

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Form C-144
June 1, 2004

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87508

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☒ No ☐

Type of action: Registration of a pit or below-grade tank ☐ Closure of a pit or below-grade tank ☒

Operator: Merrion Oil & Gas Telephone: (505)324-5326 e-mail address: cdinning@merrion.bz
Address: 610 Reilly Ave., Farmington, NM 87401
Facility or well name: Canada Mesa 3 API #: 30-039-20632 U/L or Qtr/Qtr ne/ne Sec 14 T 24N R 6W
County: Rio Arriba Latitude _____ Longitude _____ NAD: 1927 ☐ 1983 ☐ Surface Owner Federal ☒ State ☐ Private ☐ Indian ☐

Pit

Type: Drilling ☐ Production ☒ Disposal ☐

Workover ☐ Emergency ☐

Lined ☐ Unlined ☒

Liner type: Synthetic ☐ Thickness _____ mil Clay ☐

Pit Volume 295 bbl 23' X 24' X 3'

Below-grade tank

Volume: _____ bbl Type of fluid: _____

Construction material: _____

Double-walled, with leak detection? Yes ☐ If not, explain why not. _____

Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.) 17'

Less than 50 feet	(20 points)
50 feet or more, but less than 100 feet	(10 points)
100 feet or more	(0 points)
	20

Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)

Yes We do not know at this point, we have been unable to access the State Engineer website	(20 points)
No	(0 points)
	20

Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)

Less than 200 feet	(20 points)
200 feet or more, but less than 1000 feet	(10 points)
1000 feet or more	(0 points)
	10

Ranking Score (Total Points)	50
-------------------------------------	-----------

If this is a pit closure: (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite ☐ offsite ☒ If offsite, name of facility Envirotech Landfarm #2. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☒ If yes, show depth below ground surface 17 ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments: Please see detailed closure report.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: May 11, 2005

Printed Name/Title Connie Dinning/ Production Engineer

Signature [Signature]

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval: DEPUTY OIL & GAS INSPECTOR, DIST. #8

Printed Name/Title _____

Signature [Signature]

Date: MAY 13 2005

**Merrion Oil & Gas
Canada Mesa No. 3
UL A, Sec 14, T24N, R6W
Rio Arriba County, New Mexico
Pit Closure Summary**

Summary

The Canada Mesa No. 3 unlined earthen pit closure was completed on April 25, 2005. Approximately 2000 yds³ of contaminated soil were removed from the location and hauled to Envirotech Inc. Soil Remediation Facility, Landfarm #2, Hilltop, New Mexico. Approximately 1200 Bbls. of groundwater was pumped from the excavation and hauled to the Flush No. 1 water disposal well owned and operated by Merrion Oil & Gas. The groundwater was tested for BTEX (lab results attached), and the soil on the sides of the excavation were tested with an OVM to assure that all contaminated soil had been removed.

Remedial Action

The attached correspondence details the initial report and planned clean up for the location. The remediation followed the proposed plan, details follow:

- ❖ Remove contaminated soil in segments
 - As planned, the soil was removed in sections, moving out radially from the center of the existing pit. The attached site diagram shows the location of the test holes that were excavated to determine the extent of the soil contamination. The excavation contractor, Moss Excavation, initially moved out approximately 100' in each direction to find clean soil. He then moved toward the center of the pit from the clean soil continuing to dig test holes at 10' intervals until he hit contaminated soil. This was sufficient in each direction except the north, toward Largo Wash. This was the apparent direction of groundwater flow, and hydrocarbon flow from the pit. The soil was contaminated 100' to the north, so he moved out approximately 40 additional feet and worked back toward the pit in 10' intervals until he hit contaminated soil. The diagram shows the approximate shape of the contamination in the soil.
 - The size of the projected excavation was too large for the site to contain all the overburden and the contaminated soil at one time. After the extent of the contamination was delineated, the excavation began to the east. When the soil began to clean up visually, OVM readings were taken.
- ❖ Close segments based on OVM readings
 - We required OVM readings of 100 ppm prior to the backfilling of any section of the pit with clean soil. These readings were taken at 20' intervals along the approximate boundary noted on the attached diagram. The excavation and testing continued until all the contaminated soil was removed, and portions of the

excavation were backfilled with clean overburden. No OVM readings were more than 20 ppm prior to backfilling with clean soil. This was an improvement over the 100 ppm we initially required.

❖ Pump groundwater from the excavation

- There was groundwater in the excavation at approximately 17'. It was difficult to work with the water flowing in to the excavation, so we set a frac tank and pumped water to the tank. The tank was emptied and the water hauled to the Flush No. 1, Merrion's water disposal well. We estimate that about 1200 bbls of water were hauled to disposal. Initially we did not know if the water was contaminated, and it took some time to get the lab results, so we treated the water as if it were contaminated.
- We took water samples at the locations shown on the attached diagram. The samples were analyzed for general chemistry, metals and BTEX. The results were faxed to the NMOCD office in Santa Fe and copies are attached to this report. The water analysis showed the BTEX constituents to be within acceptable levels.

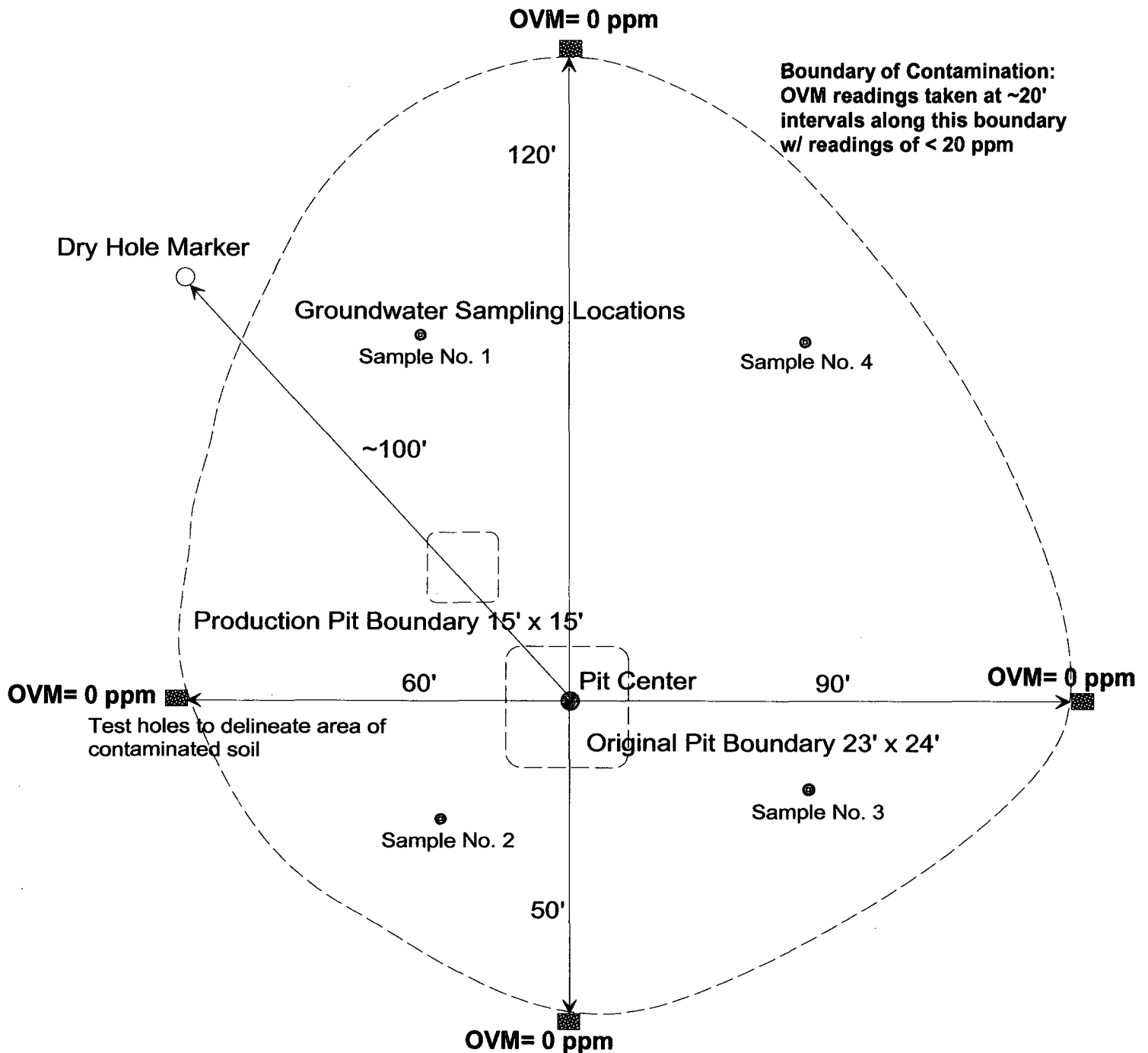
Clean fill dirt was hauled to the location from road work and culvert clean out projects in the area. The location was recontoured and will be reseeded in the next few weeks.

Attachments

- ❖ Pit closure worksheet (C-144)
- ❖ Correspondence reporting possible groundwater contamination
- ❖ Topographical map showing P&A'd well location
- ❖ Site diagram showing original pit location, dry hole marker, soil contamination, etc
- ❖ Certificate of Waste Status
- ❖ Photographs of site
- ❖ Laboratory analyses for groundwater samples



**Merrion Oil & Gas
Canada Mesa No. 3
Pit Closure, Site Sketch**



ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

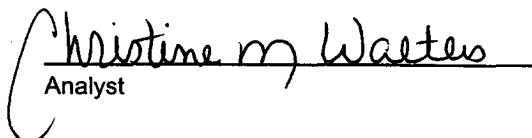
Client: Merrion Oil
Sample ID: SE Corner of Pit
Laboratory Number: 32674
Chain of Custody: 13958
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

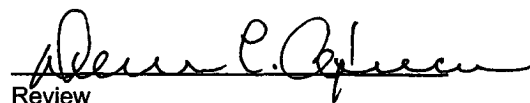
Project #: 03048-009
Date Reported: 04-20-05
Date Sampled: 04-19-05
Date Received: 04-19-05
Date Extracted: N/A
Date Analyzed: 04-19 / 04-20-05

Parameter	Analytical Result	Units		
pH	7.92	s.u.		
Conductivity @ 25° C	16,930	umhos/cm		
Total Dissolved Solids @ 180C	8,170	mg/L		
Total Dissolved Solids (Calc)	8,140	mg/L		
SAR	23.7	ratio		
Total Alkalinity as CaCO3	382	mg/L		
Total Hardness as CaCO3	1,150	mg/L		
Bicarbonate as HCO3	382	mg/L	6.26	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.8	mg/L	0.01	meq/L
Nitrite Nitrogen	0.110	mg/L	0.00	meq/L
Chloride	280	mg/L	7.90	meq/L
Fluoride	2.02	mg/L	0.11	meq/L
Phosphate	0.2	mg/L	0.01	meq/L
Sulfate	5,020	mg/L	104.52	meq/L
Iron	0.008	mg/L	0.00	meq/L
Calcium	426	mg/L	21.26	meq/L
Magnesium	88.9	mg/L	7.32	meq/L
Potassium	29.6	mg/L	0.76	meq/L
Sodium	2,060	mg/L	89.61	meq/L
Cations			118.94	meq/L
Anions			118.80	meq/L
Cation/Anion Difference			0.11%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Canada Mesa #3.**


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Merrion Oil	Project #:	03048-009
Sample ID:	#1	Date Reported:	04-18-05
Chain of Custody:	13864	Date Sampled:	04-15-05
Laboratory Number:	32659	Date Received:	04-15-05
Sample Matrix:	Water	Date Analyzed:	04-18-05
Preservative:	Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	1.1	1	0.2
Toluene	13.5	1	0.2
Ethylbenzene	5.0	1	0.2
p,m-Xylene	39.3	1	0.2
o-Xylene	11.6	1	0.1

Total BTEX 70.5


ND - Parameter not detected at the stated detection limit.

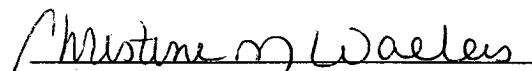
Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	99 %
	1,4-difluorobenzene	99 %
	4-bromochlorobenzene	99 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Canada Mesa #3 Northwest of Pit.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Merrion Oil	Project #:	03048-009
Sample ID:	#2	Date Reported:	04-18-05
Chain of Custody:	13864	Date Sampled:	04-15-05
Laboratory Number:	32660	Date Received:	04-15-05
Sample Matrix:	Water	Date Analyzed:	04-18-05
Preservative:	Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	0.2	1	0.2
Toluene	3.8	1	0.2
Ethylbenzene	2.9	1	0.2
p,m-Xylene	13.3	1	0.2
o-Xylene	5.7	1	0.1

Total BTEX **25.9**

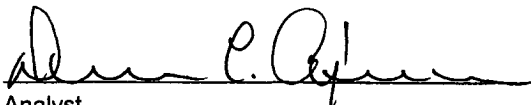
ND - Parameter not detected at the stated detection limit.

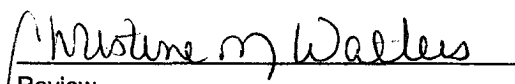
Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	99 %
	1,4-difluorobenzene	99 %
	4-bromochlorobenzene	99 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **Canada Mesa #3 Southwest of Pit.**


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Merrion Oil	Project #:	03048-009
Sample ID:	#3	Date Reported:	04-18-05
Chain of Custody:	13864	Date Sampled:	04-15-05
Laboratory Number:	32661	Date Received:	04-15-05
Sample Matrix:	Water	Date Analyzed:	04-18-05
Preservative:	Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	0.3	1	0.2
Toluene	7.4	1	0.2
Ethylbenzene	3.1	1	0.2
p,m-Xylene	21.0	1	0.2
o-Xylene	6.9	1	0.1

Total BTEX **38.7**

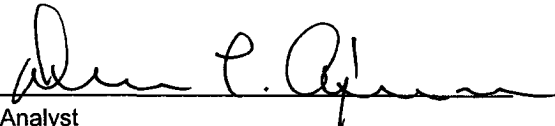
ND - Parameter not detected at the stated detection limit.

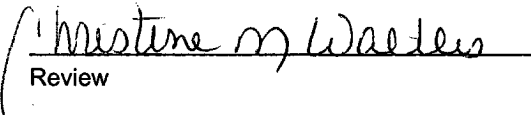
Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	99 %
	1,4-difluorobenzene	99 %
	4-bromochlorobenzene	99 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **Canada Mesa #3 Southeast of Pit.**


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Merrion Oil	Project #:	03048-009
Sample ID:	#4	Date Reported:	04-18-05
Chain of Custody:	13864	Date Sampled:	04-15-05
Laboratory Number:	32662	Date Received:	04-15-05
Sample Matrix:	Water	Date Analyzed:	04-18-05
Preservative:	Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	0.7	1	0.2
Toluene	16.7	1	0.2
Ethylbenzene	12.2	1	0.2
p,m-Xylene	81.6	1	0.2
o-Xylene	23.4	1	0.1

Total BTEX 135

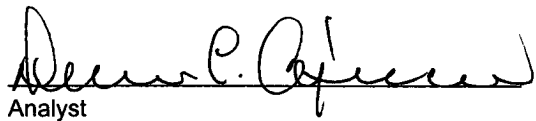
ND - Parameter not detected at the stated detection limit.

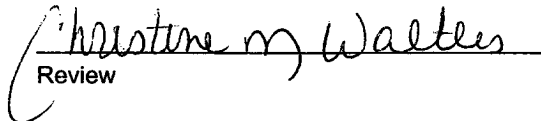
Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	99 %
	1,4-difluorobenzene	99 %
	4-bromochlorobenzene	99 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Canada Mesa #3 Northeast of Pit.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

TRACE METAL ANALYSIS

Client:	Merrion Oil	Project #:	03048-009
Sample ID:	#4	Date Reported:	04-25-05
Laboratory Number:	32662	Date Sampled:	04-15-05
Chain of Custody:	13864	Date Received:	04-15-05
Sample Matrix:	Water	Date Analyzed:	04-25-05
Preservative:	Cool	Date Digested:	04-18-05
Condition:	Cool & Intact	Analysis Needed:	RCRA Metals

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	TCLP Regulatory Level (mg/L)
Arsenic	0.018	0.001	5.0
Barium	0.044	0.001	100
Cadmium	ND	0.001	1.0
Chromium	ND	0.001	5.0
Lead	0.003	0.001	5.0
Mercury	ND	0.001	0.2
Selenium	ND	0.001	1.0
Silver	ND	0.001	5.0

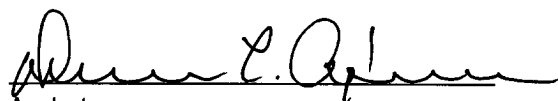
ND - Parameter not detected at the stated detection limit.

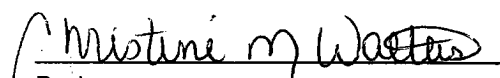
References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C
section 261.24, August 24, 1998.

Comments: **Canada Mesa #3 Northeast of Pit.**


Analyst


Review