QC Batch: 65756  
Prep Batch: 56197

Date Analyzed: 2009-12-03  
QC Preparation: 2009-12-03

Analyzed By: AW  
Prepared By: AW

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	180	mg/Kg	1	250	<4.66	72	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	188	mg/Kg	1	250	<4.66	75	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	98.3	100	mg/Kg	1	100	98	100	38.6 - 167

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 65773  
Prep Batch: 56219

Date Analyzed: 2009-12-04  
QC Preparation: 2009-12-04

Analyzed By: ER  
Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.66	mg/Kg	1	2.00	<0.00331	83	61.5 - 134
Toluene	1.79	mg/Kg	1	2.00	<0.00528	90	64.2 - 143
Ethylbenzene	1.83	mg/Kg	1	2.00	<0.00448	92	67.7 - 152
Xylene	5.52	mg/Kg	1	6.00	<0.00456	92	67.8 - 152

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.59	mg/Kg	1	2.00	<0.00331	80	61.5 - 134	4	20
Toluene	1.69	mg/Kg	1	2.00	<0.00528	84	64.2 - 143	6	20
Ethylbenzene	1.74	mg/Kg	1	2.00	<0.00448	87	67.7 - 152	5	20
Xylene	5.27	mg/Kg	1	6.00	<0.00456	88	67.8 - 152	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.66	1.66	mg/Kg	1	2	83	83	65.3 - 134
4-Bromofluorobenzene (4-BFB)	1.72	1.70	mg/Kg	1	2	86	85	61.9 - 143

**Matrix Spike (MS-1)** Spiked Sample: 216307

QC Batch: 65774 Date Analyzed: 2009-12-04 Analyzed By: ER  
Prep Batch: 56219 QC Preparation: 2009-12-04 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	16.1	mg/Kg	1	20.0	<0.403	80	34.1 - 160

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	18.0	mg/Kg	1	20.0	<0.403	90	34.1 - 160	11	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.82	1.93	mg/Kg	1	2	91	96	56.9 - 137
4-Bromofluorobenzene (4-BFB)	1.79	1.92	mg/Kg	1	2	90	96	42.1 - 171

**Matrix Spike (xMS-1)** Spiked Sample:

QC Batch: 65800 Date Analyzed: 2009-12-04 Analyzed By: KB  
Prep Batch: 56236 QC Preparation: 2009-12-04 Prepared By: KB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
1,1-Dichloroethene	64.6	µg/L	1	50.0	<0.136	129	66 - 134
Benzene	48.2	µg/L	1	50.0	<0.146	96	81.5 - 124
Trichloroethene (TCE)	47.2	µg/L	1	50.0	<0.117	94	80.5 - 113
Toluene	49.0	µg/L	1	50.0	<0.0600	98	81.6 - 122
Chlorobenzene	46.9	µg/L	1	50.0	<0.0540	94	82.2 - 116

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
1,1-Dichloroethene	64.0	µg/L	1	50.0	<0.136	128	66 - 134	1	20
Benzene	47.0	µg/L	1	50.0	<0.146	94	81.5 - 124	2	20
Trichloroethene (TCE)	46.5	µg/L	1	50.0	<0.117	93	80.5 - 113	2	20

*continued ...*

*matrix spikes continued ...*

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene	48.2	µg/L	1	50.0	<0.0600	96	81.6 - 122	2	20
Chlorobenzene	46.1	µg/L	1	50.0	<0.0540	92	82.2 - 116	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Dibromofluoromethane	51.9	50.5	µg/L	1	50	104	101	84.3 - 127
Toluene-d8	50.0	48.8	µg/L	1	50	100	98	90.5 - 107
4-Bromofluorobenzene (4-BFB)	48.2	49.1	µg/L	1	50	96	98	88.7 - 120

**Matrix Spike (MS-1)** Spiked Sample: 216307

QC Batch: 65839  
Prep Batch: 56270

Date Analyzed: 2009-12-07  
QC Preparation: 2009-12-07

Analyzed By: SS  
Prepared By: SS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	4.60	mg/L	1	5.00	0.608	80	73.6 - 122

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	4.60	mg/L	1	5.00	0.608	80	73.6 - 122	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216307

QC Batch: 65839  
Prep Batch: 56270

Date Analyzed: 2009-12-07  
QC Preparation: 2009-12-07

Analyzed By: SS  
Prepared By: SS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Fluoride	4.05	mg/L	1	5.00	0.485	71	63.5 - 127

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Fluoride	4.05	mg/L	1	5.00	0.485	71	63.5 - 127	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216307

QC Batch: 65867  
Prep Batch: 56298

Date Analyzed: 2009-12-09  
QC Preparation: 2009-12-08

Analyzed By: SS  
Prepared By: SS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Chloride	219	mg/L	5	125	87.6	105	49.8 - 149

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Chloride	212	mg/L	5	125	87.6	100	49.8 - 149	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 65897  
Prep Batch: 56319

Date Analyzed: 2009-12-10  
QC Preparation: 2009-12-10

Analyzed By: TP  
Prepared By: TP

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Mercury	0.00387	mg/L	1	0.00400	<0.0000329	97	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Mercury	0.00386	mg/L	1	0.00400	<0.0000329	96	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 65931  
Prep Batch: 56359

Date Analyzed: 2009-12-11  
QC Preparation: 2009-12-10

Analyzed By: AH  
Prepared By: AH

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Cyanide	11.1	mg/L	1	12.0	<0.0148	92	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Cyanide	11.2	mg/L	1	12.0	<0.0148	93	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.



**Matrix Spike (MS-1)** Spiked Sample: 216307

QC Batch: 65953  
Prep Batch: 56373

Date Analyzed: 2009-12-11  
QC Preparation: 2009-12-11

Analyzed By: CM  
Prepared By: CM

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC	245	mg/Kg	1	250	<5.28	98	10 - 196

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
TRPHC	253	mg/Kg	1	250	<5.28	101	10 - 196	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Cadmium	0.238	mg/L	1	0.250	<0.00140	95	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Cadmium	0.236	mg/L	1	0.250	<0.00140	94	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Lead	0.502	mg/L	1	0.500	<0.00320	100	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Lead	0.512	mg/L	1	0.500	<0.00320	102	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Selenium	0.454	mg/L	1	0.500	<0.0131	91	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Selenium	0.455	mg/L	1	0.500	<0.0131	91	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Arsenic	0.494	mg/L	1	0.500	<0.00430	99	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Arsenic	0.484	mg/L	1	0.500	<0.00430	97	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Barium	1.05	mg/L	1	1.00	0.075	98	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Barium	1.05	mg/L	1	1.00	0.075	105	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Chromium	0.0990	mg/L	1	0.100	0.002	97	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Chromium	0.0990	mg/L	1	0.100	0.002	99	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP Silver	0.121	mg/L	1	0.125	<0.00210	97	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP Silver	0.121	mg/L	1	0.125	<0.00210	97	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 216306

QC Batch: 66024  
Prep Batch: 56428

Date Analyzed: 2009-12-16  
QC Preparation: 2009-12-16

Analyzed By: RR  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
SPLP U	0.515	mg/L	1	0.500	<0.0105	103	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
SPLP U	0.507	mg/L	1	0.500	<0.0105	101	90 - 110	2	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Standard (CCV-1)**

QC Batch: 65756

Date Analyzed: 2009-12-03

Analyzed By: AW

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	221	88	80 - 120	2009-12-03

**Standard (CCV-2)**

QC Batch: 65756

Date Analyzed: 2009-12-03

Analyzed By: AW

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	235	94	80 - 120	2009-12-03

**Standard (CCV-1)**

QC Batch: 65773

Date Analyzed: 2009-12-04

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0914	91	80 - 120	2009-12-04
Toluene		mg/Kg	0.100	0.0921	92	80 - 120	2009-12-04
Ethylbenzene		mg/Kg	0.100	0.0896	90	80 - 120	2009-12-04
Xylene		mg/Kg	0.300	0.266	89	80 - 120	2009-12-04

**Standard (CCV-2)**

QC Batch: 65773

Date Analyzed: 2009-12-04

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0906	91	80 - 120	2009-12-04
Toluene		mg/Kg	0.100	0.0912	91	80 - 120	2009-12-04
Ethylbenzene		mg/Kg	0.100	0.0896	90	80 - 120	2009-12-04
Xylene		mg/Kg	0.300	0.268	89	80 - 120	2009-12-04

**Standard (CCV-1)**

QC Batch: 65774

Date Analyzed: 2009-12-04

Analyzed By: ER

Report Date: December 28, 2009  
Jalmat Field Yates Sand Unit #235

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.901	90	80 - 120	2009-12-04

**Standard (CCV-2)**

QC Batch: 65774

Date Analyzed: 2009-12-04

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.944	94	80 - 120	2009-12-04

**Standard (CCV-1)**

QC Batch: 65800

Date Analyzed: 2009-12-04

Analyzed By: KB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50.0	48.1	96	80 - 120	2009-12-04
1,1-Dichloroethene		µg/L	50.0	54.0	108	80 - 120	2009-12-04
Chloroform		µg/L	50.0	50.8	102	80 - 120	2009-12-04
1,2-Dichloropropane		µg/L	50.0	49.9	100	80 - 120	2009-12-04
Toluene		µg/L	50.0	51.7	103	80 - 120	2009-12-04
Chlorobenzene		µg/L	50.0	49.0	98	80 - 120	2009-12-04
Ethylbenzene		µg/L	50.0	52.0	104	80 - 120	2009-12-04

**Standard (CCV-1)**

QC Batch: 65839

Date Analyzed: 2009-12-07

Analyzed By: SS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	5.00	5.01	100	90 - 110	2009-12-07

**Standard (CCV-1)**

QC Batch: 65839

Date Analyzed: 2009-12-07

Analyzed By: SS

Report Date: December 28, 2009  
Jalmat Field Yates Sand Unit #235

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Fluoride		mg/L	5.00	4.65	93	90 - 110	2009-12-07

**Standard (CCV-2)**

QC Batch: 65839

Date Analyzed: 2009-12-07

Analyzed By: SS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	5.00	5.20	104	90 - 110	2009-12-07

**Standard (CCV-2)**

QC Batch: 65839

Date Analyzed: 2009-12-07

Analyzed By: SS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Fluoride		mg/L	5.00	4.81	96	90 - 110	2009-12-07

**Standard (CCV-1)**

QC Batch: 65842

Date Analyzed: 2009-12-08

Analyzed By: DS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Aroclor 1242 (PCB-1242)		mg/L	0.400	0.434	108	85 - 115	2009-12-08
Aroclor 1254 (PCB-1254)		mg/L	0.400	0.342	86	85 - 115	2009-12-08
Aroclor 1260 (PCB-1260)		mg/L	0.400	0.350	88	85 - 115	2009-12-08

**Standard (CCV-2)**

QC Batch: 65842

Date Analyzed: 2009-12-08

Analyzed By: DS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Aroclor 1242 (PCB-1242)		mg/L	0.400	0.460	115	85 - 115	2009-12-08
Aroclor 1254 (PCB-1254)		mg/L	0.400	0.370	92	85 - 115	2009-12-08
Aroclor 1260 (PCB-1260)		mg/L	0.400	0.380	95	85 - 115	2009-12-08

**Standard (CCV-1)**

QC Batch: 65867

Date Analyzed: 2009-12-09

Analyzed By: SS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Chloride		mg/L	25.0	24.3	97	90 - 110	2009-12-09

**Standard (CCV-2)**

QC Batch: 65867

Date Analyzed: 2009-12-09

Analyzed By: SS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Chloride		mg/L	25.0	24.0	96	90 - 110	2009-12-09

**Standard (CCV-1)**

QC Batch: 65897

Date Analyzed: 2009-12-10

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Mercury		mg/L	0.00500	0.00496	99	90 - 110	2009-12-10

**Standard (CCV-2)**

QC Batch: 65897

Date Analyzed: 2009-12-10

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Mercury		mg/L	0.00500	0.00475	95	90 - 110	2009-12-10

**Standard (ICV-1)**

QC Batch: 65931

Date Analyzed: 2009-12-11

Analyzed By: AH

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Cyanide		mg/L	0.120	0.121	101	80 - 120	2009-12-11

**Standard (CCV-1)**

QC Batch: 65931

Date Analyzed: 2009-12-11

Analyzed By: AH

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Cyanide		mg/L	0.120	0.123	102	80 - 120	2009-12-11

**Standard (ICV-1)**

QC Batch: 65953

Date Analyzed: 2009-12-11

Analyzed By: CM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/Kg	100	96.0	96	80 - 120	2009-12-11

**Standard (CCV-1)**

QC Batch: 65953

Date Analyzed: 2009-12-11

Analyzed By: CM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/Kg	100	99.1	99	80 - 120	2009-12-11

**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Cadmium		mg/L	1.00	1.02	102	90 - 110	2009-12-16

**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Lead		mg/L	2.00	2.04	102	90 - 110	2009-12-16



**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Selenium		mg/L	1.00	0.987	99	90 - 110	2009-12-16

**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Arsenic		mg/L	2.00	2.03	102	90 - 110	2009-12-16

**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Barium		mg/L	1.00	1.00	100	90 - 110	2009-12-16

**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Chromium		mg/L	1.00	1.01	101	90 - 110	2009-12-16

**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Silver		mg/L	0.250	0.255	102	90 - 110	2009-12-16

**Standard (ICV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP U		mg/L	1.00	1.01	101	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Cadmium		mg/L	1.00	0.997	100	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Lead		mg/L	1.00	0.987	99	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Selenium		mg/L	1.00	0.968	97	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Arsenic		mg/L	1.00	0.983	98	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Barium		mg/L	1.00	1.00	100	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Chromium		mg/L	1.00	0.989	99	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP Silver		mg/L	0.125	0.127	102	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66024

Date Analyzed: 2009-12-16

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
SPLP U		mg/L	1.00	1.01	101	90 - 110	2009-12-16

**Standard (CCV-1)**

QC Batch: 66242

Date Analyzed: 2009-12-23

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	52.6	88	80 - 120	2009-12-23
Acenaphthylene		mg/L	60.0	51.2	85	80 - 120	2009-12-23

*continued ...*

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Acenaphthene		mg/L	60.0	50.9	85	80 - 120	2009-12-23
Dibenzofuran		mg/L	60.0	52.5	88	80 - 120	2009-12-23
Fluorene		mg/L	60.0	56.0	93	80 - 120	2009-12-23
Anthracene		mg/L	60.0	57.2	95	80 - 120	2009-12-23
Phenanthrene		mg/L	60.0	53.3	89	80 - 120	2009-12-23
Fluoranthene		mg/L	60.0	58.0	97	80 - 120	2009-12-23
Pyrene		mg/L	60.0	47.9	80	80 - 120	2009-12-23
Benzo(a)anthracene		mg/L	60.0	49.8	83	80 - 120	2009-12-23
Chrysene		mg/L	60.0	53.6	89	80 - 120	2009-12-23
Benzo(b)fluoranthene		mg/L	60.0	55.6	93	80 - 120	2009-12-23
Benzo(k)fluoranthene		mg/L	60.0	64.8	108	80 - 120	2009-12-23
Benzo(a)pyrene		mg/L	60.0	66.1	110	80 - 120	2009-12-23
Indeno(1,2,3-cd)pyrene		mg/L	60.0	50.8	85	80 - 120	2009-12-23
Dibenzo(a,h)anthracene		mg/L	60.0	53.9	90	80 - 120	2009-12-23
Benzo(g,h,i)perylene		mg/L	60.0	49.0	82	80 - 120	2009-12-23

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorobiphenyl		48.6	mg/L	1	60.0	81	80 - 120
Nitrobenzene-d5		58.2	mg/L	1	60.0	97	80 - 120
Terphenyl-d14	<sup>3</sup>	46.3	mg/L	1	60.0	77	80 - 120

<sup>3</sup>8270 Only - One basic surrogate is out of control limits. The other two basic surrogates show extraction was performed properly.

*underlying soils*

*5-point composite samples in each quad.*

### Certifications

WBENC: 237019

HUB: 1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

### NELAP Certifications

Lubbock: T104704219-08-TX  
LELAP-02003  
Kansas E-10317

El Paso: T104704221-08-TX  
LELAP-02002

Midland: T104704392-08-TX

## Analytical and Quality Control Report

Rick Navarratte  
Blade Services LLC.  
1100 East Michigan  
Hobbs, NM, 88240

Report Date: March 9, 2010

Work Order: 10030101



Project Name: Jalmat Field Yates Sand Unit #235

Project Number: Jalmat Field Yates Sand Unit #235

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
223837	Northwest Quadrant	soil	2010-02-22	08:00	2010-02-26
223838	Northeast Quadrant	soil	2010-02-22	09:00	2010-02-26
223839	Southeast Quadrant	soil	2010-02-22	09:30	2010-02-26
223840	Southwest Quadrant	soil	2010-02-22	10:00	2010-02-26
223841	Background	soil	2010-02-22	10:30	2010-02-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 21 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director  
Dr. Michael Abel, Project Manager

### Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

## Case Narrative

Samples for project Jalmat Field Yates Sand Unit #235 were received by TraceAnalysis, Inc. on 2010-02-26 and assigned to work order 10030101. Samples for work order 10030101 were received intact at a temperature of 11.0 C. (Samples received, no ice.)

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	58121	2010-03-02 at 10:07	67935	2010-03-02 at 10:07
BTEX	S 8021B	58202	2010-03-05 at 15:04	68029	2010-03-05 at 15:04
Chloride (Titration)	SM 4500-Cl B	58249	2010-03-08 at 10:56	68087	2010-03-08 at 10:57
Chloride (Titration)	SM 4500-Cl B	58250	2010-03-09 at 11:07	68088	2010-03-09 at 11:08
TPH DRO - NEW	Mod. 8015B	58091	2010-03-01 at 15:00	67898	2010-03-01 at 18:00
TPH GRO	S 8015B	58121	2010-03-02 at 10:07	67936	2010-03-02 at 10:07
TPH GRO	S 8015B	58202	2010-03-05 at 15:04	68030	2010-03-05 at 15:04

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10030101 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

## Analytical Report

### Sample: 223837 - Northwest Quadrant

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 67935  
Prep Batch: 58121

Analytical Method: S 8021B  
Date Analyzed: 2010-03-02  
Sample Preparation: 2010-03-02

Prep Method: S 5035  
Analyzed By: ER  
Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.01	mg/Kg	1	2.00	100	76.3 - 110
4-Bromofluorobenzene (4-BFB)		2.10	mg/Kg	1	2.00	105	73.8 - 112

### Sample: 223837 - Northwest Quadrant

Laboratory: Lubbock  
Analysis: Chloride (Titration)  
QC Batch: 68087  
Prep Batch: 58249

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2010-03-08  
Sample Preparation: 2010-03-08

Prep Method: N/A  
Analyzed By: KV  
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		303	mg/Kg	10	3.25

### Sample: 223837 - Northwest Quadrant

Laboratory: Lubbock  
Analysis: TPH DRO - NEW  
QC Batch: 67898  
Prep Batch: 58091

Analytical Method: Mod. 8015B  
Date Analyzed: 2010-03-01  
Sample Preparation: 2010-03-01

Prep Method: N/A  
Analyzed By: AW  
Prepared By: AW

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		120	mg/Kg	1	100	120	71.7 - 148

**Sample: 223837 - Northwest Quadrant**

Laboratory: Lubbock  
 Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035  
 QC Batch: 67936 Date Analyzed: 2010-03-02 Analyzed By: ER  
 Prep Batch: 58121 Sample Preparation: 2010-03-02 Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.99	mg/Kg	1	2.00	100	84.8 - 114
4-Bromofluorobenzene (4-BFB)		2.12	mg/Kg	1	2.00	106	70.8 - 113

**Sample: 223838 - Northeast Quadrant**

Laboratory: Lubbock  
 Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
 QC Batch: 67936 Date Analyzed: 2010-03-02 Analyzed By: ER  
 Prep Batch: 58121 Sample Preparation: 2010-03-02 Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.07	mg/Kg	1	2.00	104	76.3 - 110
4-Bromofluorobenzene (4-BFB)		2.15	mg/Kg	1	2.00	108	73.8 - 112



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**Sample: 223838 - Northeast Quadrant**

Laboratory: Lubbock  
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A  
QC Batch: 68087 Date Analyzed: 2010-03-08 Analyzed By: KV  
Prep Batch: 58249 Sample Preparation: 2010-03-08 Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		294	mg/Kg	10	3.25

**Sample: 223838 - Northeast Quadrant**

Laboratory: Lubbock  
Analysis: TPH DRO - NEW Analytical Method: Mod. 8015B Prep Method: N/A  
QC Batch: 67898 Date Analyzed: 2010-03-01 Analyzed By: AW  
Prep Batch: 58091 Sample Preparation: 2010-03-01 Prepared By: AW

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		119	mg/Kg	1	100	119	71.7 - 148

**Sample: 223838 - Northeast Quadrant**

Laboratory: Lubbock  
Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035  
QC Batch: 67936 Date Analyzed: 2010-03-02 Analyzed By: ER  
Prep Batch: 58121 Sample Preparation: 2010-03-02 Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.06	mg/Kg	1	2.00	103	84.8 - 114
4-Bromofluorobenzene (4-BFB)		2.14	mg/Kg	1	2.00	107	70.8 - 113

Report Date: March 9, 2010  
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**Sample: 223839 - Southeast Quadrant**

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 68029  
Prep Batch: 58202

Analytical Method: S 8021B  
Date Analyzed: 2010-03-05  
Sample Preparation: 2010-03-05

Prep Method: S 5035  
Analyzed By: ER  
Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.18	mg/Kg	1	2.00	109	76.3 - 110
4-Bromofluorobenzene (4-BFB)		2.18	mg/Kg	1	2.00	109	73.8 - 112

**Sample: 223839 - Southeast Quadrant**

Laboratory: Lubbock  
Analysis: Chloride (Titration)  
QC Batch: 68088  
Prep Batch: 58250

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2010-03-09  
Sample Preparation: 2010-03-09

Prep Method: N/A  
Analyzed By: KV  
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		155	mg/Kg	10	3.25

**Sample: 223839 - Southeast Quadrant**

Laboratory: Lubbock  
Analysis: TPH DRO - NEW  
QC Batch: 67898  
Prep Batch: 58091

Analytical Method: Mod. 8015B  
Date Analyzed: 2010-03-01  
Sample Preparation: 2010-03-01

Prep Method: N/A  
Analyzed By: AW  
Prepared By: AW

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		118	mg/Kg	1	100	118	71.7 - 148

**Sample: 223839 - Southeast Quadrant**

Laboratory: Lubbock  
Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035  
QC Batch: 68030 Date Analyzed: 2010-03-05 Analyzed By: ER  
Prep Batch: 58202 Sample Preparation: 2010-03-05 Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.14	mg/Kg	1	2.00	107	84.8 - 114
4-Bromofluorobenzene (4-BFB)	1	2.37	mg/Kg	1	2.00	118	70.8 - 113

**Sample: 223840 - Southwest Quadrant**

Laboratory: Lubbock  
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
QC Batch: 68029 Date Analyzed: 2010-03-05 Analyzed By: ER  
Prep Batch: 58202 Sample Preparation: 2010-03-05 Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.96	mg/Kg	1	2.00	98	76.3 - 110
4-Bromofluorobenzene (4-BFB)		2.04	mg/Kg	1	2.00	102	73.8 - 112

**Sample: 223840 - Southwest Quadrant**

Laboratory: Lubbock  
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A  
QC Batch: 68088 Date Analyzed: 2010-03-09 Analyzed By: KV  
Prep Batch: 58250 Sample Preparation: 2010-03-09 Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		484	mg/Kg	10	3.25

<sup>1</sup>High surrogate recovery. Sample non-detect, result bias high.

**Sample: 223840 - Southwest Quadrant**

Laboratory: Lubbock  
Analysis: TPH DRO - NEW  
QC Batch: 67898  
Prep Batch: 58091

Analytical Method: Mod. 8015B  
Date Analyzed: 2010-03-01  
Sample Preparation: 2010-03-01

Prep Method: N/A  
Analyzed By: AW  
Prepared By: AW

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		118	mg/Kg	1	100	118	71.7 - 148

**Sample: 223840 - Southwest Quadrant**

Laboratory: Lubbock  
Analysis: TPH GRO  
QC Batch: 68030  
Prep Batch: 58202

Analytical Method: S 8015B  
Date Analyzed: 2010-03-05  
Sample Preparation: 2010-03-05

Prep Method: S 5035  
Analyzed By: ER  
Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.98	mg/Kg	1	2.00	99	84.8 - 114
4-Bromofluorobenzene (4-BFB)		2.15	mg/Kg	1	2.00	108	70.8 - 113

**Sample: 223841 - Background**

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 67935  
Prep Batch: 58121

Analytical Method: S 8021B  
Date Analyzed: 2010-03-02  
Sample Preparation: 2010-03-02

Prep Method: S 5035  
Analyzed By: ER  
Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		<0.0200	mg/Kg	1	0.0200

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.65	mg/Kg	1	2.00	82	76.3 - 110
4-Bromofluorobenzene (4-BFB)		1.81	mg/Kg	1	2.00	90	73.8 - 112

**Sample: 223841 - Background**

Laboratory: Lubbock  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 68088      Date Analyzed: 2010-03-09      Analyzed By: KV  
Prep Batch: 58250      Sample Preparation: 2010-03-09      Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<32.5	mg/Kg	10	3.25

**Sample: 223841 - Background**

Laboratory: Lubbock  
Analysis: TPH DRO - NEW      Analytical Method: Mod. 8015B      Prep Method: N/A  
QC Batch: 67898      Date Analyzed: 2010-03-01      Analyzed By: AW  
Prep Batch: 58091      Sample Preparation: 2010-03-01      Prepared By: AW

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		117	mg/Kg	1	100	117	71.7 - 148

**Sample: 223841 - Background**

Laboratory: Lubbock  
Analysis: TPH GRO      Analytical Method: S 8015B      Prep Method: S 5035  
QC Batch: 68030      Date Analyzed: 2010-03-05      Analyzed By: ER  
Prep Batch: 58202      Sample Preparation: 2010-03-05      Prepared By: ER

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.89	mg/Kg	1	2.00	94	84.8 - 114
4-Bromofluorobenzene (4-BFB)		2.02	mg/Kg	1	2.00	101	70.8 - 113

Method Blank (1) QC Batch: 67898

QC Batch: 67898  
Prep Batch: 58091

Date Analyzed: 2010-03-01  
QC Preparation: 2010-03-01

Analyzed By: AW  
Prepared By: AW

Parameter	Flag	MDL Result	Units	RL
DRO		<8.38	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		136	mg/Kg	1	100	136	71.7 - 148

Method Blank (1) QC Batch: 67935

QC Batch: 67935  
Prep Batch: 58121

Date Analyzed: 2010-03-02  
QC Preparation: 2010-03-02

Analyzed By: ER  
Prepared By: ER

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00462	mg/Kg	0.02
Toluene		<0.00582	mg/Kg	0.02
Ethylbenzene		<0.00433	mg/Kg	0.02
Xylene		<0.00383	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.99	mg/Kg	1	2.00	100	76.3 - 110
4-Bromofluorobenzene (4-BFB)		2.00	mg/Kg	1	2.00	100	73.8 - 112

Method Blank (1) QC Batch: 67936

QC Batch: 67936  
Prep Batch: 58121

Date Analyzed: 2010-03-02  
QC Preparation: 2010-03-02

Analyzed By: ER  
Prepared By: ER

Parameter	Flag	MDL Result	Units	RL
GRO		<0.241	mg/Kg	2

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.01	mg/Kg	1	2.00	100	84.8 - 114
4-Bromofluorobenzene (4-BFB)		2.02	mg/Kg	1	2.00	101	70.8 - 113

**Method Blank (1)**      QC Batch: 68029

QC Batch: 68029  
Prep Batch: 58202

Date Analyzed: 2010-03-05  
QC Preparation: 2010-03-05

Analyzed By: ER  
Prepared By: ER

Parameter	Flag	MDL		Units	RL
		Result			
Benzene		<0.00462		mg/Kg	0.02
Toluene		<0.00582		mg/Kg	0.02
Ethylbenzene		<0.00433		mg/Kg	0.02
Xylene		<0.00383		mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.83	mg/Kg	1	2.00	92	76.3 - 110
4-Bromofluorobenzene (4-BFB)		1.87	mg/Kg	1	2.00	94	73.8 - 112

**Method Blank (1)**      QC Batch: 68030

QC Batch: 68030  
Prep Batch: 58202

Date Analyzed: 2010-03-05  
QC Preparation: 2010-03-05

Analyzed By: ER  
Prepared By: ER

Parameter	Flag	MDL		Units	RL
		Result			
GRO		<0.241		mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.92	mg/Kg	1	2.00	96	84.8 - 114
4-Bromofluorobenzene (4-BFB)		1.78	mg/Kg	1	2.00	89	70.8 - 113

**Method Blank (1)**      QC Batch: 68087

QC Batch: 68087  
Prep Batch: 58249

Date Analyzed: 2010-03-08  
QC Preparation: 2010-03-08

Analyzed By: KV  
Prepared By: KV

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Parameter	Flag	MDL Result	Units	RL
Chloride		<1.80	mg/Kg	3.25

**Method Blank (1)**      QC Batch: 68088

QC Batch: 68088      Date Analyzed: 2010-03-09      Analyzed By: KV  
Prep Batch: 58250      QC Preparation: 2010-03-09      Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Chloride		<1.80	mg/Kg	3.25

**Laboratory Control Spike (LCS-1)**

QC Batch: 67898      Date Analyzed: 2010-03-01      Analyzed By: AW  
Prep Batch: 58091      QC Preparation: 2010-03-01      Prepared By: AW

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	236	mg/Kg	1	250	<8.38	94	68 - 137

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	259	mg/Kg	1	250	<8.38	104	68 - 137	9	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	124	133	mg/Kg	1	100	124	133	71.7 - 148

**Laboratory Control Spike (LCS-1)**

QC Batch: 67935      Date Analyzed: 2010-03-02      Analyzed By: ER  
Prep Batch: 58121      QC Preparation: 2010-03-02      Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.25	mg/Kg	1	2.00	<0.00462	112	80.6 - 112
Toluene	2.25	mg/Kg	1	2.00	<0.00582	112	80.7 - 113
Ethylbenzene	2.21	mg/Kg	1	2.00	<0.00433	110	79.2 - 110

*continued ...*



control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene	6.55	mg/Kg	1	6.00	<0.00383	109	79.8 - 113

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.18	mg/Kg	1	2.00	<0.00462	109	80.6 - 112	3	20
Toluene	2.19	mg/Kg	1	2.00	<0.00582	110	80.7 - 113	3	20
Ethylbenzene	2.18	mg/Kg	1	2.00	<0.00433	109	79.2 - 110	1	20
Xylene	6.47	mg/Kg	1	6.00	<0.00383	108	79.8 - 113	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.15	2.15	mg/Kg	1	2.00	108	108	79.5 - 109
4-Bromofluorobenzene (4-BFB)	2.16	2.14	mg/Kg	1	2.00	108	107	77.7 - 113

#### Laboratory Control Spike (LCS-1)

QC Batch: 67936  
Prep Batch: 58121

Date Analyzed: 2010-03-02  
QC Preparation: 2010-03-02

Analyzed By: ER  
Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	20.0	mg/Kg	1	20.0	<0.241	100	78.5 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	21.4	mg/Kg	1	20.0	<0.241	107	78.5 - 118	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.07	2.05	mg/Kg	1	2.00	104	102	81.9 - 111
4-Bromofluorobenzene (4-BFB)	2.19	2.16	mg/Kg	1	2.00	110	108	78.2 - 117

#### Laboratory Control Spike (LCS-1)

QC Batch: 68029  
Prep Batch: 58202

Date Analyzed: 2010-03-05  
QC Preparation: 2010-03-05

Analyzed By: ER  
Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.94	mg/Kg	1	2.00	<0.00462	97	80.6 - 112
Toluene	1.92	mg/Kg	1	2.00	<0.00582	96	80.7 - 113
Ethylbenzene	1.88	mg/Kg	1	2.00	<0.00433	94	79.2 - 110
Xylene	5.57	mg/Kg	1	6.00	<0.00383	93	79.8 - 113

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.90	mg/Kg	1	2.00	<0.00462	95	80.6 - 112	2	20
Toluene	1.88	mg/Kg	1	2.00	<0.00582	94	80.7 - 113	2	20
Ethylbenzene	1.84	mg/Kg	1	2.00	<0.00433	92	79.2 - 110	2	20
Xylene	5.44	mg/Kg	1	6.00	<0.00383	91	79.8 - 113	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.86	1.79	mg/Kg	1	2.00	93	90	79.5 - 109
4-Bromofluorobenzene (4-BFB)	1.87	1.81	mg/Kg	1	2.00	94	90	77.7 - 113

#### Laboratory Control Spike (LCS-1)

QC Batch: 68030  
Prep Batch: 58202

Date Analyzed: 2010-03-05  
QC Preparation: 2010-03-05

Analyzed By: ER  
Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	18.2	mg/Kg	1	20.0	<0.241	91	78.5 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	20.1	mg/Kg	1	20.0	<0.241	100	78.5 - 118	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.84	1.94	mg/Kg	1	2.00	92	97	81.9 - 111
4-Bromofluorobenzene (4-BFB)	2.07	2.15	mg/Kg	1	2.00	104	108	78.2 - 117

#### Matrix Spike (MS-1) Spiked Sample: 223837

QC Batch: 67898  
Prep Batch: 58091

Date Analyzed: 2010-03-01  
QC Preparation: 2010-03-01

Analyzed By: AW  
Prepared By: AW

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	218	mg/Kg	1	250	<8.38	87	40 - 144

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	213	mg/Kg	1	250	<8.38	85	40 - 144	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	116	115	mg/Kg	1	100	116	115	71.7 - 148

**Matrix Spike (MS-1)** Spiked Sample: 223756

QC Batch: 67935  
Prep Batch: 58121

Date Analyzed: 2010-03-02  
QC Preparation: 2010-03-02

Analyzed By: ER  
Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.06	mg/Kg	1	2.00	<0.00462	103	61.7 - 127
Toluene	2.20	mg/Kg	1	2.00	<0.00582	110	60.8 - 136
Ethylbenzene	2.30	mg/Kg	1	2.00	<0.00433	115	70.3 - 132
Xylene	6.82	mg/Kg	1	6.00	<0.00383	114	69.7 - 139

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.16	mg/Kg	1	2.00	<0.00462	108	61.7 - 127	5	20
Toluene	<sup>2</sup> 2.30	mg/Kg	1	2.00	<0.00582	115	60.8 - 136	4	20
Ethylbenzene	<sup>3</sup> 2.40	mg/Kg	1	2.00	<0.00433	120	70.3 - 132	4	20
Xylene	<sup>4</sup> 7.18	mg/Kg	1	6.00	<0.00383	120	69.7 - 139	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	<sup>5</sup> 2.22	2.25	mg/Kg	1	2	111	112	64 - 129
4-Bromofluorobenzene (4-BFB)	2.26	2.23	mg/Kg	1	2	113	112	71.8 - 133

<sup>2</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>3</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>4</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>5</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

Matrix Spike (MS-1) Spiked Sample: 223764

QC Batch: 67936  
Prep Batch: 58121

Date Analyzed: 2010-03-02  
QC Preparation: 2010-03-02

Analyzed By: ER  
Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	18.2	mg/Kg	1	20.0	<0.241	91	59.9 - 133

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	18.1	mg/Kg	1	20.0	<0.241	90	59.9 - 133	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.84	1.82	mg/Kg	1	2	92	91	69.3 - 122
4-Bromofluorobenzene (4-BFB)	2.18	2.13	mg/Kg	1	2	109	106	72.2 - 135

Matrix Spike (MS-1) Spiked Sample: 223839

QC Batch: 68029  
Prep Batch: 58202

Date Analyzed: 2010-03-05  
QC Preparation: 2010-03-05

Analyzed By: ER  
Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.01	mg/Kg	1	2.00	<0.00462	100	61.7 - 127
Toluene	2.14	mg/Kg	1	2.00	<0.00582	107	60.8 - 136
Ethylbenzene	2.22	mg/Kg	1	2.00	<0.00433	111	70.3 - 132
Xylene	6.67	mg/Kg	1	6.00	<0.00383	111	69.7 - 139

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.02	mg/Kg	1	2.00	<0.00462	101	61.7 - 127	0	20
Toluene	2.14	mg/Kg	1	2.00	<0.00582	107	60.8 - 136	0	20
Ethylbenzene	2.24	mg/Kg	1	2.00	<0.00433	112	70.3 - 132	1	20
Xylene	6.73	mg/Kg	1	6.00	<0.00383	112	69.7 - 139	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

<sup>6</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

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*matrix spikes continued . . .*

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.04	2.03	mg/Kg	1	2	102	102	64 - 129
4-Bromofluorobenzene (4-BFB)	2.16	2.12	mg/Kg	1	2	108	106	71.8 - 133

**Matrix Spike (MS-1)** Spiked Sample: 223840

QC Batch: 68030  
Prep Batch: 58202

Date Analyzed: 2010-03-05  
QC Preparation: 2010-03-05

Analyzed By: ER  
Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	19.0	mg/Kg	1	20.0	<0.241	95	59.9 - 133

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	18.8	mg/Kg	1	20.0	<0.241	94	59.9 - 133	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.81	1.80	mg/Kg	1	2	90	90	69.3 - 122
4-Bromofluorobenzene (4-BFB)	2.33	2.15	mg/Kg	1	2	116	108	72.2 - 135

**Matrix Spike (MS-1)** Spiked Sample: 223762

QC Batch: 68087  
Prep Batch: 58249

Date Analyzed: 2010-03-08  
QC Preparation: 2010-03-08

Analyzed By: KV  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	720	mg/Kg	10	500	313	81	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	716	mg/Kg	10	500	313	81	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 223848

QC Batch: 68088  
Prep Batch: 58250

Date Analyzed: 2010-03-09  
QC Preparation: 2010-03-09

Analyzed By: KV  
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	618	mg/Kg	10	500	207	82	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	637	mg/Kg	10	500	207	86	80 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Standard (CCV-1)**

QC Batch: 67898

Date Analyzed: 2010-03-01

Analyzed By: AW

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	231	92	80 - 120	2010-03-01

**Standard (CCV-2)**

QC Batch: 67898

Date Analyzed: 2010-03-01

Analyzed By: AW

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	234	94	80 - 120	2010-03-01

**Standard (CCV-1)**

QC Batch: 67935

Date Analyzed: 2010-03-02

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.106	106	80 - 120	2010-03-02
Toluene		mg/Kg	0.100	0.106	106	80 - 120	2010-03-02
Ethylbenzene		mg/Kg	0.100	0.105	105	80 - 120	2010-03-02
Xylene		mg/Kg	0.300	0.313	104	80 - 120	2010-03-02

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**Standard (CCV-2)**

QC Batch: 67935

Date Analyzed: 2010-03-02

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.108	108	80 - 120	2010-03-02
Toluene		mg/Kg	0.100	0.108	108	80 - 120	2010-03-02
Ethylbenzene		mg/Kg	0.100	0.107	107	80 - 120	2010-03-02
Xylene		mg/Kg	0.300	0.317	106	80 - 120	2010-03-02

**Standard (CCV-1)**

QC Batch: 67936

Date Analyzed: 2010-03-02

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.985	98	80 - 120	2010-03-02

**Standard (CCV-2)**

QC Batch: 67936

Date Analyzed: 2010-03-02

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.977	98	80 - 120	2010-03-02

**Standard (CCV-1)**

QC Batch: 68029

Date Analyzed: 2010-03-05

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0959	96	80 - 120	2010-03-05
Toluene		mg/Kg	0.100	0.0951	95	80 - 120	2010-03-05
Ethylbenzene		mg/Kg	0.100	0.0945	94	80 - 120	2010-03-05
Xylene		mg/Kg	0.300	0.277	92	80 - 120	2010-03-05

**Standard (CCV-2)**

QC Batch: 68029

Date Analyzed: 2010-03-05

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0964	96	80 - 120	2010-03-05
Toluene		mg/Kg	0.100	0.0949	95	80 - 120	2010-03-05
Ethylbenzene		mg/Kg	0.100	0.0923	92	80 - 120	2010-03-05
Xylene		mg/Kg	0.300	0.275	92	80 - 120	2010-03-05

Standard (CCV-1)

QC Batch: 68030

Date Analyzed: 2010-03-05

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.963	96	80 - 120	2010-03-05

Standard (CCV-2)

QC Batch: 68030

Date Analyzed: 2010-03-05

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.867	87	80 - 120	2010-03-05

Standard (ICV-1)

QC Batch: 68087

Date Analyzed: 2010-03-08

Analyzed By: KV

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-03-08

Standard (CCV-1)

QC Batch: 68087

Date Analyzed: 2010-03-08

Analyzed By: KV

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.3	99	85 - 115	2010-03-08



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Standard (ICV-1)

QC Batch: 68088

Date Analyzed: 2010-03-09

Analyzed By: KV

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.3	99	85 - 115	2010-03-09

Standard (CCV-1)

QC Batch: 68088

Date Analyzed: 2010-03-09

Analyzed By: KV

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-03-09

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*Attachment IV—Photographs*

MELROSE OPERATING COMPANY

JALMAT FIELD YATES SAND UNIT #235

UNIT A, SEC.11-T22S-R35E

API #30-025-38928, NMLC #25191

627' FNL & 1060' FEL

LEA CO., NEW MEXICO

EMERGENCY #575-390-4666, 575-394-2610

**DANGER**

**NO  
SMOKING**

**CAUTION**

**H<sub>2</sub>S GAS**

