<u>District I</u> 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**

Revised August 8, 2011

Form C-141

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office to accordance with 19.15.29 NMAC.

Release Notificatio	n and Corrective Action	1
	OPERATOR	☐ Initial Report ☐ Final Report
Name of Company Burlington Resources Oil & Gas Company	Contact Crystal Tafoya	
Address 3401 East 30 <sup>th</sup> St, Farmington, NM	Telephone No.(505) 326-9837	
Facility Name: Kattler 1	Facility Type: Gas Well	
Surface Owner Fee Mineral Owner	Fee	API No.30-045-08844
LOCATIO	N OF RELEASE	
		West Line County
C 2 29N 12W 990	North 1650	West San Juan
Latitude <u>36.7590</u>	<u>08</u> Longitude <u>108.07066</u>	
	E OF RELEASE	
Type of Release Produced Fluids	Volume of Release Unknown	Volume Recovered None
Source of Release Below Grade Tank	Date and Hour of Occurrence Unknown	Date and Hour of Discovery July 17, 2012
Was Immediate Notice Given?	If YES, To Whom?	July 17, 2012
☐ Yes ☐ No ☒ Not Required		RCVD FEB 22 '13
By Whom?	Date and Hour	on come dil
Was a Watercourse Reached?  ☐ Yes ☒ No	If YES, Volume Impacting the Wat	tercourse. DIST. 3
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.*		
Below Grade Tank Closure Activities		
	·	
Describe Area Affected and Cleanup Action Taken.*		
The below grade tank sample results were above regulatory standar		
24' x 20' x 5.5' and 98 cubic yards of soil was transported to a third presults for TPH, BTEX and Chlorides were below the regulatory sta	party landiarm. Excavation and conf ndards set forth in the NMOCD Guid	delines for Remediation of Leaks, Spills
and Release; therefore no further action is required. The final report		Temes for Remediation of Beauty, 5 pms
I hereby certify that the information given above is true and complete to	the best of my knowledge and understa	and that pursuant to NMOCD rules and
regulations all operators are required to report and/or file certain release		
public health or the environment. The acceptance of a C-141 report by the		
should their operations have failed to adequately investigate and remedia or the environment. In addition, NMOCD acceptance of a C-141 report		
federal, state, or local laws and/or regulations.	does not reneve the operator of respons	former for compliance with any other
	OIL CONSERV	ATION DIVISION
Cystal of Tapaya		
Signature:		( TIV) / Your
organica.	Approved by Environmental Specialis	it: Someth or loss of
Printed Name: Crystal Tafoya		
Title: Field Environmental Specialist	Approval Date: 1/21/2013	Expiration Date:
	010-11	2. printisti pater
E-mail Address: crystal.tafoya@conocophillips.com	Conditions of Approval:	Attached
Date: 2/19/2013 Phone: (505) 326-9837		
Attach Additional Sheets If Necessary	n5x13059	2 0489.41
	110.	ا بسم



January 31, 2013

Crystal Tafoya ConocoPhillips San Juan Business Unit Office 214-05 5525 Hwy 64 Farmington, New Mexico 87401 www.animasenvironmental.com

624 E. Comanche Farmington, NM 67401 505-564-2281

> Durango, Colorado 970-403-3084

RE: Below Grade Tank Closure, Release, and Excavation Report

Kattler #1

San Juan County, New Mexico

Dear Ms. Tafoya:

Animas Environmental Services, LLC (AES) is pleased to provide the final report associated with the below grade tank (BGT) closure and final excavation of chloride contaminated soils at the ConocoPhillips (CoP) Kattler #1, located in San Juan County, New Mexico. Tank removal had been completed by CoP contractors prior to AES' arrival at the location. The final excavation was completed by CoP contractors while AES was on location on July 20, 2012.

#### 1.0 Site Information

### 1.1 Location

Site Name - Kattler #1

Legal Description - NE¼ NW¼, Section 2, T29N, R12W, San Juan County, New Mexico Well Latitude/Longitude - N36.75951 and W108.07107, respectively BGT Latitude/Longitude - N36.75972 and W108.07124, respectively Land Jurisdiction - Private

Figure 1. Topographic Site Location Map

Figure 2. Aerial Site Map, July 2012

## 1.2 NMOCD Ranking

Prior to site work, the New Mexico Oil Conservation Division (NMOCD) database was reviewed, and no prior ranking information was located. The New Mexico Office of the State Engineer (NMOSE) database was reviewed for nearby water wells, and no registered water wells were reported to be located within 1,000 feet of the location.

Crystal Tafoya Kattler #1 BGT Closure, Release, and Excavation Report January 31, 2013 Page 2 of 6

Additionally, Google Earth and the New Mexico Tech Petroleum Recovery Research Center online mapping tool (<a href="http://ford.nmt.edu/react/project.html">http://ford.nmt.edu/react/project.html</a>) were accessed to aid in the identification of downgradient surface water.

Once on site, AES personnel further assessed the ranking using topographical interpretation, Global Positioning System (GPS) elevation readings, and visual reconnaissance. AES personnel concluded that depth to groundwater at the site was greater than 100 feet below ground surface (bgs). A tributary to the wash in Hargis Arroyo is located approximately 270 feet north of the location. Based on this information, the location was assessed a ranking score of 10.

## 1.3 Assessments

AES was initially contacted by Jess Henson, CoP representative, on July 17, 2012, and on July 18, 2012, Deborah Watson and Nathan Willis of AES met with Jess Henson at the location. AES personnel collected six soil samples from below the BGT liner. Four samples were collected from the perimeter of the BGT footprint, one sample was collected from the center of the BGT footprint, and one sample was composited from the four perimeter samples and one center sample. Sample locations are shown on Figure 2.

On July 20, 2012, AES personnel returned to the site to collect confirmation soil samples of the excavation. The field screening activities included collection of five confirmation samples (SC-1 through SC-5) of the walls and base of the excavation. A composite sample (SC-6) was composited from the four walls and base of the excavation. The final excavation was approximately 24 feet by 20 feet by 4 feet grading to 5.5 feet in depth. Sample locations and excavation extents are shown on Figure 3.

## 2.0 Soil Sampling

On July 18, 2012, AES personnel conducted field screening and collected five soil samples (S-1 through S-5) and one 5-point composite (SC-1) from below the BGT. Soil samples were collected from approximately 0.5 feet below the former BGT for field screening of volatile organic compounds (VOCs), total petroleum hydrocarbon (TPH), and chlorides. Soil sample SC-1 was submitted for confirmation laboratory analysis. Soil sample locations are included on Figure 2.

On July 20, 2012, AES personnel conducted field screening and collected five 5-point composites (SC-1 through SC-5) of the walls and base of the excavation for field screening of chlorides. One samples, SC-6, was composited from SC-1 through SC-5 and submitted for confirmation laboratory analysis.

## 2.1 Field Screening

#### 2.1.1 Volatile Organic Compounds

A portion of each sample collected on July 18, 2012, was utilized for field screening of VOC vapors with a photo-ionization detector (PID) organic vapor meter (OVM). Before beginning field screening, the PID-OVM was first calibrated with 100 parts per million (ppm) isobutylene gas.

#### 2.1.2 Total Petroleum Hydrocarbons

Soil samples (SC-1 through SC-5, July 18) were also analyzed in the field for TPH per USEPA Method 418.1 using a Buck Scientific Model HC-404 Total Hydrocarbon Analyzer Infrared Spectrometer (Buck). A 3-point calibration was completed prior to conducting soil analyses. Field analytical protocol followed AES's Standard Operating Procedure: Field Analysis Total Petroleum Hydrocarbons per EPA Method 418.1.

#### 2.1.3 Chlorides

All soil samples were field screened for chlorides using Chloride Drop Count Titration with silver nitrate. Sampling and analysis methods followed procedures provided by Hach Company.

## 2.2 Laboratory Analyses

The composite soil samples collected for laboratory analysis were placed into new, clean, laboratory-supplied containers, which were then labeled, placed on ice, and logged onto a sample chain of custody record. The samples were maintained on ice until delivery to the analytical laboratory, Hall Environmental Analysis Laboratory (Hall), in Albuquerque, New Mexico. Soil sample SC-1 (July 18) was laboratory analyzed for:

- Benzene, toluene, ethylbenzene, and xylene (BTEX) per U.S. Environmental Protection Agency (USEPA) Method 8260B; and
- Chloride per USEPA Method 300.0.

Note sample SC-6 (July 20) was only analyzed for chloride per USEPA 300.0.

## 2.3 Field Screening and Laboratory Analytical Results

On July 18, 2012, field screening results for VOCs via OVM showed concentrations ranging from 4.5 ppm in S-4 up to 11.7 ppm in S-3. Field TPH concentrations ranged from 55.3 mg/kg in S-1 up to 68.7 mg/kg in S-4. Field chloride concentrations were between 80 and 240 mg/kg.

On July 20, 2012, final excavation field screening results for chlorides showed concentrations ranging from 100 mg/kg in SC-2 through SC-4 up to 180 mg/kg in SC-1

and SC-5. Results are included below in Table 1 and on Figures 2 and 3. The AES Field Screening Reports are attached.

Table 1. Soil Field Screening VOCs, TPH, and Chloride Results Kattler #1 BGT Closure and Final Excavation, July 2012

Sample ID	Date Sampled	Sample Depth (ft bgs)	VOCs OVM Reading (ppm)	Field TPH (mg/kg)	Field Chlorides (mg/kg)
		C 19.15.17.13E)		100	250
S-1	7/18/12	0.5	10.3	55.3	200
S-2	7/18/12	0.5	7.8	66.2	80
S-3	7/18/12	0.5	11.7	63.8	160
S-4	7/18/12	0.5	4.5	68.7	160
S-5	7/18/12	0.5	7.5	60.2	240
SC-1	7/20/12	1 to 5	NA	NA	180
SC-2	7/20/12	1 to 5	NA	NA	100
SC-3	7/20/12	1 to 5	NA	NA	100
SC-4	7/20/12	1 to 5	NA	NA	100
SC-5	7/20/12	5	NA	NA	180

NA - not analyzed

Laboratory analytical results for SC-1 (July 18) reported benzene and total BTEX concentrations in SC-1 as less than 0.050 mg/kg and 0.25 mg/kg, respectively. However, the laboratory chloride concentration was reported at 680 mg/kg.

Laboratory analytical results for SC-6 (July 20) were used to confirm field screening results during excavation activities, and the chloride concentration was reported at 90 mg/kg. Results are presented in Table 2 and on Figures 2 and 3. Laboratory analytical reports are attached.

Table 2. Soil Laboratory Analytical Results
Kattler #1 BGT Closure and Final Excavation, July 2012

Sample ID	Date Sampled	Depth (ft)	Benzene (mg/kg)	BTEX (mg/kg)	TPH- GRO (mg/kg)	TPH- DRO (mg/kg)	Chlorides (mg/kg)
NMOCD Action	on Level (NMAC 19.	15.17.13E)	0.2	50	10	00	250
SC-1	07/18/12	0.5	<0.050	<0.25	NA	NA	680
SC-6	07/20/12	1 to 5.5	NA	NA	NA	NA	90

NA - not analyzed

## 3.0 Conclusions and Recommendations

NMOCD action levels for BGT closures are specified in New Mexico Administrative Code (NMAC) 19.15.17.13E. Field TPH concentrations were below the NMOCD action level of 100 mg/kg, with the highest concentration reported in S-4 with 68.7 mg/kg. Benzene and total BTEX concentrations in SC-1 were below the NMOCD action level of 0.2 mg/kg and 50 mg/kg, respectively. However, chloride concentrations in SC-1 (July 18) exceeded the NMOCD action level of 250 mg/kg with 680 mg/kg. Excavation of chloride contaminated soils was recommended.

On July 20, 2012, final assessment of the excavation area was completed. Field screening results of the excavation extents showed that chloride concentrations were below applicable NMOCD action levels for all of the final four walls and base of the excavation. Laboratory analytical results from July 20, 2012, confirmed that chloride concentrations were below NMOCD action levels.

Based on field screening and laboratory analytical results for benzene, total BTEX, TPH, and chlorides, no further work is recommended at the Kattler #1.

If you have any questions about this report or site conditions, please do not hesitate to contact Deborah Watson at (505) 564-2281.

Sincerely,

Heather M. Woods Staff Geologist

Heather M Woods

Elizabeth McNally, P.E.

Uzshith V MiNdly

Crystal Tafoya Kattler #1 BGT Closure, Release, and Excavation Report January 31, 2013 Page 6 of 6

#### Attachments:

Figure 1. Topographic Site Location Map

Figure 2. Aerial Site Map, July 2012

Figure 3. Final Excavation Soil Sample Locations and Results, July 2012

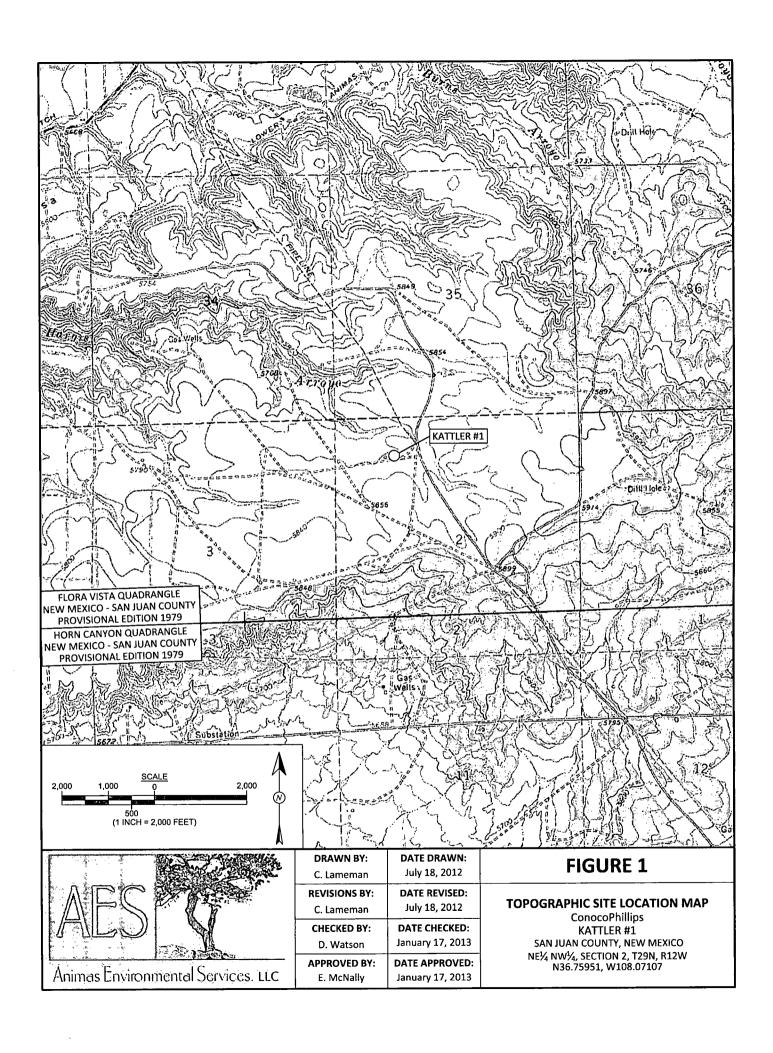
AES Field Screening Report 071812

AES Field Screening Report 072012

Hall Analytical Report 1207801

Hall Analytical Report 1207948

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SAMPLE LOCATIONS

		44.33		- T
	Field S	creenin	g Results	
Sample ID	Date	OVM- PID (ppm)	TPH (mg/kg)	Chlorides (mg/kg)
NMOCI	ACTION LEVEL	-	100	250
S-1	7/18/12	10.3	55.3	200
S-2	7/18/12	7.8	66.2	80
S-3	7/18/12	11.7	63.8	160
S-4	7/18/12	4.5	68.7	160
9-5	7/18/12	75	60.2	240

	Laboratory Analytical Results											
Sample ID	Date	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH - GRO (mg/kg)	TPH - DRO (mg/kg)	Chlorides (mg/kg)						
NMOCD ACT	ION LEVEL	0.2	50	100		250						
SC-1	7/18/12	<0.050	<0.25	NA	NA	680						
NOTE: THE SA	==				B AND 300.	0. SC-1 IS A						
5-POINT COM	IPOSITE SAN	APLE OF S-1	THROUGH	S-5.								

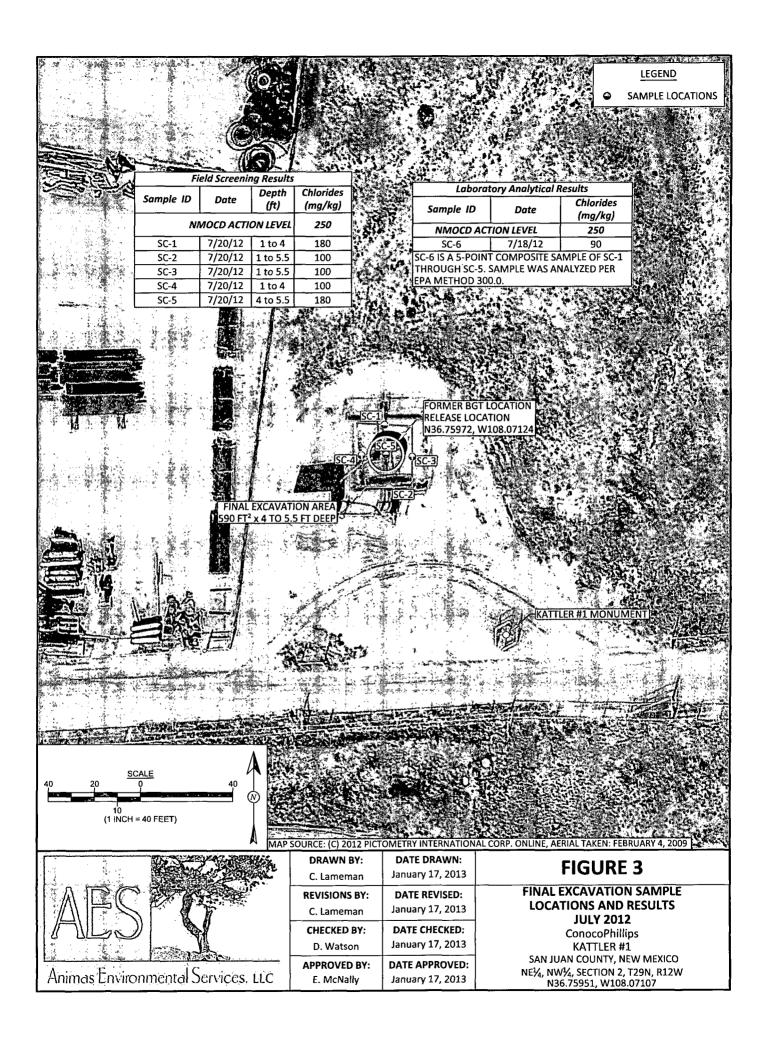




DRAWN BY:	DATE DRAWN:
C. Lameman	July 18, 2012
REVISIONS BY:	DATE REVISED:
C. Lameman	July 18, 2012
CHECKED BY:	DATE CHECKED:
D. Watson	January 17, 2013
APPROVED BY:	DATE APPROVED:
E. McNally	January 17, 2013

# FIGURE 2 AERIAL SITE MAP BELOW GRADE TANK CLOSURE JULY 2012 ConocoPhillips KATTLER #1

KATTLER #1 SAN JUAN COUNTY, NEW MEXICO NE¾, NW¼, SECTION 2, T29N, R12W N36.75951, W108.07107



# **AES Field Screening Report**

Client: ConocoPhillips

Project Location: Kattler #1

Date: 7/18/2012

Matrix: Soil



Animas Environmental Services, LLC

www.animasenvironmental.com

624 E. Comanche Farmington, NM 87401 505-564-2281

> Durango, Colorado 970-403-3274

Sample ID	Collection Date	Time of Sample Collection	Sample Location	OVM (ppm)	Field Chloride (mg/kg)	Field TPH Analysis Time	Field TPH* (mg/kg)	TPH PQL (mg/kg)	DF	TPH Analysts Initials
S-1	7/18/2012	8:55	North	10.3	200	9:59	55.3	20.0	1	DAW
S-2	7/18/2012	8:57	East	7.8	80	10:29	66.2	20.0	1	DAW
S-3	7/18/2012	9:00	South	11.7	160	10:04	63.8	20.0	1	DAW
S-4	7/18/2012	9:03	West	4.5	160	10:06	68.7	20.0	1	DAW
S-5	7/18/2012	9:05	Center	7.5	240	10:09	60.2	20.0	1	DAW

PQL

Practical Quantitation Limit

Field Chloride - Quantab Chloride Titrators or Drop Count Titration with

Debrah Water

Silver Nitrate

Total Petroleum Hydrocarbons - USEPA 418.1

ND NA

Not Analyzed

DF

**Dilution Factor** 

\*Field TPH concentrations recorded may be below PQL.

Not Detected at the Reporting Limit

Analyst:

Report Finalized: 07/18/12

# AES Field Screening Report

Client: ConocoPhillips

Project Location: Kattler #1

Date: 7/20/2012

Matrix: Soil



www.animasenvironmental.com

624 E. Comanche Farmington, NM 87401 505-564-2281

> Durango, Colorado 970-403-3274

Sample ID	Collection Date	Time of Sample Collection	Sample Location	OVM (ppm)	Field Chloride (mg/kg)	Field TPH Analysis Time	Field TPH (mg/kg)	TPH PQL (mg/kg)	DF	TPH Analysts Initials	
SC-1	7/20/2012	13:19	North	NA	180	Not Analyzed for TPH.					
SC-2	7/20/2012	13:21	South	NA	100		Not.	Analyzed for TI	PH.		
SC-3	7/20/2012	13:25	East	NA	100		Not .	Analyzed for TI	PH.		
SC-4	7/20/2012	13:29	West	NA	100	Not Analyzed for TPH.					
SC-5	7/20/2012	13:32	Base	NA	180		Not	Analyzed for TI	РН.		

PQL

**Practical Quantitation Limit** 

Field Chloride - Quantab Chloride Titrators or Drop Count Titration with

Heather M. Woods

Silver Nitrate

ND

Not Detected at the Reporting Limit

Total Petroleum Hydrocarbons - USEPA 418.1

NA

Not Analyzed

DF

**Dilution Factor** 

۱nalyst

Page 1

Report Finalized: 07/20/12



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

August 03, 2012

Debbie Watson **Animas Environmental Services** 624 East Comanche Farmington, NM 87401 TEL: (505) 486-4071

**FAX** 

RE: COP Kattler #1

OrderNo.: 1207801

#### Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/19/2012 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued July 27, 2012.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

#### **Analytical Report**

## Lab Order 1207801

Date Reported: 8/3/2012

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Animas Environmental Services

Client Sample ID: SC-1

Project: COP Kattler #1

**Collection Date:** 7/18/2012 9:10:00 AM

Lab ID: 1207801-001

Matrix: MEOH (SOIL) Received Date: 7/19/2012 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: BRM
Chloride	680	30	mg/Kg	20	7/19/2012 12:16:00 PM
EPA METHOD 8260B: VOLATILES	SHORT LIST				Analyst: RAA
Benzene	ND	0.050	mg/Kg	1	7/19/2012 12:58:37 PM
Toluene	ND	0.050	mg/Kg	1	7/19/2012 12:58:37 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/19/2012 12:58:37 PM
Xylenes, Total	ND	0.10	mg/Kg	1	7/19/2012 12:58:37 PM
Surr: 1,2-Dichloroethane-d4	94.8	70-130	%REC	1	7/19/2012 12:58:37 PM
Surr: 4-Bromofluorobenzene	102	70-130	%REC	1	7/19/2012 12:58:37 PM
Surr: Dibromofluoromethane	89.5	70-130	%REC	1 .	7/19/2012 12:58:37 PM
Surr: Toluene-d8	101	70-130	%REC	1	7/19/2012 12:58:37 PM

Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

U Samples with CalcVal < MDL

Page 1 of 9

## **Analytical Report**

## Lab Order 1207801

Date Reported: 8/3/2012

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Animas Environmental Services

Project: COP Kattler #1

**Lab ID:** 1207801-002

Client Sample ID: Stockpile

Collection Date: 7/18/2012 12:49:00 PM

Received Date: 7/19/2012 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 7471: MERCURY					Analyst: <b>DBD</b>
Mercury	ND	0.033	mg/Kg	1	7/20/2012 2:49:13 PM
MERCURY, TCLP					Analyst: DBD
Mercury	ND	0.020	mg/L	1	8/1/2012 1:42:01 PM
EPA METHOD 6010B: SOIL METALS					Analyst: ELS
Arsenic	ND	12	mg/Kg	5	7/20/2012 6:54:36 AM
Barium	390	1.0	mg/Kg	10	7/20/2012 6:58:51 AM
Cadmium	ND	0.50	mg/Kg	5	7/20/2012 6:54:36 AM
Chromium	7.4	1.5	mg/Kg	5	7/20/2012 6:54:36 AM
Lead	5.2	1.2	mg/Kg	5	7/20/2012 8:38:17 AM
Selenium	ND	12	mg/Kg	5	7/20/2012 8:38:17 AM
Silver	ND	1.2	mg/Kg	5	7/20/2012 6:54:36 AM
EPA METHOD 6010B: TCLP METALS					Analyst: <b>ELS</b>
Arsenic	ND	5.0	mg/L	1	8/3/2012 6:27:11 AM
Barium	ND	100	mg/L	1	8/2/2012 3:54:22 PM
Cadmium	ND	1.0	mg/L	1	8/3/2012 6:27:11 AM
Chromium	ND	5.0	mg/L	1	8/2/2012 3:54:22 PM
Lead	ND	5.0	mg/L	1	8/2/2012 3:54:22 PM
Selenium	ND	1.0	mg/L	1	8/2/2012 3:54:22 PM
Silver	ND	5.0	mg/L	1	8/2/2012 3:54:22 PM

Matrix: SOIL

#### Qualifiers:

- \*/X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- U Samples with CalcVal < MDL

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1207801

03-Aug-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

Sample ID MB-2907

SampType: MBLK

TestCode: EPA Method 300.0: Anions

Client ID: PBS

Batch ID: 2907

RunNo: 4157

Prep Date: 7/19/2012

Result

ND

SeqNo: 118814

Units: mg/Kg

Analyte

Analysis Date: 7/19/2012 PQL

1.5

HighLimit

%RPD **RPDLimit** 

Qual

Chloride

SampType: LCS

TestCode: EPA Method 300.0: Anions

Sample ID LCS-2907 Client ID: LCSS

Batch ID: 2907

RunNo: 4157

110

Prep Date: 7/19/2012

Result

Result

Result

15

15

Analysis Date: 7/19/2012

15.00

SeqNo: 118815

98.3

Units: mg/Kg

Analyte Chloride

PQL

1.5

SPK value SPK Ref Val %REC 0

SPK value SPK Ref Val %REC LowLimit

LowLimit

HighLimit

**RPDLimit** 

Qual

Sample ID 1207599-001AMS

SampType: MS

TestCode: EPA Method 300.0: Anions

RunNo: 4157

Units: mg/Kg

117

Qual

Analyte

Client ID:

Prep Date:

BatchQC 7/19/2012

Analysis Date: 7/19/2012

**PQL** 

SPK value SPK Ref Val

%REC LowLimit

HighLimit

**RPDLimit** %RPD

Qual

Chloride

15 7.5 15.00 2.511

81.1 TestCode: EPA Method 300.0: Anions

SeqNo: 118819

Sample ID 1207599-001AMSD Client ID:

**BatchQC** 

SampType: MSD Batch ID: 2907

PQL

7.5

Batch ID: 2907

15.00

RunNo: 4157

SeqNo: 118820

Units: mg/Kg

%RPD

**RPDLimit** 

Analyte Chloride

Prep Date: 7/19/2012

Analysis Date: 7/19/2012

SPK value SPK Ref Val

2.511

%REC 84.6

LowLimit 64.4

64.4

HighLimit 117

%RPD

3.56

20

Qualifiers:

R

Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

J Analyte detected below quantitation limits RPD outside accepted recovery limits

Analyte detected in the associated Method Blank В

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit Reporting Detection Limit

RL

Page 3 of 9

## Hall Environmental Analysis Laboratory, Inc.

WO#:

1207801 03-Aug-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

Sample ID MB-2919

SampType: MBLK

TestCode: EPA Method 7471: Mercury

Client ID:

PBS

Batch ID: 2919

RunNo: 4199

Prep Date: 7/19/2012

Analysis Date: 7/20/2012 PQL

SeqNo: 120246

Units: mg/Kg

HighLimit

%RPD **RPDLimit** 

Qual

Analyte Mercury

0.033 ND

Batch ID: 2919

Sample ID LCS-2919 LCSS

SampType: LCS

TestCode: EPA Method 7471: Mercury

RunNo: 4199

Units: mg/Kg

Analyte

Client ID:

Analysis Date: 7/20/2012

SeqNo: 120247

Result

PQL SPK value SPK Ref Val

%REC

SPK value SPK Ref Val %REC LowLimit

LowLimit HighLimit %RPD

Qual

Mercury

0.17

0.033 0.1667 102

120

**RPDLimit** 

Sample ID 1207796-008AMS

SampType: MS

TestCode: EPA Method 7471: Mercury

Client ID: BatchQC

Prep Date: 7/19/2012

Batch ID: 2919

RunNo: 4199 SeqNo: 120251

Units: mg/Kg

Qual

Analyte Mercury

Prep Date: 7/19/2012 Analysis Date: 7/20/2012 Result

SPK value SPK Ref Val PQL 0.1661

%REC LowLimit 98.8

HighLimit 75 125 %RPD **RPDLimit** 

Qual

Sample ID 1207796-008AMSD

SampType: MSD

0.033

TestCode: EPA Method 7471: Mercury RunNo: 4199

Client ID: Prep Date: 7/19/2012

**BatchQC** 

Batch ID: 2919

0.1643

SeqNo: 120252

Units: mg/Kg

**RPDLimit** 

Analyte Mercury

Result 0.16

0.16

**PQL** 

0.033

Analysis Date: 7/20/2012

SPK value SPK Ref Val

0

%REC 98.0

LowLimit 75 HighLimit 125 %RPD 1.87

20

Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

Ε Value above quantitation range

J Analyte detected below quantitation limits

Analyte detected in the associated Method Blank В

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Page 4 of 9

R RPD outside accepted recovery limits

Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1207801

03-Aug-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

Sample ID MB-3127

SampType: MBLK

TestCode: MERCURY, TCLP

Client ID:

PBW

Batch ID: 3127

RunNo: 4577

Prep Date: 8/1/2012

Analysis Date: 8/1/2012

Units: mg/L

PQL

SeqNo: 128440

HighLimit

%RPD **RPDLimit** 

Qual

Analyte Mercury

ND 0.020

Sample ID LCS-3127

SampType: LCS

TestCode: MERCURY, TCLP

Client ID: LCSW

Batch ID: 3127

RunNo: 4577

Prep Date: 8/1/2012

Analysis Date: 8/1/2012

SeqNo: 128441

Units: mg/L

Analyte

Result

Result

SPK value SPK Ref Val PQL

%REC

HighLimit LowLimit

**RPDLimit** 

Qual

Mercury

ND

0.020 0.005000

101

SPK value SPK Ref Val %REC LowLimit

%RPD 120

Sample ID 1207B34-006AMS

SampType: MS Batch ID: 3127

0.020

TestCode: MERCURY, TCLP

RunNo: 4577

Units: mg/L

125

Prep Date:

Client ID:

BatchQC 8/1/2012

Analysis Date: 8/1/2012

SeqNo: 128454

Analyte

Result

ND

SPK value SPK Ref Val %REC PQL 0.005000

0 104

LowLimit HighLimit 75

%RPD

**RPDLimit** 

Qual

Qual

Mercury

Client ID:

Sample ID 1207B34-006AMSD

SampType: MSD

TestCode: MERCURY, TCLP

n

RunNo: 4577

Units: mg/L

Analyte

BatchQC Prep Date: 8/1/2012

Batch ID: 3127

Analysis Date: 8/1/2012

SeqNo: 128455

HighLimit 125 %RPD

**RPDLimit** 

Mercury

PQL SPK value SPK Ref Val Result ND 0.020 0.005000

%REC

93.4

75

LowLimit

0

20

#### Qualifiers:

J

- Ε Value above quantitation range
- Value exceeds Maximum Contaminant Level.

Analyte detected below quantitation limits

R RPD outside accepted recovery limits

- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- Reporting Detection Limit RL

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1207801 03-Aug-12

Client:

Animas Environmental Services

Client: Project:	Animas COP Ka	Environme attler #1	ntal Ser	vices							
Sample ID	MB-2912	 SampT	ype: Mi	BLK	Tes	tCode: El	PA Method	6010B: Soil	Metals	<del></del>	
Client ID:	PBS	Batch	1D: <b>29</b>	12	F	RunNo: 4	168				
Prep Date:	7/19/2012	Analysis D	ate: 7	20/2012		SeqNo: 1	19211	Units: mg/L	-		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	2.5						_		
Barium		ND	0.10								
Cadmium		ND	0.10								
Chromium		ND	0.30								
Silver		ND	0.25								
Sample ID	LCS-2912	SampT	ype: LC	s	TestCode: EPA Method 6010B: Soil Metals						
Client ID:	LCSS	Batch	1D: <b>29</b>	12	F	RunNo: 4168					
Prep Date:	7/19/2012	Analysis D	ate: 7/	20/2012	5	SeqNo: 1	19212	Units: mg/L	-		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		25	2.5	25.00	0.2515	101	80	120			
Barium		24	0.10	25.00	0	94.3	80	120			
Cadmium		24	0.10	25.00	0	95.3	80	120			
Chromium		24	0.30	25.00	0.09550	93.7	80	120			
Silver		4.8	0.25	5.000	0.03050	96.3	80	120			
Sample ID	MB-2912	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	6010B: Soil	Metals		
Client ID:	PBS	Batch	n ID: 29	12	RunNo: 4174						
Prep Date:	7/19/2012	Analysis D	ate: 7/	20/2012	SeqNo: 119449 Units: mg/Kg						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND	0.25					7,,,,,,			
Selenium		ND	2.5								
Sample ID	LCS-2912	SampT	ype: LC	s	Tes	tCode: E	PA Method	6010B: Soil	Metals		
Client ID:	LCSS	Batch	n ID: <b>29</b>	12	F	RunNo: 4	174				
Prep Date:	7/19/2012	Analysis D	ate: 7	/20/2012	\$	SeqNo: 1	19451	Units: mg/F	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		24	0.25	25.00	0	96.0	80	120			
Selenium		22	2.5	25.00	0	86.1	80	120			
Sample ID	MB-2912	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	6010B: Soil	Metals		
Client ID:	PBS	Batch	n ID: <b>29</b>	12	F	RunNo: 4	414				
			ata. 7	25/2012	5	SeqNo: 1	23190	Units: mg/F	(g		
Prep Date:	7/19/2012	Analysis D	ale. I	20,2012							
Prep Date: Analyte	7/19/2012	Analysis D	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
] ,	7/19/2012	-			SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte	7/19/2012	Result ND ND	PQL 2.5 0.10		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Arsenic	7/19/2012	Result ND	PQL 2.5		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

#### Qualifiers:

- \*/X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1207801

03-Aug-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

Sample ID MB-2912 TestCode: EPA Method 6010B: Soil Metals SampType: MBLK Client ID: PBS Batch ID: 2912 RunNo: 4414 Prep Date: 7/19/2012 Analysis Date: 7/25/2012 SeqNo: 123190 Units: mg/Kg SPK value SPK Ref Val %REC LowLimit **RPDLimit** Analyte Result **PQL** HighLimit %RPD Qual Lead ND 0.25 ND 2.5 Selenium Silver ND 0.25

Sample ID LCS-2912	S	Tes								
Client ID: LCSS	Batch ID: <b>2912</b> Analysis Date: <b>7/25/2012</b>			F	RunNo: 4414					
Prep Date: <b>7/19/2012</b>				SeqNo: <b>123191</b>			Units: mg/h	<b>(</b> g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0.7230	96.9	80	120			
Barium	25	0.10	25.00	0	100	80	120			
Cadmium	25	0.10	25.00	0	100	80	120			
Chromium	24	0.30	25.00	0.06600	96.9	80	120			
Lead	25	0.25	25.00	0	100	80	120			
Selenium	25	2.5	25.00	0	98.2	80	120			
Silver	5.1	0.25	5.000	0	103	80	120			

Sample ID 1207640-001BMS	SampT	ype: MS		Tes	tCode: El	PA Method	6010B: Soil I	Metals	_	
Client ID: BatchQC	Batch	ID: <b>29</b>	12	F	RunNo: 4	414				
Prep Date: 7/19/2012	Analysis D	ate: 7/	25/2012	S	SeqNo: 1	23197	Units: mg/K	(g-dry		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	15	28.40	0	88.1	75	125			
Barium	42	0.58	28.40	36.21	21.6	75	125			S
Cadmium	28	0.58	28.40	0	96.9	75	125			
Chromium	30	1.7	28.40	2.024	97.4	75	125			
Lead	29	1.5	28.40	2.697	93.5	75	125			
Selenium	28	15	28.40	6.868	73.4	75	125			S
Silver	5.4	1.5	5.679	0	95.7	75	125			

Sample ID 1207640-001BMS	SD Samp1	ype: MS	SD	Tes	tCode: E	PA Method	6010B: Soil	Metals		
Client ID: BatchQC	Batch	n ID: <b>29</b>	12	F	RunNo: 4	414				
Prep Date: 7/19/2012	Analysis D	)ate: 7/	25/2012	5	SeqNo: 1	23198	Units: mg/k	(g-dry		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	15	28.58	0	89.5	75	125	2.19	20	
Barium	43	0.58	28.58	36.21	23.0	75	125	1.08	20	· S
Cadmium	27	0.58	28.58	0	95.3	75	125	0.988	20	
Chromium	29	1.7	28.58	2.024	94.9	75	125	1.85	20	
Lead	29	1.5	28.58	2.697	93.7	75	125	0.831	20	
Selenium	32	15	28.58	6.868	87.2	75	125	13.7	20	
Silver	5.3	1.5	5.717	0	93.3	75	125	1.94	20	

#### Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1

1207801 03-Aug-12

Client:

Animas Environmental Services

**Project:** 

COP Kattler #1

Sample ID MB-3144	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	6010B: TCLI	P Metals		
Client ID: PBW	Batch	ID: <b>31</b>	44	F	RunNo: 4	617				
Prep Date: 8/1/2012	Analysis D	ate: 8/	2/2012	S	SeqNo: 1	29447	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100						_		
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-3144	SampT	ype: LC	:s	Tes	tCode: E	PA Method	6010B: TCL	P Metals		
Client ID: LCSW	Batch	ID: <b>31</b>	44	F	RunNo: 4	617				
Prep Date: 8/1/2012	Analysis D	ate: 8/	2/2012	S	SeqNo: 1	29448	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	92.7	80	120			
Chromium	ND	5.0	0.5000	0	95.3	80	120			
Lead	ND	5.0	0.5000	0	95.9	80	120			
Selenium	ND	1.0	0.5000	0	104	80	120			
Silver	ND	5.0	0.1000	0.004880	96.6	80	120			

Sample ID	1207C56-003AMS	SampT	ype: MS	3	Tes	tCode: E	PA Method	6010B: TCLI	P Metals		
Client ID:	BatchQC	Batch	ID: 31	44	F	RunNo: 4	617				
Prep Date:	8/1/2012	Analysis D	ate: 8/	2/2012	S	SeqNo: 1	29483	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium		ND	5.0	0.5000	0	99.8	75	125			
Selenium		ND	1.0	0.5000	0	104	75	125			
Silver		ND	5.0	0.1000	0.01075	100	75	125			

Sample ID	1207C56-003AMSD	SampT	ype: <b>M</b> .S	SD	Tes	tCode: El	PA Method	6010B: TCL	P Metals		
Client ID:	BatchQC	Batch	ID: 31	44	F	RunNo: 4	617				
Prep Date:	8/1/2012	Analysis D	ate: 8/	2/2012	8	SeqNo: 1	29484	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium		ND	5.0	0.5000	0	91.9	75	125	0	20	
Selenium		ND	1.0	0.5000	0	101	75	125	0	20	
Silver		ND	5.0	0.1000	0.01075	90.9	75	125	0	20	

Sample ID MB-3144	SampT	ype: ME	BLK	Tes	Code: El	PA Method	6010B: TCL	P Metals		
Client ID: PBW	Batch	n ID: <b>31</b> 4	44	F	lunNo: 4	622				
Prep Date: 8/1/2012	Analysis D	ate: 8/	3/2012	S	eqNo: 1	29665	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Cadmium	ND	1.0								

#### Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1207801

03-Aug-12

Animas Environmental Services

Client:	Animas E	Invironmer	ntal Ser	vices							
Project:	COP Katt	tler#1			•						
Carral, ID	1.00.0444	0 7				10 - J F1	DA 84 - 41 1			<del></del>	
Sample ID		•	ype: LC					6010B: TCLF	Metais		
Client ID:			1D: <b>31</b>	-		RunNo: 4					
Prep Date:	8/1/2012	Analysis D	ate: 8/	3/2012	8	SeqNo: 1	29666	Units: mg/L			
Analyte		Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	5.0	0.5000	0	107	80	120			
Cadmium		ND	1.0	0.5000	0	98.8	80	120			
Sample ID	1207C56-003AMS	SampT	ype: MS	<u> </u>	Tes	tCode: El	PA Method	6010B: TCLF	Metals		
Client ID:	BatchQC	Batch	ID: <b>31</b>	44	. <b>F</b>	RunNo: 4	622				
Prep Date:	8/1/2012	Analysis D	ate: 8/	3/2012	5	SeqNo: 1:	29686	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium		ND	1.0	0.5000	0	94.3	75	125	701 CI D	TO DEITHE	Quai
<del></del>										<u> </u>	
·	1207C56-003AMS	<b>D</b> SampT	ype: MS	SD	Tes	tCode: El	PA Method	6010B: TCLF	Metals		
Client ID:	BatchQC	Batch	1D: <b>31</b>	44	F	RunNo: 4	622				
Drop Date.	0/4/0040										
Prep Date:	8/1/2012	Analysis D	ate: 8/	3/2012	9	SeqNo: 1	29689	Units: mg/L			
Analyte	8/1/2012	Analysis D Result	ate: 8/		SPK Ref Val	SeqNo: 1: %REC	29689 LowLimit	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
İ	8/1/2012	•						_	%RPD 0	RPDLimit 20	Qual
Analyte Cadmium	1207C56-003AMS	Result ND	PQL	SPK value 0.5000	SPK Ref Val	%REC 91.8	LowLimit 75	HighLimit	0		Qual
Analyte Cadmium		Result ND SampT	PQL 1.0	SPK value 0.5000	SPK Ref Val 0	%REC 91.8	LowLimit 75 PA Method	HighLimit 125	0		Qual
Analyte Cadmium Sample ID	1207C56-003AMS BatchQC	Result ND SampT	PQL 1.0 ype: <b>MS</b> n ID: <b>31</b>	SPK value 0.5000	SPK Ref Val 0 Tes	%REC 91.8 tCode: <b>E</b> l	LowLimit 75 PA Method 622	HighLimit 125	0		Qual
Analyte Cadmium Sample ID Client ID:	1207C56-003AMS BatchQC	Result ND SampT Batch	PQL 1.0 ype: <b>MS</b> n ID: <b>31</b>	SPK value 0.5000 6 44 3/2012	SPK Ref Val 0 Tes	%REC 91.8 tCode: El	LowLimit 75 PA Method 622	HighLimit 125 6010B: TCLF Units: mg/L	0		Qual
Analyte Cadmium Sample ID Client ID: Prep Date:	1207C56-003AMS BatchQC	Result ND SampT Batch Analysis D	PQL 1.0 Type: M\$ in ID: 31 pate: 8/	SPK value 0.5000 6 44 3/2012	SPK Ref Val 0 Tes	%REC 91.8 tCode: El RunNo: 4 SeqNo: 1	75 PA Method 622 29691	HighLimit 125 6010B: TCLF	0 Metals	20	
Analyte Cadmium Sample ID Client ID: Prep Date: Analyte Barium	1207C56-003AMS BatchQC 8/1/2012	Result ND SampT Batch Analysis D Result ND	PQL 1.0 Type: MS n ID: 31 Pate: 8/	SPK value 0.5000 3 44 3/2012 SPK value 0.5000	SPK Ref Val 0 Tes F S SPK Ref Val 1.293	%REC 91.8 tCode: El RunNo: 4 SeqNo: 1: %REC 92.8	LowLimit 75 PA Method 622 29691 LowLimit 75	HighLimit 125 6010B: TCLF Units: mg/L HighLimit	0 Metals %RPD	20	
Analyte Cadmium Sample ID Client ID: Prep Date: Analyte Barium	1207C56-003AMS BatchQC 8/1/2012	Result ND SampT Batch Analysis D Result ND D SampT	PQL 1.0 yype: M\$ n ID: 31 rate: 8/ PQL 500	SPK value 0.5000 3 44 3/2012 SPK value 0.5000	SPK Ref Val  0  Tes  F  SPK Ref Val  1.293	%REC 91.8 tCode: El RunNo: 4 SeqNo: 1: %REC 92.8	LowLimit 75 PA Method 622 29691 LowLimit 75	HighLimit 125 6010B: TCLF Units: mg/L HighLimit 125	0 Metals %RPD	20	
Analyte Cadmium Sample ID Client ID: Prep Date: Analyte Barium Sample ID Client ID:	1207C56-003AMS BatchQC 8/1/2012 1207C56-003AMS BatchQC	Result ND SampT Batch Analysis D Result ND D SampT Batch	PQL 1.0 ype: M3 n ID: 31 hate: 8/ PQL 500 ype: M3 n ID: 31	SPK value 0.5000 6 44 3/2012 SPK value 0.5000 6D	SPK Ref Val  0  Tes  F  S  SPK Ref Val  1.293  Tes	%REC 91.8 tCode: El RunNo: 4 SeqNo: 1: %REC 92.8 tCode: El RunNo: 4	LowLimit 75 PA Method 622 29691 LowLimit 75 PA Method 622	HighLimit 125 6010B: TCLF Units: mg/L HighLimit 125 6010B: TCLF	0 Metals %RPD	20	
Analyte Cadmium Sample ID Client ID: Prep Date: Analyte Barium Sample ID Client ID: Prep Date:	1207C56-003AMS BatchQC 8/1/2012 1207C56-003AMS BatchQC	Result ND SampT Batch Analysis D Result ND D SampT Batch Analysis D	PQL 1.0  ype: Ms 1   1.0  ype: Ms 2   1.0  pype: Ms 2   1.0  ype: Ms 31   1.0  ype: Ms 31   1.0  ype: Ms 31   1.0  ype: Ms 31   1.0	SPK value 0.5000 3 44 3/2012 SPK value 0.5000 5D 44 3/2012	SPK Ref Val  0  Tes  F  SPK Ref Val  1.293  Tes  F	%REC 91.8 tCode: El RunNo: 4 SeqNo: 1: %REC 92.8 tCode: El RunNo: 4 SeqNo: 1:	LowLimit 75 PA Method 622 29691 LowLimit 75 PA Method 622 29692	HighLimit 125 6010B: TCLF Units: mg/L HighLimit 125 6010B: TCLF	0 Metals %RPD Metals	20 RPDLimit	Qual
Analyte Cadmium Sample ID Client ID: Prep Date: Analyte Barium Sample ID Client ID:	1207C56-003AMS BatchQC 8/1/2012 1207C56-003AMS BatchQC	Result ND SampT Batch Analysis D Result ND D SampT Batch	PQL 1.0 ype: M3 n ID: 31 hate: 8/ PQL 500 ype: M3 n ID: 31	SPK value 0.5000 3 44 3/2012 SPK value 0.5000 5D 44 3/2012	SPK Ref Val  0  Tes  F  S  SPK Ref Val  1.293  Tes	%REC 91.8 tCode: El RunNo: 4 SeqNo: 1: %REC 92.8 tCode: El RunNo: 4	LowLimit 75 PA Method 622 29691 LowLimit 75 PA Method 622	HighLimit 125 6010B: TCLF Units: mg/L HighLimit 125 6010B: TCLF	0 Metals %RPD	20	

#### Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

Page 9 of 9



Hall Enviror. 1tal Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87105

TEL: 505-345-3975 FAX: 505-345-410; Website: www.hallenvironmental.com

# Sample Log-In Check List

Client Name: Work Order Number: 1207801 Animas Environmental Received by/date 7/19/2012 10:10:00 AM Logged By: 07/19/12 **Lindsay Mangin** Completed By: Reviewed By: Chain of Custody Yes 🗌 No 🔲 Not Present 1. Were seals intact? Yes 🗹 No 🗌 Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? Client Log In NA 🗆 Yes 🗹 No 🗌 4. Coolers are present? (see 19. for cooler specific information) Yes V No NA 🗔 5. Was an attempt made to cool the samples? Yes 🗹 No 🗌 NA 🗌 6. Were all samples received at a temperature of >0° C to 6.0°C Yes 🔽 No 🗌 7. Sample(s) in proper container(s)? Yes 🗹 No 🗌 8. Sufficient sample volume for indicated test(s)? Yes 🗹 No 🗌 9. Are samples (except VOA and ONG) properly preserved? NA 🔲 Yes No 🗹 10. Was preservative added to bottles? Yes 🔲 No 🔲 No VOA Vials 🗹 11. VOA vials have zero headspace? Yes D No 🗹 12. Were any sample containers received broken? # of preserved Yes V No 13. Does paperwork match bottle labels? bottles checked (Note discrepancies on chain of custody) for pH: Yes 🗹 No 🗌 (<2 or >12 unless noted) 14. Are matrices correctly identified on Chain of Custody? Adjusted? Yes 🗹 No 🗌 15. Is it clear what analyses were requested? Yes 🗹 No 🗌 16. Were all holding times able to be met? (If no, notify customer for authorization.) Checked by Special Handling (if applicable) Yes D No D NA 🗸 17. Was client notified of all discrepancies with this order? Person Notified: Date: ☐ eMail ☐ Phone ☐ Fax ☐ In Person Via: By Whom: Regarding: **Client Instructions:** 18. Additional remarks: 19. Cooler Information Cooler No | Temp ºC | Condition | Seal Intact | Seal No | Seal Date Good Yes

Mailing Phone:	Anim Servi Address Mingle #: 505	105 F 105, 121 1624 1	istody Record  invironmental  LC  5 Comanche  1 87401	Turn-Around  ☐ Standard  Project Name  ☐ Project #:		4P- m	etals lay		Te	l. 50	<b>A</b> awkii 5-34	www. ns Ni 5-397	<b>L)</b> halle E - /	SI nviror Albuqu Fax alysis	S I nmer Jerqu 505 Red	tal.c ue, N	BO om M 87 -410	<b>R.</b> 109	NT.	)R`	<b>Y</b>
email o QA/QC I X Stan Accredi □ NEL □ EDD	Package: dard tation AP	□ Othe	□ Level 4 (Full Validation)	Sampler: De	nnemer Usue Wa	Hson.		(8021)	TBE + TPH (Gas only)	od 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	A or PAH)	RCKA 8 Metals Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	(AC	ni-VOA)	chlindes			s (Y or N)
Date	Time	Matrix	Sample Request ID	Type and #	Preservative Type	70		STEX + M	BTEX + MTBE	TPH Method 8015B	TPH (Met	EDB (Metl	8310 (PNA or PAH)	Anions (F,CI,NC	8081 Pest	8260B (VOA)	8270 (Semi-VOA)	< 300. De			Air Bubbles (Y or N)
<u>- 8- 2</u>   <u>- 8- 2</u>	<u> </u>		Sc-1 Stockple	2-40Z	hon	~ 00	001	<b>X</b>					<b>&gt;</b>								
Date: 7/8/12 Date: 7/8/12	Time:   WZZ Time:	Relinquish	in Wet	Received by:  Muttu Received by:  ///	, Wale	Date 7/18/11	Time 2   622 Time	Ren loo: act-	1033 Code	5: Br	23 200 Ham	ho (	on !	scop user works	nill IPE	KA Ed: S	ITILL LESO F	~ ten	oon		<u></u>



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

July 24, 2012

Debbie Watson Animas Environmental Services 624 East Comanche Farmington, NM 87401 TEL: (505) 486-4071

**FAX** 

RE: COP Kattler #1 OrderNo.: 1207948

#### Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/21/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

## **Analytical Report**

Lab Order 1207948

Date Reported: 7/24/2012

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Animas Environmental Services

Client Sample ID: SC-6

Project: COP Kattler #1

Collection Date: 7/20/2012 1:40:00 PM

**Lab ID:** 1207948-001

Matrix: SOIL

Received Date: 7/21/2012 2:00:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS				-	Analyst: BRM
Chloride	90	30	mg/Kg	20	7/23/2012 11:09:34 AM

Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

J Samples with CalcVal < MDL

Page 1 of 3

## **Analytical Report**

Lab Order 1207948

Date Reported: 7/24/2012

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Animas Environmental Services

Client Sample ID: Background

Project: COP Kattler #1

**Collection Date: 7/18/2012 12:08:00 PM** 

**Lab ID:** 1207948-002

Matrix: SOIL

Received Date: 7/21/2012 2:00:00 PM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS			· <u>-</u> .		Analyst: BRM
Chloride	ND	30	mg/Kg	20	7/23/2012 11:21:59 AM

Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

J Samples with CalcVal < MDL

Page 2 of 3

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1207948

24-Jul-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

Sample ID MB-2967

SampType: MBLK

TestCode: EPA Method 300.0: Anions

Client ID:

PBS

Batch ID: 2967

RunNo: 4241

Prep Date: 7/23/2012

Analysis Date: 7/23/2012

SeqNo: 121293

Units: mg/Kg

Analyte

**PQL** 

1.5

HighLimit

%RPD **RPDLimit** 

Qual

Chloride

ND

Result

Sample ID LCS-2967

SampType: LCS

SPK value SPK Ref Val %REC LowLimit

TestCode: EPA Method 300.0: Anions

Client ID: LCSS

Batch ID: 2967

RunNo: 4241

SeqNo: 121294

Units: mg/Kg

Analyte

Prep Date: 7/23/2012

Analysis Date: 7/23/2012

15

**PQL** 

15

SPK value SPK Ref Val

%REC LowLimit

HighLimit

Result

1.5

%RPD

**RPDLimit** 

Chloride

PQL 14

15.00

96.1

90 110

Qual

Sample ID 1207838-001AMS SampType: MS

TestCode: EPA Method 300.0: Anions

64.4

Client ID:

**BatchQC** 

Batch ID: 2967

RunNo: 4241

Units: mg/Kg

Qual

Analyte Chloride

7/23/2012 Analysis Date: 7/23/2012 Result

PQL

SPK value SPK Ref Val %REC

LowLimit

HighLimit

%RPD

**RPDLimit** Qual

Prep Date:

SampType: MSD

15.00

TestCode: EPA Method 300.0: Anions

88.6

SeqNo: 121298

Client ID:

Sample ID 1207838-001AMSD **BatchQC** 

Batch ID: 2967

Result

50

48

15.00

RunNo: 4241

SeqNo: 121299

Units: mg/Kg

**RPDLimit** 

Analyte Chloride

Prep Date: 7/23/2012

Analysis Date: 7/23/2012

SPK value SPK Ref Val

35.17

35.17

%REC 98.1

LowLimit 64.4

HighLimit 117

117

%RPD 2.89

20

Qualifiers:

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit Reporting Detection Limit

Page 3 of 3

R RPD outside accepted recovery limits



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87105 TEL: 505-245-205-505-245-400:

Sample Log-In Check List

TEL: 505-345-3975 FAX: 505-345-410; Website: www.hallenvironmental.com

Client Name:	Animas Environmental	1	Work Order I	Number:	12079	48	
Received by/date	AF 07/211	1/2					
Logged By:	Anne Thorne	7/21/2012 2:00:00 PM	I	a	me A	-	
Completed By:	Anne Thorne	7/23/2012		a	m Sh	<b>~</b>	
Reviewed By:	AT 17/231	12			_		
Chain of Cust	tody						
1. Were seals i	intact?		Yes 🗌	No 🗆	No	t Present 🗹	
2. Is Chain of C	Custody complete?		Yes 🗹	No 🗆	No	t Present 🗌	
3. How was the	sample delivered?		Courier				
<u>Log In</u>							
4. Coolers are	present? (see 19. for cool	ler specific Information)	Yes 🗹	No 🗆		na 🗆	
5. Was an atte	mpt made to cool the san	nples?	Yes 🗹	No 🗆	}	na 🗆	
6. Were all san	nples received at a tempe	erature of >0° C to 6.0°C	Yes 🗹	No 🗆		na 🗆	
7 Sample(s) in	proper container(s)?		Yes 🗹	No 🗆	}		
	mple volume for indicated	I test(s)?	Yes 🗹				
	(except VOA and ONG)	• •	Yes 🗹	_			
	vative added to bottles?			No 🗹		NA 🗆	
11. VOA vials ha	ave zero headspace?		Yes 🗌		No V	OA Vials 🗹	
12. Were any sa	imple containers received	broken?	Yes 🗆	No 🔽	[		
-	vork match bottle labels? pancies on chain of custo	dy)	Yes 🗹	No 🗌		# of preserved bottles checked for pH:	
14. Are matrices	correctly identified on Ch	nain of Custody?	Yes 🗹	No 🗆		(<2	or >12 unless noted)
15. Is it clear wh	at analyses were request	ed?	Yes 🗹	_		Adjusted?	
	ding times able to be met customer for authorization		Yes 🔽	No 🗆		Checked by:	
Special Handi	ling (if applicable)				l		
17. Was client n	otified of all discrepancies	s with this order?	Yes 🗌	No 🗹		NA 🗆	
Person	Notified:	Date	<u> </u>		*****		
By Who	om:	Via:	eMail [	_ Phon	e 🔲 F	ax In Person	
Regard	ling:						
Client I	nstructions:						
18. Additional re	marks:	•					
19. Cooler Info		Seal Intact   Seal No	Seal Date	Sig	ned By	_	·
<del>,</del>							

Chain-of-Custody Record				Turn-Around Time:						<b>S</b> _	I A	I E	F	ri L	/TE	20	ri e	WE	NT	'AI	
Client: Animas Environmental Services, W.				Standard Rush Same Day Project Name:				HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com													
Mailing /	Address	lozy i	E. Comarche	COP K	attler #	1		490	01 H								 М 87	'109			
Farmington, NM 87401				Project #:			Tel. 505-345-3975 Fax 505-345-4107  Analysis Request														
Phone #: (505)564-2281									بجبحت			Α	nal	ysis	Req	ues		1 to		V .	
email or	Fax#: (	(505)3	126-2022	Project Mana	ger.		1	(y	sel)	1				04)	ω l				Ì		
QA/QC F	-		☐ Level 4 (Full Validation)	D. Wa			TMB's (8021)	+ TPH (Gas only)	sas/Die				Ç	PO4,S	PCB'						
Accredit				Sampler: 니	eather 4	bods	MB	표	9	E	<del>-</del>	_	Ì	NO2	308						9
NELAP Other				Onlice A Yes Dillon Sample lie mperature 3/2/s			+		015	418	504	B	S	S 3,	1/88		8				ō
□ EDD  Date	(Type)_ Time	Matrix	Sample Request ID		Preservative Type	HEALING	BTEX + MTBE	BTEX + MTBE	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metal	Anions (F@NO3,NO2,PO4,SO4)	8081 Pesticides / 8082	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles (Y or N)
7/20/12	1340	Soil	SC-10	2 you Jars	A COM	- <del>ocl</del>								X							
7/18/12	-		Background	1 402 Ja-	Nore	-002								X					$\Box$		I
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Date: Time: Relinquished by: 120/12 1535 Heath M. Weach			/ Nustra Welter 120/12 1330				Remarks: Bill to ConocoPhillips Wo#:10336323 Ara: 3														
Date:	Time:	Relinquish	Nathe Walter	Received by:	1	7/21/12 1406	Act Usu	r 1C	) C.	de: (A17	620 TLV	V V		<b>У</b> 	in V		Han ——	'Y I	کىد		

January 31, 2013

Crystal Tafoya ConocoPhillips San Juan Business Unit Office 214-05 5525 Hwy 64 Farmington, New Mexico 87401



www.animasenvironmental.com

624 E. Comanche Farmington, NM 87401 505-564-2281

> Durango, Colorado 970-403-3084

RE: Initial Release Assessment and Final Excavation Report

Kattler #1

San Juan County, New Mexico

Dear Ms. Tafoya:

On July 18, 2012, Animas Environmental Services, LLC (AES) completed an initial release assessment and environmental clearance of the final excavation limits at the ConocoPhillips (CoP) Kattler #1, located in San Juan County, New Mexico. The final excavation was completed by CoP contractors while AES was on site on July 18, 2012. The historical release was associated with the compressor at the location. Surface staining was visible near the recently removed compressor pad.

#### 1.0 Site Information

#### 1.1 Location

Site Name - Kattler #1

Legal Description - NE¼ NW¼, Section 2, T29N, R12W, San Juan County, New Mexico Well Latitude/Longitude - N36.75951 and W108.07107, respectively Release Location Latitude/Longitude - N36.75964 and W108.07134, respectively Land Jurisdiction - Private

Figure 1. Topographic Site Location Map

Figure 2. Aerial Site Map, July 2012

## 1.2 NMOCD Ranking

Prior to site work, the New Mexico Oil Conservation Division (NMOCD) database was reviewed, and no prior ranking information was located. The New Mexico Office of the State Engineer (NMOSE) database was reviewed for nearby water wells, and no registered water wells were reported to be located within 1,000 feet of the location. Additionally, Google Earth and the New Mexico Tech Petroleum Recovery Research

Center online mapping tool (<a href="http://ford.nmt.edu/react/project.html">http://ford.nmt.edu/react/project.html</a>) were accessed to aid in the identification of downgradient surface water.

Once on site, AES personnel further assessed the ranking using topographical interpretation, Global Positioning System (GPS) elevation readings, and visual reconnaissance. AES personnel concluded that depth to groundwater at the site was greater than 100 feet below ground surface (bgs). A tributary to the wash in Hargis Arroyo is located approximately 270 feet north of the location. Based on this information, the location was assessed a ranking score of 10 per the NMOCD Guidelines for Leaks, Spills, and Releases (August 1993).

#### 1.3 Assessments

AES was initially contacted by Jess Henson, CoP representative, on July 17, 2012, and on July 18, 2012, Deborah Watson and Nathan Willis of AES completed the release assessment field work. The assessment included collection and field screening of three samples from one test hole (TH-1). Based on the field screening results, AES recommended excavation of the release area.

Excavation of the release area was also completed on July 18, 2012, and AES collected confirmation samples of the excavation. The field screening activities included collection of five confirmation soil samples (SC-2 through SC-6) of the walls and base of the excavation. The area of the final excavation was approximately 19 feet by 13.5 feet by 3 feet in depth. Sample locations and excavation extents are shown on Figure 3.

## 2.0 Soil Sampling

A total of three soil samples from test hole TH-1 and five composite samples (SC-2 through SC-6) were collected during the assessments. All soil samples were field screened for volatile organic compounds (VOCs) and select samples were also analyzed for total petroleum hydrocarbons (TPH). A waste characterization sample was submitted for laboratory analysis.

#### 2.1 Field Screening

#### 2.1.1 Volatile Organic Compounds

Field screening for VOC vapors was conducted with a photo-ionization detector (PID) organic vapor meter (OVM). Before beginning field screening, the PID-OVM was first calibrated with 100 parts per million (ppm) isobutylene gas.

#### 2.1.2 Total Petroleum Hydrocarbons

Field TPH samples were analyzed per USEPA Method 418.1 using a Buck Scientific Model HC-404 Total Hydrocarbon Analyzer Infrared Spectrometer (Buck). A 3-point calibration was completed prior to conducting soil analyses. Field analytical protocol followed AES's Standard Operating Procedure: Field Analysis Total Petroleum Hydrocarbons per EPA Method 418.1.

## 2.2 Field Screening Results

On July 18, 2012, initial assessment field screening results from TH-1 for VOCs via OVM showed concentrations ranging from 1.7 ppm up to 39.5 ppm. Field TPH concentrations were 1,332 mg/kg in TH-1 at 2 feet bgs.

Final excavation field screening results for VOCs via OVM ranged from 6.5 ppm in SC-6 to 40.1 ppm in SC-3. Field TPH concentrations ranged from 44.4 mg/kg in SC-3 up to 62.6 mg/kg in SC-4. Results are included below in Table 1 and on Figure 3. The AES Field Screening Report is attached.

Table 1. Soil Field Screening VOCs and TPH Results
Kattler #1 Release Assessment and Final Excavation, July 2012

Sample ID	Date Sampled	Sample Depth (ft bgs)	VOCs via OVM (ppm)	Field TPH (mg/kg)		
	NMOCD A	ction Level*	100	1,000		
		0.5	39.5	NA		
TH-1	7/18/12	1	11.1	NA		
	_	2	1.7	1,330		
SC-2	7/18/12	1 to 3	25.5	51.7		
SC-3	7/18/12	1 to 3	40.1	44.4		
SC-4	7/18/12	1 to 3	22.2	62.6		
SC-5	7/18/12	1 to 3	34.4	61.4		
SC-6	7/18/12	3	6.5	55.3		

NA – not analyzed

<sup>\*</sup>Action level determined by the NMOCD ranking score per NMOCD Guidelines for Leaks, Spills, and Releases (August 1993)

## 3.0 Conclusions and Recommendations

On July 18, 2012, Animas Environmental Services, LLC (AES) conducted an initial assessment of petroleum contaminated soils located near the location of the former compressor at the Kattler #1. Action levels for releases are determined by the NMOCD ranking score per NMOCD Guidelines for Leaks, Spills, and Releases (August 1993), and the site was assigned a rank of 10. Field screening results were reported below the NMOCD action level of 100 ppm VOCs in TH-1. However, field screening results reported TPH concentrations above the NMOCD action level of 1,000 mg/kg in TH-1 at 2 feet bgs, with 1,330 mg/kg. Excavation of the release area was recommended and completed on July 18, 2012.

Final assessment of the excavation area was completed on July 18, 2012, and field screening results of the excavation extents showed that VOC and TPH concentrations were below applicable NMOCD action levels for all of the final four walls and base of the excavation.

Based on final field screening results of the excavation of petroleum contaminated soils at the Kattler #1, VOCs and TPH concentrations were below applicable NMOCD action levels for each of the sidewalls and base of the excavation. No further work is recommended.

If you have any questions about this report or site conditions, please do not hesitate to contact Deborah Watson at (505) 564-2281.

Sincerely.

Heather M. Woods

Heather M. Woods

Staff Geologist

Elizabeth McNally, PE

Uzsbuth V MiNelly

Crystal Tafoya Kattler #1 Release Assessment and Final Excavation Report January 31, 2013 Page 5 of 5

#### Attachments:

Figure 1. Topographic Site Location Map

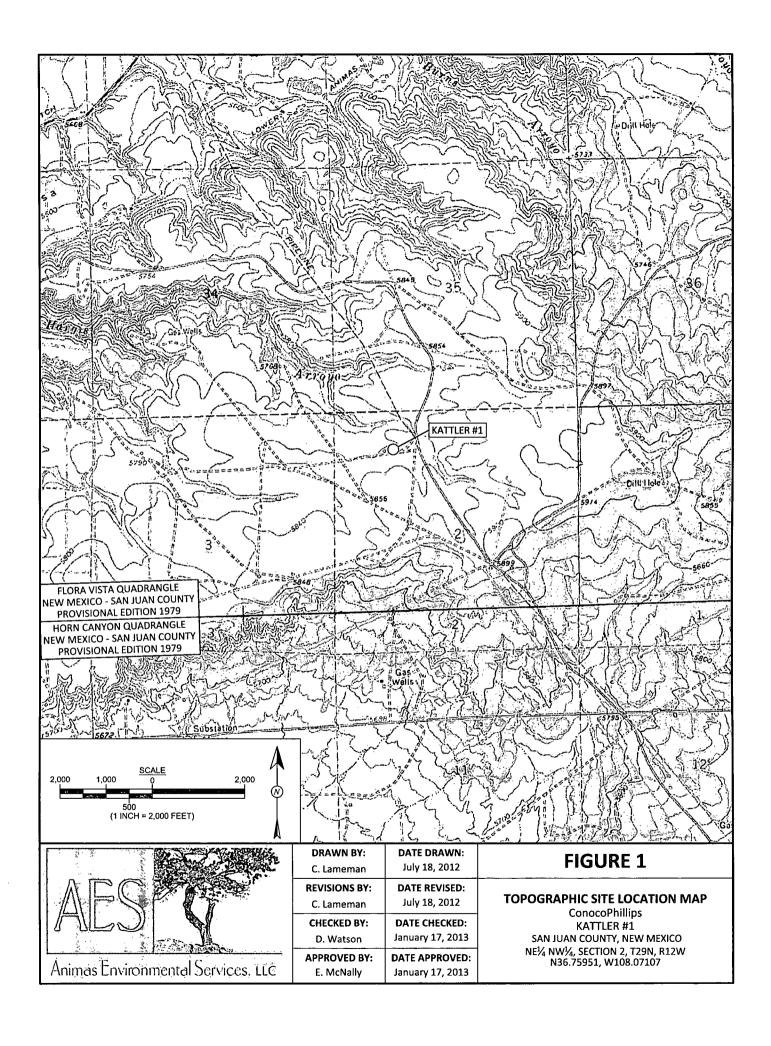
Figure 2. Aerial Site Map, July 2012

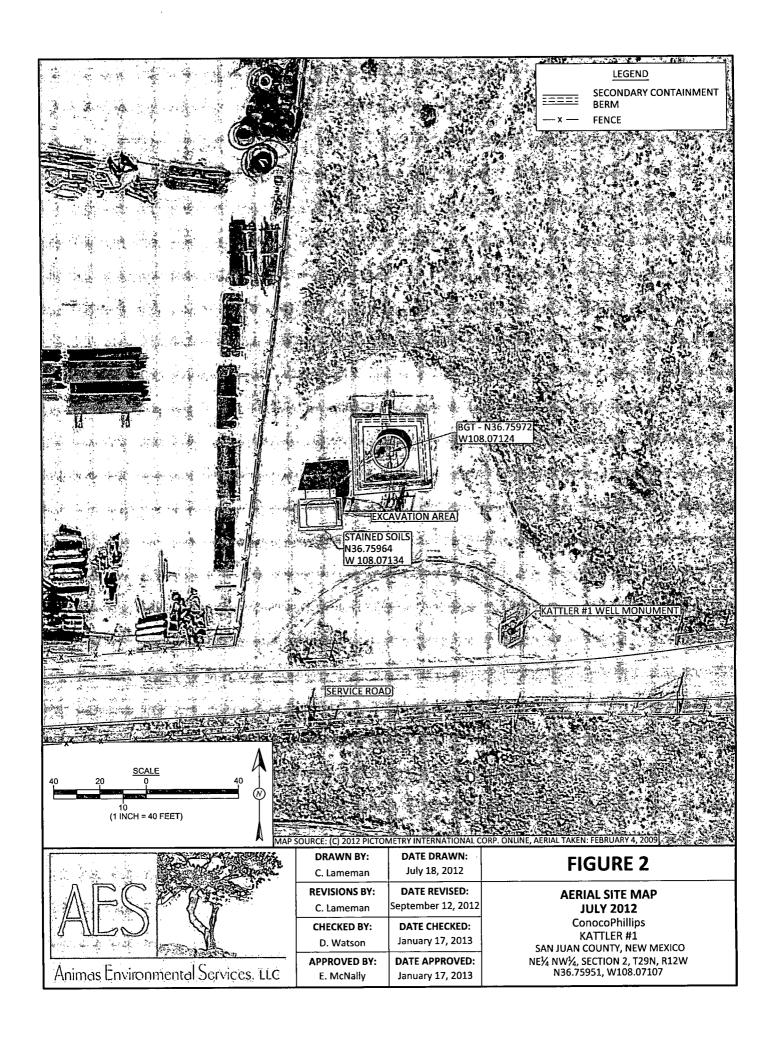
Figure 3. Final Excavation Soil Sample Locations and Results, July 2012

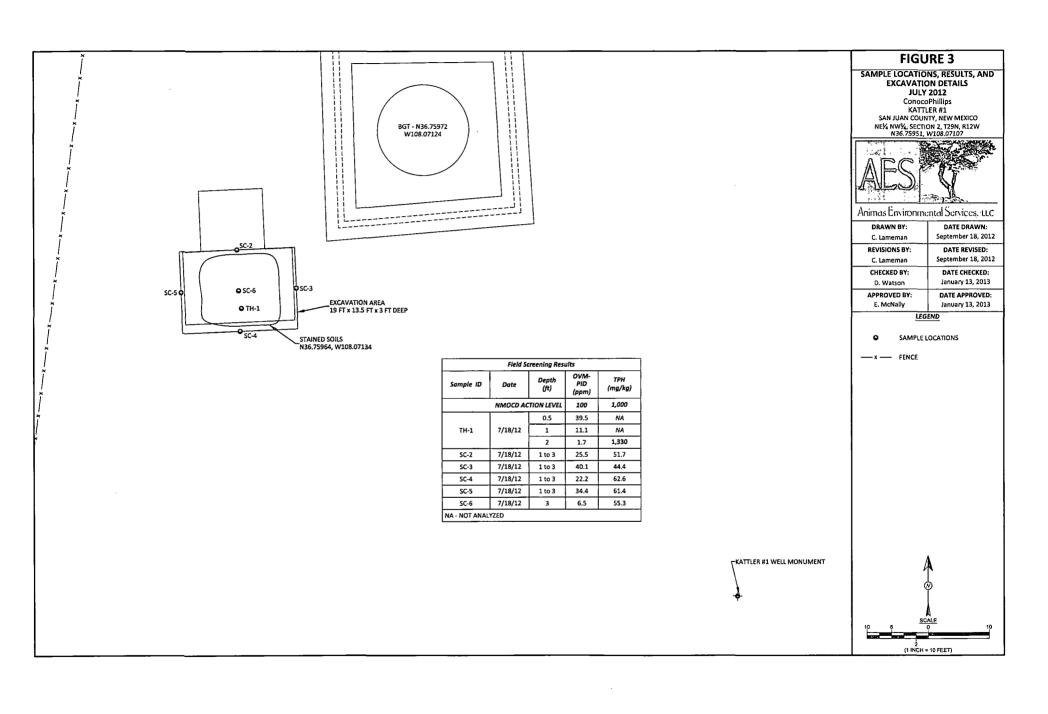
AES Field Screening Report 071812

Hall Laboratory Analytical Report 1207801 (Stockpile)

R:\Animas 2000\Dropbox\2013 Projects\ConocoPhillips\Kattler #1\Release Assessment\Kattler #1 Release and Final Excavation Report 013113.docx







## **AES Field Screening Report**

AES Q

Animas Environmental Services, LCC

www.animasenvironmental.com

624 E. Comanche Farmington, NM-87401 505-564-2281

> Durango, Colorado 970-403-3274

Client: ConocoPhillips

Project Location: Kattler #1

Date: 7/18/2012

Matrix: Soil

Sample ID	Collection Date	Time of Sample Collection	Sample Location	OVM (ppm)	Field TPH Analysis Time	Field TPH* (mg/kg)	TPH PQL (mg/kg)	DF	TPH Analysts Initials
TH-1 @ 0.5'	7/18/2012	10:08	Center	39.5		No	t Analyzed for	ТРН	
TH-1 @ 1'	7/18/2012	10:10	Center	11.1		No	t Analyzed for 1	ГРН	
TH-1 @ 2'	7/18/2012	10:12	Center	1.7	10:34	1,330	20.0	1	DAW
SC-2	7/18/2012	11:50	North Wall	25.5	12:26	51.7	20.0	1	DAW
SC-3	7/18/2012	11:52	East Wall	40.1	12:30	44.4	20.0	1	DAW
SC-4	7/18/2012	11:55	South Wall	22.2	12:32	62.6	20.0	1	DAW
SC-5	7/18/2012	11:57	West Wall	34.4	12:34	61.4	20.0	1	DAW
SC-6	7/18/2012	12:00	Base	6.5	12:36	55.3	20.0	_1	DAW

Total Petroleum Hydrocarbons - USEPA 418.1

PQL

**Practical Quantitation Limit** 

ND

Not Detected at the Reporting Limit

DF

**Dilution Factor** 

\*Field TPH concentrations recorded may be below PQL.

Analyst:

Debrah Water



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

August 03, 2012

Debbie Watson
Animas Environmental Services
624 East Comanche
Farmington, NM 87401
TEL: (505) 486-4071

FAX

RE: COP Kattler #1 OrderNo.: 1207801

### Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/19/2012 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued July 27, 2012.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

### **Analytical Report**

Lab Order 1207801

Date Reported: 8/3/2012

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Animas Environmental Services

Client Sample ID: SC-1

Project: COP Kattler #1

**Collection Date:** 7/18/2012 9:10:00 AM

**Lab ID:** 1207801-001

Matrix: MEOH (SOIL) Received Date: 7/19/2012 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: BRM
Chloride	680	30	mg/Kg	20	7/19/2012 12:16:00 PM
EPA METHOD 8260B: VOLATILES	SHORT LIST				Analyst: RAA
Benzene	ND	0.050	mg/Kg	1	7/19/2012 12:58:37 PM
Toluene	ND	0.050	mg/Kg	1	7/19/2012 12:58:37 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/19/2012 12:58:37 PM
Xylenes, Total	ND	0.10	mg/Kg	1	7/19/2012 12:58:37 PM
Surr: 1,2-Dichloroethane-d4	94.8	70-130	%REC	1	7/19/2012 12:58:37 PM
Surr: 4-Bromofluorobenzene	102	70-130	%REC	1	7/19/2012 12:58:37 PM
Surr: Dibromofluoromethane	89.5	70-130	%REC	1	7/19/2012 12:58:37 PM
Surr: Toluene-d8	101	70-130	%REC	1	7/19/2012 12:58:37 PM

Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

Analyte detected below quantitation limits

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

U Samples with CalcVal < MDL

Page 1 of 9

# Analytical Report Lab Order 1207801

Date Reported: 8/3/2012

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Animas Environmental Services

**Project:** COP Kattler #1

Lab ID:

1207801-002

Matrix: SOIL

ND

Collection Date: 7/18/2012 12:49:00 PM

Received Date: 7/19/2012 10:10:00 AM

Client Sample ID: Stockpile

**RL Qual Units** DF **Date Analyzed Analyses** Result **EPA METHOD 7471: MERCURY** Analyst: DBD 7/20/2012 2:49:13 PM Mercury ND 0.033 mg/Kg 1 MERCURY, TCLP Analyst: DBD Mercury ND 0.020 8/1/2012 1:42:01 PM mg/L 1 **EPA METHOD 6010B: SOIL METALS** Analyst: ELS Arsenic 7/20/2012 6:54:36 AM ND 12 mg/Kg 5 Barium 390 1.0 mg/Kg 10 7/20/2012 6:58:51 AM Cadmium ND 0.50 mg/Kg 5 7/20/2012 6:54:36 AM Chromium 7.4 1.5 mg/Kg 5 7/20/2012 6:54:36 AM Lead 1.2 5 5.2 mg/Kg 7/20/2012 8:38:17 AM Selenium ND 12 mg/Kg 5 7/20/2012 8:38:17 AM Silver ND 1.2 mg/Kg 5 7/20/2012 6:54:36 AM **EPA METHOD 6010B: TCLP METALS** Analyst: ELS Arsenic ND 5.0 8/3/2012 6:27:11 AM mg/L 1 Barium ND 100 mg/L 1 8/2/2012 3:54:22 PM Cadmium ND 1.0 mg/L 1 8/3/2012 6:27:11 AM Chromium ND 5.0 8/2/2012 3:54:22 PM mg/L 1 Lead ND 5.0 1 8/2/2012 3:54:22 PM mg/L Selenium ND 1.0 mg/L 1 8/2/2012 3:54:22 PM

5.0

mg/L

Ona	lifiers:	

Silver

1

8/2/2012 3:54:22 PM

U Samples with CalcVal < MDL

<sup>\*/</sup>X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

WO#:

1207801

03-Aug-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

Sample ID MB-2907

SampType: MBLK

TestCode: EPA Method 300.0: Anions

Client ID:

**PBS** 

Batch ID: 2907

RunNo: 4157

Prep Date: 7/19/2012

Sample ID LCS-2907

LCSS

Units: mg/Kg

Analysis Date: 7/19/2012

SeqNo: 118814

HighLimit

**RPDLimit** Qual

Analyte Chloride

PQL Result 1.5

ND

SPK value SPK Ref Val %REC LowLimit

%RPD

Client ID:

SampType: LCS Batch ID: 2907

RunNo: 4157

TestCode: EPA Method 300.0: Anions

90

Units: mg/Kg

Analyte

Prep Date: 7/19/2012

Analysis Date: 7/19/2012 PQL

1.5

15.00

SeqNo: 118815

%REC LowLimit HighLimit

%RPD

110

**RPDLimit** 

Qual

Chloride

Sample ID 1207599-001AMS SampType: MS

Result

Result

15

15

TestCode: EPA Method 300.0: Anions

0

98.3

RunNo: 4157

Units: mg/Kg

Qual

Analyte

Client ID:

BatchQC Prep Date: 7/19/2012

Analysis Date: 7/19/2012

SPK value SPK Ref Val

SeqNo: 118819 LowLimit

HighLimit

%RPD

Qual

Chloride

PQL 7.5

Batch ID: 2907

SPK value SPK Ref Val %REC 15.00 2.511

81.1

117

**RPDLimit** 

Sample ID 1207599-001AMSD **BatchQC** 

SampType: MSD Batch ID: 2907

**PQL** 

7.5

TestCode: EPA Method 300.0: Anions RunNo: 4157

Units: mg/Kg

**RPDLimit** 

Analyte Chloride

Client ID:

Prep Date: 7/19/2012

Analysis Date: 7/19/2012

15

Result

15.00

SPK value SPK Ref Val

2.511

%REC

SeqNo: 118820

LowLimit 84.6

64.4

64.4

HighLimit 117

%RPD

3.56

20

Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

J Analyte detected below quantitation limits В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit Page 3 of 9

R RPD outside accepted recovery limits RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

WO#:

1207801

03-Aug-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

 Sample ID
 MB-2919
 SampType:
 MBLK
 TestCode:
 EPA Method 7471:
 Mercury

 Client ID:
 PBS
 Batch ID:
 2919
 RunNo:
 4199

 Prep Date:
 7/19/2012
 Analysis Date:
 7/20/2012
 SeqNo:
 120246
 Units:
 mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury ND 0.033

Sample ID LCS-2919 SampType: LCS TestCode: EPA Method 7471: Mercury Client ID: LCSS Batch ID: 2919 RunNo: 4199 Units: mg/Kg Prep Date: 7/19/2012 Analysis Date: 7/20/2012 SeqNo: 120247 **RPDLimit** Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Qual Mercury 0.17 0.033 0.1667 102 120

Sample ID 1207796-008AMS SampType: MS TestCode: EPA Method 7471: Mercury Client ID: BatchQC Batch ID: 2919 RunNo: 4199 Units: mg/Kg Prep Date: 7/19/2012 Analysis Date: 7/20/2012 SeqNo: 120251 %REC %RPD **RPDLimit** Analyte Result PQL SPK value SPK Ref Val LowLimit HighLimit Qual Mercury 0.16 0.033 0.1661 98.8 125

Sample ID 1207796-008AMSD TestCode: EPA Method 7471: Mercury SampType: MSD Client ID: BatchQC RunNo: 4199 Batch ID: 2919 Prep Date: 7/19/2012 Analysis Date: 7/20/2012 SeqNo: 120252 Units: mg/Kg %RPD Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit **RPDLimit** Qual

Mercury 0.16 0.033 0.1643 0 98.0 75 125 1.87 20

### Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

Page 4 of 9

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1207801

03-Aug-12

Client:

Animas Environmental Services

Project:

COP Kattler #1

Sample ID MB-3127

SampType: MBLK

TestCode: MERCURY, TCLP

Client ID: PBW

Batch ID: 3127

RunNo: 4577

Prep Date: 8/1/2012

Analysis Date: 8/1/2012

SegNo: 128440

Units: mg/L HighLimit

Analyte

Result **PQL** SPK value SPK Ref Val %REC LowLimit

**RPDLimit** Qual

Mercury

ND 0.020

Sample ID LCS-3127

SampType: LCS

TestCode: MERCURY, TCLP

Client ID: LCSW

Batch ID: 3127 Prep Date: 8/1/2012

RunNo: 4577

Units: mg/L

Analyte

Analysis Date: 8/1/2012

SeqNo: 128441

%RPD

Qual

Mercury

Client ID:

Prep Date:

Result ND

SPK value SPK Ref Val POL 0.020 0.005000

%REC 101

LowLimit HighLimit 80 120 %RPD **RPDLimit** 

Sample ID 1207B34-006AMS

**BatchQC** 

SampType: MS

0

TestCode: MERCURY, TCLP

RunNo: 4577

Units: mg/L

Analyte

8/1/2012

Analysis Date: 8/1/2012

ND

Result

ND

SeqNo: 128454

HighLimit

Qual

Result

PQL

Batch ID: 3127

SPK value SPK Ref Val %REC 0.005000 n

LowLimit 104 75

%RPD 125

**RPDLimit** Qual

Mercury

Sample ID 1207B34-006AMSD

SampType: MSD

TestCode: MERCURY, TCLP

RunNo: 4577

Client ID:

**BatchQC** 

Batch ID: 3127

**PQL** 

0.020

0.020

0

SeqNo: 128455

LowLimit

Units: mg/L HighLimit

125

Analyte Mercury

Prep Date: 8/1/2012

Analysis Date: 8/1/2012

0.005000

SPK value SPK Ref Val

%REC

93.4

%RPD

**RPDLimit** 

Qualifiers:

Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

J Analyte detected below quantitation limits

Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

RL Reporting Detection Limit Page 5 of 9

R RPD outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1207801

03-Aug-12

Client:

		Environme	ital Ser	vices							
Project:	COP K	attler #1									
Sample ID	MB-2912	SampT	ype: ME	BLK	Tes	tCode: Ef	PA Method	6010B: Soil I	Metals		
Client ID:	PBS	Batch	ID: <b>29</b>	12	F	RunNo: 4	168				
Prep Date:	7/19/2012	Analysis D	ate: <b>7</b> /	20/2012	5	SeqNo: 1	19211	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	2.5								
Barium		ND	0.10								
Cadmium		ND	0.10								
Chromium Silver		ND ND	0.30 0.25								
											=
	LCS-2912	•	ype: LC					6010B: Soil I	Vietals		
Client ID:			ID: <b>29</b>			RunNo: 4					
Prep Date:	7/19/2012	Analysis D	ate: 7/	20/2012	\$	SeqNo: 1	19212	Units: mg/L			
Analyte		Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		25	2.5	25.00	0.2515	101	80	120			
Barium		24	0.10	25.00	0	94.3	80	120			
Cadmium		24	0.10	25.00	0 00550	95.3	80	120			
Chromium Silver		24 4.8	0.30 0.25	25.00 5.000	0.09550 0.03050	93.7 96.3	· 80 80	120 120			
Silver		4.0	0.25	5.000	0.03030	90.3	80	120			
Sample ID	MB-2912	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	6010B: Soil I	Metals		
Client ID:	PBS	Batch	ID: <b>29</b>	12	F	RunNo: 4	174				
Prep Date:	7/19/2012	Analysis D	ate: 7/	20/2012	\$	SeqNo: 1	19449	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND	0.25				<u> </u>				
Selenium —————		ND	2.5								
Sample ID	LCS-2912	SampT	ype: LC	s	Tes	tCode: El	PA Method	6010B: Soil I	Metals		
Client ID:	LCSS	Batch	ID: <b>29</b>	12	F	RunNo: 4	174				
Prep Date:	7/19/2012	Analysis D	ate: 7/	20/2012	\$	SeqNo: 1	19451	Units: mg/K	(g		
Prep Date: Analyte	7/19/2012	Analysis D Result	ate: <b>7</b> /		SPK Ref Val		19451 LowLimit	Units: mg/K	(g %RPD	RPDLimit	Qual
Analyte Lead	7/19/2012	Result 24	PQL 0.25	SPK value 25.00		SeqNo: 1: %REC 96.0	LowLimit 80	HighLimit 120	_	RPDLimit	Qual
Analyte _	7/19/2012	Result	PQL	SPK value	SPK Ref Val	SeqNo: 1	LowLimit	HighLimit	_	RPDLimit	Qual
Analyte Lead		Result 24 22	PQL 0.25	SPK value 25.00 25.00	SPK Ref Val 0 0	%REC 96.0 86.1	LowLimit 80 80	HighLimit 120	%RPD	RPDLimit	Qual
Analyte Lead Selenium		Result 24 22 SampT	PQL 0.25 2.5	25.00 25.00 25.00	SPK Ref Val 0 0	%REC 96.0 86.1	LowLimit 80 80 PA Method	HighLimit 120 120	%RPD	RPDLimit	Qual
Analyte Lead Selenium	MB-2912 PBS	Result 24 22 SampT	PQL 0.25 2.5 ype: <b>ME</b>	25.00 25.00 25.00	SPK Ref Val 0 0 Tes	%REC 96.0 86.1	LowLimit 80 80 PA Method	HighLimit 120 120	%RPD_	RPDLimit	Qual
Analyte Lead Selenium Sample ID Client ID:	MB-2912 PBS	Result  24 22  SampT  Batch  Analysis D  Result	PQL 0.25 2.5 Type: ME 1 ID: 29 ate: 7/	SPK value 25.00 25.00 25.00 BLK 12 25/2012	SPK Ref Val 0 0 Tes	%REC 96.0 86.1 stCode: El RunNo: 4 SeqNo: 12	LowLimit 80 80 PA Method	HighLimit 120 120 6010B: Soil I	%RPD_	RPDLimit  RPDLimit	Qual
Analyte Lead Selenium  Sample ID Client ID: Prep Date: Analyte Arsenic	MB-2912 PBS	Result 24 22  SampT Batch Analysis D Result ND	PQL 0.25 2.5 ype: ME 1 ID: 29 ate: 7/ PQL 2.5	SPK value 25.00 25.00 25.00 BLK 12 25/2012	SPK Ref Val 0 0 Tes	%REC 96.0 86.1 stCode: El RunNo: 4 SeqNo: 12	80 80 PA Method 414 23190	HighLimit 120 120 120 6010B: Soil I	%RPD  Wetals		
Analyte Lead Selenium  Sample ID Client ID: Prep Date: Analyte Arsenic Barium	MB-2912 PBS	Result  24 22  SampT  Batch  Analysis D  Result  ND  ND	PQL 0.25 2.5 ype: <b>ME</b> 1D: <b>29</b> ate: <b>7</b> / PQL 2.5 0.10	SPK value 25.00 25.00 25.00 BLK 12 25/2012	SPK Ref Val 0 0 Tes	%REC 96.0 86.1 stCode: El RunNo: 4 SeqNo: 12	80 80 PA Method 414 23190	HighLimit 120 120 120 6010B: Soil I	%RPD  Wetals		
Analyte Lead Selenium  Sample ID Client ID: Prep Date: Analyte Arsenic	MB-2912 PBS	Result 24 22  SampT Batch Analysis D Result ND	PQL 0.25 2.5 ype: ME 1 ID: 29 ate: 7/ PQL 2.5	SPK value 25.00 25.00 25.00 BLK 12 25/2012	SPK Ref Val 0 0 Tes	%REC 96.0 86.1 stCode: El RunNo: 4 SeqNo: 12	80 80 PA Method 414 23190	HighLimit 120 120 120 6010B: Soil I	%RPD  Wetals		

### Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1207801** 

03-Aug-12

Client: Animas Environmental Services

**Project:** COP Kattler #1

Sample ID MB-2912 TestCode: EPA Method 6010B: Soil Metals SampType: MBLK Client ID: PBS Batch ID: 2912 RunNo: 4414 Units: mg/Kg Prep Date: 7/19/2012 Analysis Date: 7/25/2012 SeqNo: 123190 Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND 0.25 Lead 2.5 Selenium ND Silver ND 0.25

Sample ID LCS-2912 SampType: LCS TestCode: EPA Method 6010B: Soil Metals Client ID: LCSS Batch ID: 2912 RunNo: 4414 Prep Date: 7/19/2012 Analysis Date: 7/25/2012 SeqNo: 123191 Units: mg/Kg SPK value SPK Ref Val Analyte **PQL** %REC LowLimit HighLimit %RPD **RPDLimit** Qual Arsenic 25 2.5 25.00 0.7230 96.9 80 120 25 80 Barium 0.10 25.00 0 100 120 Cadmium 25 80 0.10 25.00 0 100 120 Chromium 24 0.30 25.00 0.06600 96.9 80 120 Lead 25 0.25 25.00 100 80 120 Selenium 25 2.5 25.00 0 98.2 80 120 Silver 5.1 0.25 5.000 0 103 80 120

Sample ID 1207640-001BMS	SampT	ype: <b>M</b> \$	6	Tes	tCode: El	PA Method	6010B: Soil	Metals		
Client ID: BatchQC	Batch	1D: <b>29</b>	12	F	RunNo: 4	414				
Prep Date: 7/19/2012	Analysis D	ate: <b>7</b> /	25/2012	s	SeqNo: 1	23197	Units: mg/F	(g-dry		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	15	28.40	0	88.1	75	125			
Barium	42	0.58	28.40	36.21	21.6	75	125			S
Cadmium	28	0.58	28.40	0	96.9	75	125			
Chromium	30	1.7	28.40	2.024	97.4	75	125			
_ead	29	1.5	28.40	2.697	93.5	75	125			
Selenium	28	15	28.40	6.868	73.4	75	125			S
Silver	5.4	1.5	5.679	0	95.7	75	125			

Sample ID 1207640-001BMS	SampT	ype: MS	SD	Tes	tCode: El	PA Method	6010B: Soil	Metals		
Client ID: BatchQC	Batch	1D: <b>29</b>	12	F	RunNo: 4	414				
Prep Date: 7/19/2012	Analysis D	ate: 7/	25/2012	S	SeqNo: 1	23198	Units: mg/K	(g-dry		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	15	28.58	0	89.5	75	125	2.19	20	
Barium	43	0.58	28.58	36.21	23.0	75	125	1.08	20	S
Cadmium	27	0.58	28.58	0	95.3	75	125	0.988	20	
Chromium	29	1.7	28.58	2.024	94.9	75	125	1.85	20	
Lead	29	1.5	28.58	2.697	93.7	75	125	0.831	20	
Selenium	32	15	28.58	6.868	87.2	75	125	13.7	20	
Silver	5.3	1.5	5.717	0	93.3	75	125	1.94	20	

#### Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1207801

03-Aug-12

Client: Animas Environmental Services

**Project:** COP Kattler #1

Sample ID MB-3144	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	6010B: TCLI	P Metals		
Client ID: PBW	Batch	ID: 31	44	F	RunNo: <b>4</b>	617				
Prep Date: 8/1/2012	Analysis D	ate: 8/	2/2012	S	SeqNo: 1	29447	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-3144	SampT	ype: <b>LC</b>	S	Tes	tCode: El	PA Method	6010B: TCLF	P Metals			
Client ID: LCSW	Batch	ID: 31	44	F	RunNo: 4	617					
Prep Date: 8/1/2012	Analysis D	ate: 8/	2/2012	S	SeqNo: 1	29448	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium	ND	100	0.5000	0	92.7	80	120	-			_
Chromium	ND	5.0	0.5000	0	95.3	80	120				
Lead .	ND	5.0	0.5000	0	95.9	80	120				
Selenium ·	ND	1.0	0.5000	0	104	80	120				
Silver	ND	5.0	0.1000	0.004880	96.6	80	120				

Sample ID	1207C56-003AMS	SampT	ype: MS	<u></u>	Tes	tCode: E	PA Method	6010B: TCL	P Metals		
Client ID:	BatchQC	Batch	1D: <b>31</b>	44	F	RunNo: 4	617				
Prep Date:	8/1/2012	Analysis D	ate: 8/	2/2012	S	SeqNo: 1	29483	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium		ND	5.0	0.5000	0	99.8	75	125			
Selenium		ND	1.0	0.5000	0	104	75	125			
Silver		ND	5.0	0.1000	0.01075	100	75	125			

Sample ID	1207C56-003AMSD	SampT	ype: MS	 SD	Tes	tCode: El	PA Method	6010B: TCLI	Metals		
Client ID:	BatchQC	Batch	ID: <b>31</b> 4	44	F	RunNo: 4	617				
Prep Date:	8/1/2012	Analysis D	ate: 8/	2/2012	8	SeqNo: 1	29484	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium		ND	5.0	0.5000	0	91.9	75	125	0	20	
Selenium		ND	1.0	0.5000	0	101	75	125	0	20	
Silver		ND	5.0	0.1000	0.01075	90.9	75	125	0	20	

Sample ID MB-3144	SampTy	/pe: <b>ME</b>	BLK	Test	Code: E	PA Method	6010B: TCL	P Metals		
Client ID: PBW	Batch	ID: 314	14	R	tunNo: 4	622				
Prep Date: 8/1/2012	Analysis Da	ate: 8/	3/2012	S	eqNo: 1	29665	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0						-		
Cadmium	ND	1.0								

### Qualifiers:

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

Page 8 of 9

## Hall Environmental Analysis Laboratory, Inc.

WO#:

1207801

03-Aug-12

Client:

Animas Environmental Services

ND

500

0.5000

1.293

Project:	COP Kat	tler#1			·			<u>.</u>			
Sample ID	LCS-3144	SampT	ype: <b>LC</b>	s	Tes	tCode: E	PA Method	6010B: TCLF	Metals		
Client ID:	LCSW	Batch	n ID: <b>31</b>	44	F	RunNo: 4	622				
Prep Date:	8/1/2012	Analysis D	ate: 8/	3/2012	S	SeqNo: 1	29666	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	5.0	0.5000	0	107	80	120			
Cadmium		ND	1.0	0.5000	0	98.8	80	120			
Sample ID	1207C56-003AMS	SampT	ype: MS	;	Tes	tCode: El	PA Method	6010B: TCLF	Metals		<del></del>
Client ID:	BatchQC	Batch	1D: <b>31</b>	44	F	RunNo: 4	622				
Prep Date:	8/1/2012	Analysis D	ate: 8/	3/2012	S	SeqNo: 1	29686	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium		ND	1.0	0.5000	0	94.3	75	125	***		
Sample ID	1207C56-003AMS	D SampT	ype: MS	SD .	Tes	tCode: El	PA Method	6010B: TCLF	Metals		
Client ID:	BatchQC	Batch	1D: <b>31</b> 4	14	R	RunNo: 4	622				
Client ID: Prep Date:		Batch Analysis D				RunNo: 4 SeqNo: 1		Units: mg/L			
				3/2012				Units: <b>mg/L</b> HighLimit	%RPD	RPDLimit	Qual
Prep Date:		Analysis D	ate: 8/	3/2012	S	SeqNo: 1	29689	_	%RPD 0	RPDLimit 20	Qual
Prep Date: Analyte Cadmium		Analysis D Result ND	ate: 8/	3/2012 SPK value 0.5000	SPK Ref Val	SeqNo: 1 %REC 91.8	29689 LowLimit 75	HighLimit	0		Qual
Prep Date: Analyte Cadmium	8/1/2012	Analysis D Result ND SampT	PQL 1.0	3/2012 SPK value 0.5000	SPK Ref Val	SeqNo: 1 %REC 91.8	LowLimit 75 PA Method	HighLimit 125	0		Qual
Prep Date: Analyte Cadmium Sample ID	8/1/2012 1207C56-003AMS BatchQC	Analysis D Result ND SampT	PQL 1.0 1.0 1D: 314	3/2012 SPK value 0.5000	SPK Ref Val 0 Test	%REC 91.8 tCode: El	LowLimit 75 PA Method	HighLimit 125	0		Qual
Prep Date: Analyte Cadmium  Sample ID Client ID:	8/1/2012 1207C56-003AMS BatchQC	Analysis D Result ND SampT	PQL 1.0 1.0 1D: 314	3/2012 SPK value 0.5000 3 44 3/2012	SPK Ref Val 0 Test	%REC 91.8 tCode: El	LowLimit 75 PA Method	HighLimit 125 6010B: TCLF	0		Qual
Prep Date: Analyte Cadmium  Sample ID Client ID: Prep Date:	8/1/2012 1207C56-003AMS BatchQC	Analysis D Result ND SampT Batch Analysis D	PQL 1.0 1.0 1D: 314 ate: 8/	3/2012 SPK value 0.5000 3 44 3/2012	SPK Ref Val 0 Test	%REC 91.8 tCode: El RunNo: 4	29689 LowLimit 75 PA Method 622 29691	HighLimit 125 6010B: TCLF Units: mg/L	0 Metals	20	
Prep Date: Analyte Cadmium Sample ID Client ID: Prep Date: Analyte Barium	8/1/2012 1207C56-003AMS BatchQC	Analysis D Result ND SampT Batch Analysis D Result ND	PQL 1.0 ype: MS o ID: 314 ate: 8/2	3/2012 SPK value 0.5000 3 44 3/2012 SPK value 0.5000	SPK Ref Val  Test  R  S  SPK Ref Val  1.293	ReqNo: 1  REC 91.8  COde: El  RunNo: 4  ReqNo: 1:  REC 92.8	29689  LowLimit 75  PA Method 622 29691  LowLimit 75	HighLimit 125 6010B: TCLF Units: mg/L HighLimit	0 Metals %RPD	20	
Prep Date: Analyte Cadmium Sample ID Client ID: Prep Date: Analyte Barium	8/1/2012 1207C56-003AMS BatchQC 8/1/2012	Analysis D Result ND SampT Batch Analysis D Result ND SampT	PQL 1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.0	3/2012 SPK value 0.5000 3/2012 SPK value 0.5000 6D	SPK Ref Val  0  Test S  SPK Ref Val 1.293	ReqNo: 1  REC 91.8  COde: El  RunNo: 4  ReqNo: 1:  REC 92.8	29689  LowLimit 75  PA Method 622 29691  LowLimit 75  PA Method	HighLimit 125 6010B: TCLF Units: mg/L HighLimit 125	0 Metals %RPD	20	
Prep Date: Analyte Cadmium  Sample ID Client ID: Prep Date: Analyte Barium  Sample ID	8/1/2012 1207C56-003AMS BatchQC 8/1/2012 1207C56-003AMSI BatchQC	Analysis D Result ND SampT Batch Analysis D Result ND SampT	PQL 1.0  1.0  ype: MS  ate: 8/  PQL 500  ype: MS  1D: 314	3/2012 SPK value 0.5000 3/2012 SPK value 0.5000 6D	SPK Ref Val  0  Test  S  SPK Ref Val  1.293  Test	REC 91.8  Code: El RunNo: 4  Rec 92.8  Code: El	29689  LowLimit 75  PA Method 622 29691  LowLimit 75  PA Method 622	HighLimit 125 6010B: TCLF Units: mg/L HighLimit 125	0 Metals %RPD	20	

#### Qualifiers:

Barium

\*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

92.9

75

125

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-410;
Website: www.hallenvironmental.con

# Sample Log-In Check List

	1								
Cilent Name: Animas Environmental Work Order Number: 1207801									
Received by/dat	(CA) 07/14/12								
Logged By: Lindsay Mangin 7/19/2012 10:10:00 AM									
Completed By:	Lindsay Mangir	07/19/12							
Reviewed By: IO 07/19/12									
Chain of Cus	stody / /								
1. Were seals	Intact?	Yes 🗌 No 🔲 N	Not Present ☑						
2. Is Chain of	Custody complete?	Yes 🗹 No 🗌 🛚 N	Not Present 🗌						
3. How was th	ne sample delivered?	<u>Client</u>							
<u>Log In</u>									
	e present? (see 19. for cooler specific information)	Yes 🗹 No 🗌	NA 🗆						
5. Was an atte	empt made to cool the samples?	Yes 🗹 No 🗌	na 🗆						
6. Were all sa	amples received at a temperature of >0° C to 6.0°C	Yes 🗹 No 🗌	na 🗆						
7 Sample(s) i	in proper container(s)?	Yes 🗹 No 🗌							
	ample volume for indicated test(s)?	Yes 🗹 No 🗌							
-•	es (except VOA and ONG) properly preserved?	Yes 🗹 No 🗌							
10. Was presen	rvative added to bottles?	Yes 🗌 No 🗹	NA 🗆						
11 VOA vials i	have zero headspace?	Yes 🗌 No 🗀 No	VOA Vials 🗹						
	sample containers received broken?	Yes 🗆 No 🗹							
	work match bottle labels? epancies on chain of custody)	Yes 🗹 No 🗌	# of preserved bottles checked for pH:						
14. Are matrice	es correctly identified on Chain of Custody?	Yes 🗹 No 🗌	(<2 or >12 unless noted)						
15. Is it clear w	vhat analyses were requested?	Yes 🗹 No 🗌	Adjusted?						
	olding times able to be met? y customer for authorization.)	Yes 🗹 No 🗌	Checked by:						
Special Hand	dling (if applicable)								
17. Was client	notified of all discrepancies with this order?	Yes 🗌 No 🗌	na 🗹						
Perso	on Notified: Date:		OMBINET.						
By Wi	hom: Via:	eMail Phone	Fax In Person						
Regar	rding:								
Client	t Instructions:								
18. Additional remarks:									
19. Cooler Information  Cooler No Temp °C Condition Seal Intact Seal No Seal Date Signed By  1 1.0 Good Yes									

Chain-of-Custody Record			Turn-Around	Time: As	AP- met	als	HALL ENVIRONMENTA															
Animas Environmental			☐ Standard	Rust	yme de	4-				A	N	۸L.	YS	IS	5 L	AE	30	RA	TO	RY		
Services, LC Mailing Address: 624 5 Comanche		Project Name: / U 144				www.hallenvironmental.com																
Mailing Address: 624 5 Coma nche		Turn-Around Time: ASAP - metals  Standard & Rush years day  Project Name:  Cop Katter #1			4901 Hawkins NE - Albuquerque, NM 87109																	
Farmington NM 87401		Project #:				Tel. 505-345-3975 Fax 505-345-4107																
Phone #: 505 -564 2281		1																				
email or Fax#:			Project Manager:				only)	(leg					(7)							Τ		
QA/QC Package:  Standard □ Level 4 (Full Validation)			R Kennemer  Sampler: Deldgul Watson  Onloth Way Yes			s (8021)	(Gas or	as/Die			i i		,PO4,S	PCB's								
Accredi		□ Othe	r	Sampler: De	ldge Wo	tson			+ TPH (Gas	)15B (C	18.1)	04.1)	AH)		3,NO <sub>2</sub>	3 / 8082		(A)	chloudes			S L
□ EDD	(Type)			Sample Trem	Zeraiure 1/2	0.		A	盟	8	bd 4	39	9	stals	Ž	ide	8	<u>ا</u> دٍ	ð	-		∖≿
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type			BTEX + 🛤	BTEX + MTBE	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,CI,NO3,NO2,PO4,SO4)	8081 Pesticides	8260B (VOA)	8270 (Semi-VOA)	300.00			Air Bubbles
1-18-12	6910	Sord	Sc- 1	1-402/MOH	MONTHOH	- 00	)[	ス											X			T
1-18-12			SC-1 Stockpile	2-402	hon	-00								X								
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			·																			I
_1	Time:	Relinquish		Received by:	<i>t</i> )	,	Time	Remarks: Bull to Conor		sco	Ph	illy	B		,							
8  2 Date:	Time:	Relinquished by:		Received by://	s Waller	7/18/12	1622 Time	Remarks: Boll to ConocoPhillips - Wo: 10336323 User IPE KAITEW act- code: C200 Workendered: Jess Henom														
7/18/12			stu Daeles	Milian	built	Lordia	1/12 101	wo: 10336323 user act. code: C200 work IntoSupuran: Harry Dec. Ar				Area: 3										