

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109



#7933

FOR OGCC USE ONLY

RECEIVED
4/11/2014

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): Pit Closure

OGCC Operator Number: <u>96155</u>	Contact Name and Telephone: <u>William Lambert</u>
Name of Operator: <u>Whiting Oil and Gas Corporation</u>	No: <u>303-837-4238</u>
Address: <u>1700 Broadway, Suite 2300</u>	Fax: <u>720-644-3637</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80290-2300</u>	
API Number: <u>05-103-11414</u>	County: <u>Rio Blanco #103</u>
Facility Name: _____	Facility Number: <u>336040</u>
Well Name: <u>Boies</u>	Well Number: <u>B-30H-H3</u>
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>NESE, 30, 2S, 97W, 6th</u> Latitude: <u>39.845842</u> Longitude: <u>-108.319537</u>	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): NA

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☒ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Rangeland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Harvre loam, 0-4% slope

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Fawn Creek ~197 feet

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
<input type="checkbox"/> Soils	_____	_____
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface Water	_____	_____

REMEDIALATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
See work plan associated with Remediation Number 7933.

Describe how source is to be removed:
N/A. Pit bottom analytical indicates no further action is needed (see attached Completion Report).

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:
N/A. Pit bottom analytical indicates no further action is needed (see attached Completion Report).



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

Page 2

REMEDIAL WORKPLAN (Cont.)

OGCC Employee: _____

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

N/A

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

N/A. The pits had been reclaimed during the summer of 2012 and the sampling activities did not disturb the reclamation.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

N/A. Pit bottom analytical indicates no further action is needed (see attached Completion Report).

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

N/A. No waste was generated during the sampling event.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 11/12/13	Date Site Investigation Completed: 11/12/13	Date Remediation Plan Submitted: 4/12/13
Remediation Start Date: 11/12/13	Anticipated Completion Date: 11/12/13	Actual Completion Date: 11/12/13

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: William Lambert

Signed: *William Lambert*

Title: Environmental Professional II

Date: 3/21/2014

OGCC Approved: _____ Title: _____ Date: _____



InterTech

March, 2014

***NOTICE OF COMPLETION REPORT
BOIES B-30H-H3 PITS
T2S R97W Section 30
Rio Blanco County, Colorado***

Prepared For:



**Whiting Oil and Gas Corporation
1700 Broadway, Suite 2300
Denver, CO 80290**

Prepared By:



InterTech

**InterTech Environmental & Engineering, LLC
743 Horizon Court, Suite 110
Grand Junction, Colorado 81506**

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EXECUTIVE SUMMARY

On November 12, 2013, activities associated with the closure sampling of the two (2) pits located on the Boies B-30H-H3 (H30) pad site, Remediation Number 7933, were initiated. Nine Whiting Oil and Gas Corporation (Whiting) drilling, reserve and production pits, including Boies H30 pits, were reclaimed during the summer of 2012. The lining materials were removed and the pits were backfilled; however, confirmation sampling from the bottom of the pits was not conducted at the time of closure.

Soil sample aliquots were collected from three (3) locations at the bottom of each of the two (2) H30 pits. Soils were collected using a track mounted drill rig to bore through the fill material. One pit bottom confirmation sample, consisting of the three (3) aliquots from each pit was submitted to ALS Laboratories (ALS) for analysis of Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 analytes.

Analytical results received from the laboratory for the conformation sample revealed concentrations of all 910-1 constituents to be within the allowable concentrations set by COGCC, except arsenic. A summary of the constituent exceeding regulatory concentrations is as follows:

Constituent	Units	Standard	Results	
			SW	NE
Arsenic	mg/kg	0.39	4.6	5.1

It is requested that background arsenic concentrations be taken into consideration for the completion of the pit closures. Background arsenic levels for the Black Sulphur Creek area is 6.4 mg/kg. This request is in accordance with and pertaining to footnote 1 to the Table 910-1 of the COGCC 900 series Rule.

1.0 - INTRODUCTION

This document was prepared to describe the procedures and protocol used for the closure sampling of the two (2) pits located on the H30 pad site. The practices used are as described in the Whiting Pit Closure Work Plan, approved by COGCC and assigned Remediation Number 7933. The report provides the documentation necessary to demonstrate a comprehensive and diligent sampling of the pit. Samples were obtained as described and in accordance with all appropriate County, State and Federal rules and regulations.

1.1 - Site Description

The H30 pad site is located in the NE1/4 of the SE1/4 of Section 30 of Township 2 South and Range 97 West in Rio Blanco County, Colorado. The coordinates for the site are:

API/Facility ID	Easting	Northing
05-103-11414	729332	4414086

The well pad is situated on non-crop rangelands and Havre loam soils with a zero (0) to four (4) percent (%) slope. Receiving waters include the perennial flowing Fawn Creek. The estimated distance to the receiving waters is approximately 197 feet. Vegetation consists of sage brush and grassland communities. See Figure 1 for a Site Vicinity map (Appendix A).

2.0 - PIT CLOSURE SAMPLING EVENT

Whiting records indicate that the nine (9) pits were reclaimed during the summer of 2012. Closure practices included removal of the liner material and backfill; however, did not include confirmation samples being collected from the pit bottoms.

The soils investigation was completed as described in the Whiting Oil & Gas Pit Closure Work Plan and further described below.

2.1 - Visual Observation of Soil Aliquots

All soils were observed for any visual indication of hydrocarbon impact. The following was noted from the soil aliquots collected from the H30 pits.

Pit ID	Aliquot Location Within Pit	Aliquot Depth (feet below surface)	Soil Observation(s)
SW	North	8	Brown, no odor
	Middle	8	Brown, no odor
	South	8	Brown, no odor
NE	North	10	Brown, mild odor
	Middle	10	Brown, no odor
	South	10	Brown, no odor

2.2 - PID Screening

Using a RAE Systems Photoionization Detector (PID), calibrated daily with Isobutylene per manufacture's recommendations, the three (3) aliquots were screened for Volatile Organic Compounds (VOCs). If the PID reading was above 100 parts per million (ppm) or visual screening indicated sub-soils had been impacted, the suspect aliquot was submitted separately to the laboratory for analysis of Table 910-1 constituents. All aliquots with PID readings below 100 ppm were combined and submitted as one (1) composite sample.

Aliquot PID readings are as follows:

Pit ID	Aliquot Location Within Pit	PID Reading (ppm)
SW	North	3.3
	Middle	1.3
	South	1.4
NE	North	0.0
	Middle	1.1
	South	1.1

2.3 - Sample Collection

The Southwest (SW) pit was approximately 40 feet by 60 feet and the Northeast (NE) pit was approximately 40 feet by 120 feet. Whiting estimated the SW and NE pit bottoms to be eight (8) foot and 10 feet in depth, respectively. Using a track mounted drill rig, flight augers bored through the fill material until native soil was reached. Pit bottom soil samples were collected from three (3) locations along the axis of each pit with a two (2) foot split spoon.

The sampled material was field screened, as described above, composited and then placed into laboratory specified sample containers. The samples were labeled with unique sample identification, sampler's name, date collected and the time of collection. Samples were then placed into a cooler with ice to cool to four (4) degrees (°) to preserve sample integrity. Samples were submitted to ALS Environmental (ALS) laboratory via overnight courier for analysis of contaminants listed in COGCC Table 910-1.

All pertinent site and sampling activity information were recorded, in print, in a dedicated field notebook. Site conditions and sampling locations were recorded on a site plan, plotted relative to a known reference point or located by means of a handheld Global Positioning System (GPS) device, and photographed.

The sample name and aliquot coordinates are as follows:

Sample ID	Aliquot ID	Easting	Northing
WOG_H_30_SW_PB_8	North	729293	4413973
	Middle	729298	4413981
	South	729302	4413987
WOG_H_30_NE_PB_10	North	729366	4414074
	Middle	729380	4414092
	South	729391	4414109

3.0 - ANALYTICAL RESULTS AND INTERPRETATION

Confirmation sample analytical showed that the H30 SW and NE pit bottom samples to be below COGCC Table 910-1 standards for all constituents, except arsenic. A summary of analytical for the pit bottom samples are as follows and a copy of the laboratory report is included in Appendix B:

Constituent	Table 910-1 Standard	Units	Results	
			NE	SW
Organic Compounds in Soil				
TPH - DRO			40	30
TPH - GRO			5.9	ND
TPH - Total	500	mg/kg	45.9	30
Benzene	0.17	mg/kg	ND	ND
Toluene	85	mg/kg	ND	ND
Ethylbenzene	100	mg/kg	ND	ND
Xylenes, Total	175	mg/kg	ND	ND
Acenaphthene	1,000	mg/kg	ND	ND
Anthracene	1,000	mg/kg	ND	ND
Benzo(a)anthracene	0.22	mg/kg	ND	ND
Benzo(b)fluoranthene	0.22	mg/kg	ND	ND
Benzo(k)fluoranthene	2.2	mg/kg	ND	ND
Benzo(a)pyrene	0.022	mg/kg	ND	ND
Chrysene	22	mg/kg	ND	ND
Dibenzo(a,h)anthracene	0.022	mg/kg	ND	ND
Fluoranthene	1,000	mg/kg	ND	ND
Fluorene	1,000	mg/kg	ND	ND
Indeno(1,2,3-cd)pyrene	0.22	mg/kg	ND	ND
Naphthalene	23	mg/kg	ND	ND
Pyrene	1,000	mg/kg	ND	ND
Inorganics in Soil				
Electrical Conductivity	<4 or 2 x background	mmhos/cm	1.7	1.3
Sodium Adsorption Ratio	<12	unitless	3.6	3.3
pH	6-9	unitless	7.9	8.1
Metals in Soil				
Arsenic	0.39	mg/kg	5.1	4.6
Barium	15,000	mg/kg	650	390
Cadmium	70	mg/kg	ND	ND
Chromium, Hexavalent	23	mg/kg	ND	ND
Chromium, Trivalent	120,000	mg/kg	38	36
Copper	3,100	mg/kg	16	17
Lead	400	mg/kg	15	16
Mercury	23	mg/kg	ND	ND
Nickel	1,600	mg/kg	25	20
Selenium	390	mg/kg	ND	ND
Silver	390	mg/kg	ND	ND
Zinc	23,000	mg/kg	57	61

ND - Non Detect

Exceeds COGCC Table 910-1 Standard

3.1 - Analytical Interpretation

As illustrated above, the analytical results show the pit bottom soils meet COGCC Table 910-1 standards with the exception of arsenic. Arsenic exceeds the allowable concentrations in Table 910-1; however, a study of the Boies Ranch area, completed in July 2011, revealed a mean background concentration of 6.4 mg/kg and a maximum value of 10.0 mg/kg. Background arsenic samples were not collected during the time of the pit closure as an area wide study had been completed in 2011. The study area included representative samples from areas near the H30 pits. Analytical results from the study are shown below and a map depicting the sampling locations is included in Appendix A.

Location	Sample ID	Sample Date	Constituent	Result	Unit
Boies_Ranch	SO_Boies_Background_Sect_1_1	7/27/2011	Arsenic, Total	10.0	mg/kg
	SO_Boies_Background_Sect_1_2			5.0*	
	SO_Boies_Background_Sect_2_1			5.0*	
	SO_Boies_Background_Sect_2_2			8.0	
	SO_Boies_Background_Sect_2_3			5.0*	
	SO_Boies_Background_Sect_3_1			5.0	
	SO_Boies_Background_Sect_3_2			6.0	
	SO_Boies_Background_Sect_3_3			6.0	
	SO_Boies_Background_Sect_3_4			8.0	
		Mean Value		6.4	mg/kg
		Highest Reported Value		10.0	mg/kg

*In instances where the laboratory indicated the constituent results were non-detect (ND), the Practice Quantitation Level (PQL) was used for the results value.

It is requested that background arsenic concentrations be taken into consideration for the completion of the pit closures. This request is in accordance with and pertaining to footnote 1 to the Table 910-1 of the COGCC 900 series Rule.



InterTech



APPENDIX A

Figures






Whiting Petroleum Corporation

**Boies B-30H-H3
Pad H-30
Sec 30, T2S R97W**

December 5, 2012

Explanation:

-  Whiting Well Location
-  Pit Bottom
-  Pit Perimeter



0 50 100
Feet

1:1,500







Whiting Petroleum Corporation

**Boies B-30H-H3
Pad H-30 Sample Locations
Sec 30, T2S R97W**

December 20, 2013

Explanation:

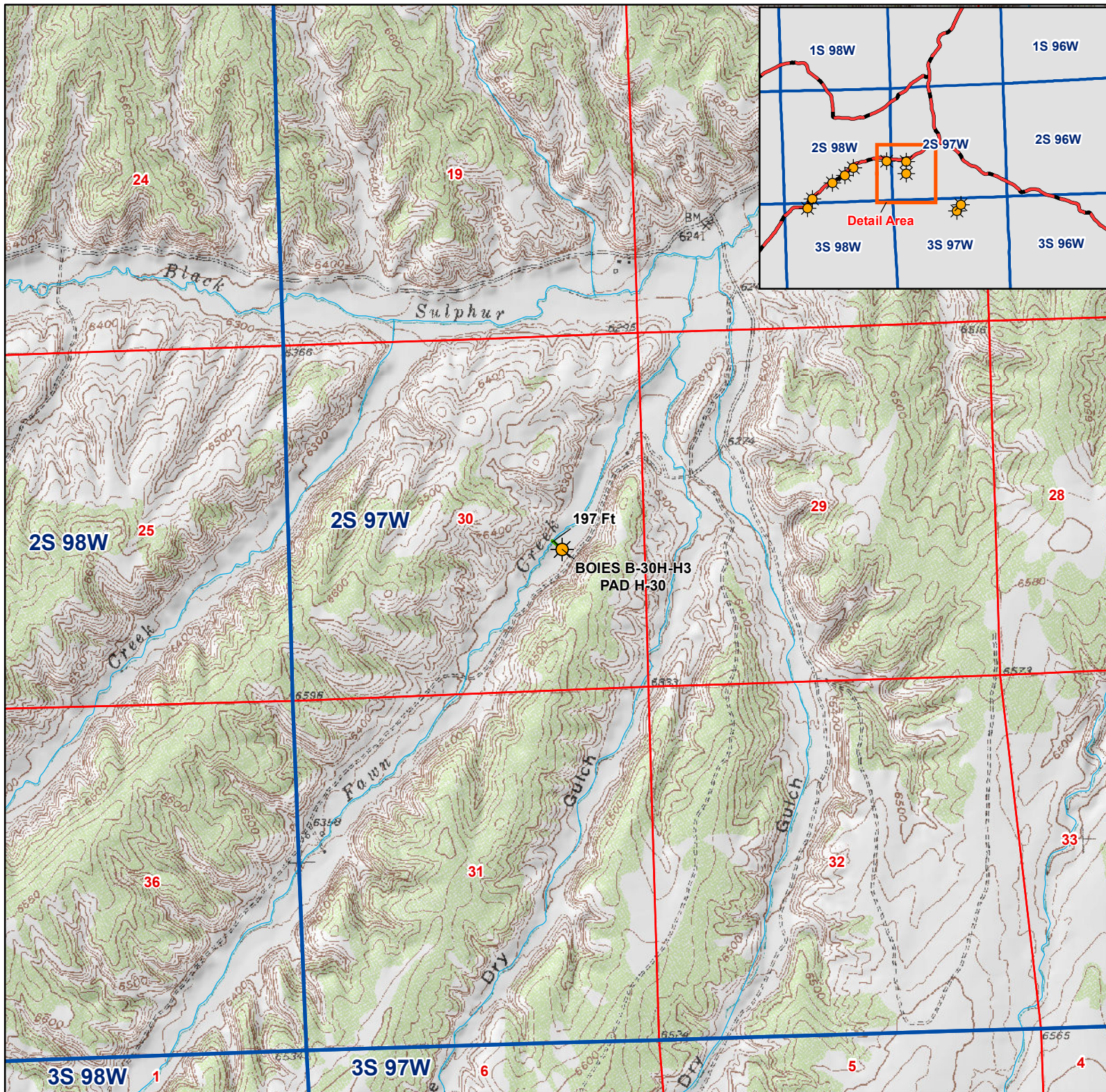
-  Whiting Well Location
-  Sample Location



0 110 220
Feet

1:2,000







Whiting Petroleum Corporation

**Boies B-30H-H3
Pad H-30 Setback Map
Sec 30, T2S R97W**

December 20, 2013

Explanation:

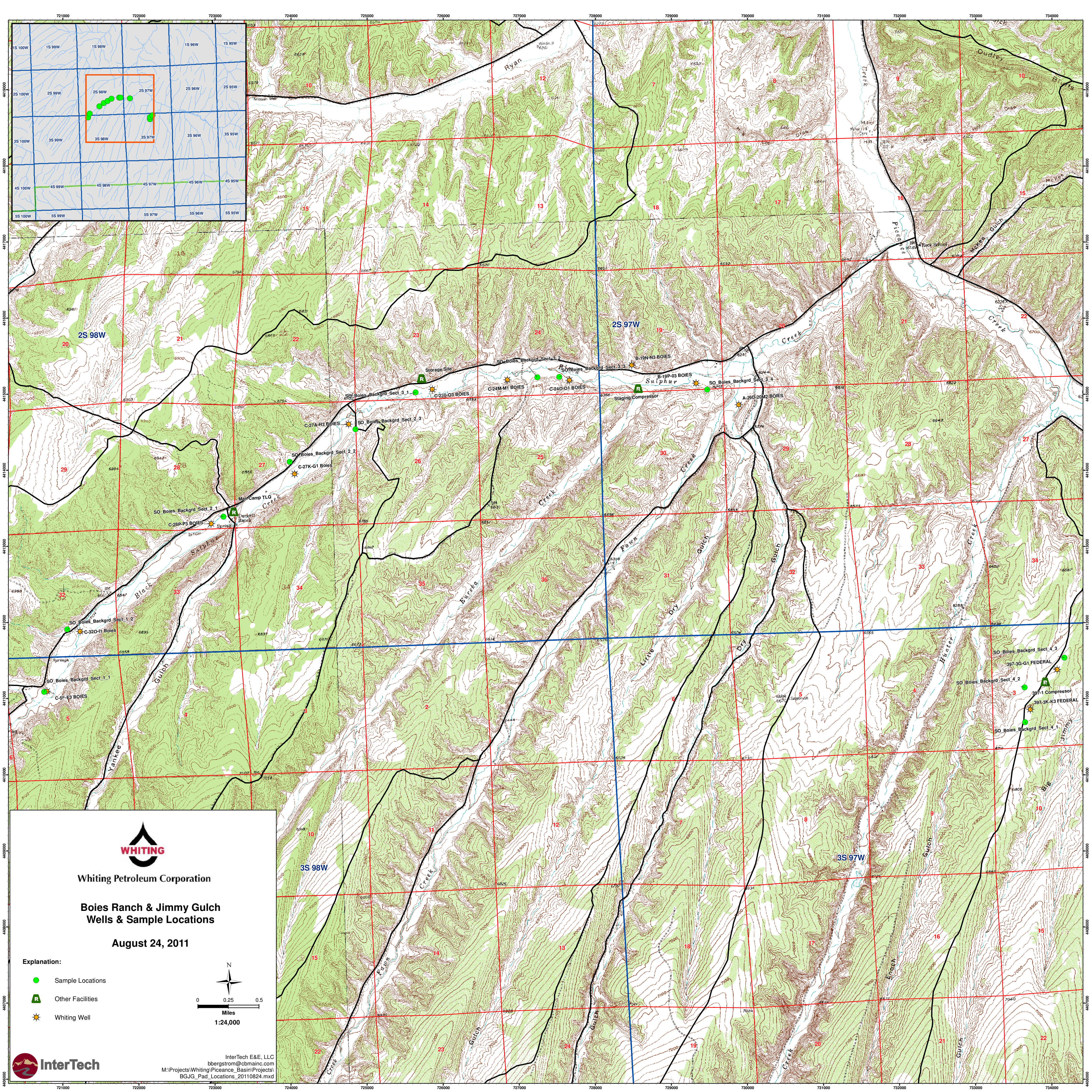
-  Whiting Well Location
-  Setback Distance



0 0.25 0.5
Miles

1:24,000








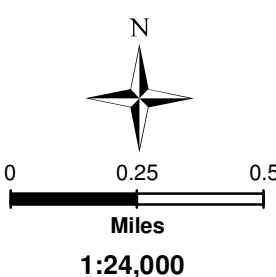
Whiting Petroleum Corporation

Boies Ranch & Jimmy Gulch Wells & Sample Locations

August 24, 2011

Explanation:

-  Sample Locations
-  Other Facilities
-  Whiting Well



InterTech E&E, LLC
bbergstrom@cbmainc.com
M:\Projects\Whiting\Piceance_Basin\Projects\
BGJG_Pad_Locations_20110824.mxd



InterTech



APPENDIX B

Laboratory Analytical Report



23-Nov-2013

Jana Sanders
InterTech
743 Horizon Court, Suite 110
Grand Junction, CO 81506

Re: **WOG Boies Ranch Pits 11.12.13**

Work Order: **1311784**

Dear Jana,

ALS Environmental received 8 samples on 14-Nov-2013 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 41.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston
Project Manager



Certificate No: MN 532786

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: InterTech
Project: WOG Boies Ranch Pits 11.12.13
Work Order: 1311784

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1311784-01	WOG_27_AH_SW_PB	Soil		11/12/2013 11:30	11/14/2013 09:30	<input type="checkbox"/>
1311784-02	WOG_27_AH_SW_4_8	Soil		11/12/2013 10:15	11/14/2013 09:30	<input type="checkbox"/>
1311784-03	WOG_27_AH_NE_PB	Soil		11/12/2013 12:30	11/14/2013 09:30	<input type="checkbox"/>
1311784-04	WOG_240_PB_10	Soil		11/12/2013 14:15	11/14/2013 09:30	<input type="checkbox"/>
1311784-05	WOG_27K_PB_8	Soil		11/12/2013 09:40	11/14/2013 09:30	<input type="checkbox"/>
1311784-06	WOG_H_30_NE_10	Soil		11/12/2013 16:30	11/14/2013 09:30	<input type="checkbox"/>
1311784-07	WOG_H_30_SW_8	Soil		11/12/2013 15:40	11/14/2013 09:30	<input type="checkbox"/>
1311784-08	WOG_27_AH_SW_6_8	Soil		11/12/2013 10:40	11/14/2013 09:30	<input type="checkbox"/>

Client: InterTech
Project: WOG Boies Ranch Pits 11.12.13
WorkOrder: 1311784

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_SW_PB

Lab ID: 1311784-01

Collection Date: 11/12/2013 11:30 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	46		SW8015M		Prep Date: 11/15/2013	Analyst: CW
			5.3	mg/Kg-dry	1	11/15/2013 11:02 PM
Surr: 4-Terphenyl-d14	48.5		39-115	%REC	1	11/15/2013 11:02 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		SW8015		Prep Date: 11/16/2013	Analyst: CW
			3.2	mg/Kg-dry	1	11/17/2013 03:04 PM
Surr: Toluene-d8	108		50-150	%REC	1	11/17/2013 03:04 PM
MERCURY BY CVAA						
Mercury	ND		SW7471		Prep Date: 11/15/2013	Analyst: LR
			0.019	mg/Kg-dry	1	11/15/2013 05:48 PM
METALS BY ICP-MS						
Arsenic	3.9		SW6020A		Prep Date: 11/18/2013	Analyst: ML
			2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Barium	310		2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Cadmium	ND		0.84	mg/Kg-dry	5	11/20/2013 07:54 PM
Chromium	27		2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Copper	9.7		2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Lead	12		2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Nickel	13		2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Selenium	ND		2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Silver	ND		2.1	mg/Kg-dry	5	11/20/2013 07:54 PM
Zinc	42		4.2	mg/Kg-dry	5	11/20/2013 07:54 PM
SOLUBLE CATIONS FOR SAR						
Calcium	28		SW6020A		Prep Date: 11/19/2013	Analyst: CES
			10	mg/L	20	11/20/2013 09:09 AM
Magnesium	21		4.0	mg/L	20	11/20/2013 09:09 AM
Sodium	470		4.0	mg/L	20	11/20/2013 09:09 AM
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	16		USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
			0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthene	ND		SW8270		Prep Date: 11/15/2013	Analyst: HL
			0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Anthracene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Benzo(a)anthracene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Benzo(a)pyrene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Benzo(b)fluoranthene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Benzo(k)fluoranthene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Chrysene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Dibenzo(a,h)anthracene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Fluoranthene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Fluorene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Indeno(1,2,3-cd)pyrene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_SW_PB

Lab ID: 1311784-01

Collection Date: 11/12/2013 11:30 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Pyrene	ND		0.0084	mg/Kg-dry	1	11/16/2013 02:31 AM
Surr: 2-Fluorobiphenyl	82.1		12-100	%REC	1	11/16/2013 02:31 AM
Surr: 4-Terphenyl-d14	84.6		25-137	%REC	1	11/16/2013 02:31 AM
Surr: Nitrobenzene-d5	78.0		37-107	%REC	1	11/16/2013 02:31 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: BG
Benzene	ND		0.039	mg/Kg-dry	1	11/21/2013 05:38 AM
Ethylbenzene	ND		0.039	mg/Kg-dry	1	11/21/2013 05:38 AM
m,p-Xylene	0.084		0.077	mg/Kg-dry	1	11/21/2013 05:38 AM
o-Xylene	ND		0.039	mg/Kg-dry	1	11/21/2013 05:38 AM
Toluene	ND		0.039	mg/Kg-dry	1	11/21/2013 05:38 AM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	11/21/2013 05:38 AM
Surr: 1,2-Dichloroethane-d4	91.5		70-130	%REC	1	11/21/2013 05:38 AM
Surr: 4-Bromofluorobenzene	98.6		70-130	%REC	1	11/21/2013 05:38 AM
Surr: Dibromofluoromethane	91.6		70-130	%REC	1	11/21/2013 05:38 AM
Surr: Toluene-d8	97.5		70-130	%REC	1	11/21/2013 05:38 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	2.7		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	27		0.64	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.65	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	22		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	8.4			s.u.	1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_SW_4_8

Lab ID: 1311784-02

Collection Date: 11/12/2013 10:15 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 11/18/2013	Analyst: CW
DRO (C10-C28)	1,900		4.9	mg/Kg-dry	1	11/19/2013 06:23 AM
Surr: 4-Terphenyl-d14	43.5		39-115	%REC	1	11/19/2013 06:23 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015		Prep Date: 11/16/2013	Analyst: CW
GRO (C6-C10)	940		2.9	mg/Kg-dry	1	11/17/2013 06:13 PM
Surr: Toluene-d8	107		50-150	%REC	1	11/17/2013 06:13 PM
MERCURY BY CVAA						
			SW7471		Prep Date: 11/15/2013	Analyst: LR
Mercury	0.019		0.017	mg/Kg-dry	1	11/15/2013 05:50 PM
METALS BY ICP-MS						
			SW6020A		Prep Date: 11/18/2013	Analyst: ML
Arsenic	3.6		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Barium	440		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Cadmium	ND		0.94	mg/Kg-dry	5	11/20/2013 08:00 PM
Chromium	30		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Copper	9.6		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Lead	13		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Nickel	13		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Selenium	ND		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Silver	ND		2.4	mg/Kg-dry	5	11/20/2013 08:00 PM
Zinc	44		4.7	mg/Kg-dry	5	11/20/2013 08:00 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep Date: 11/19/2013	Analyst: CES
Calcium	25		10	mg/L	20	11/20/2013 09:15 AM
Magnesium	10		4.0	mg/L	20	11/20/2013 09:15 AM
Sodium	1,100		4.0	mg/L	20	11/20/2013 09:15 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
Sodium Adsorption Ratio	46		0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 11/17/2013	Analyst: CW
Acenaphthene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Anthracene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Benzo(a)anthracene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Benzo(a)pyrene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Benzo(b)fluoranthene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Benzo(k)fluoranthene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Chrysene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Dibenzo(a,h)anthracene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Fluoranthene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Fluorene	0.29		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Indeno(1,2,3-cd)pyrene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_SW_4_8

Lab ID: 1311784-02

Collection Date: 11/12/2013 10:15 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	1.6		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Pyrene	ND		0.0078	mg/Kg-dry	1	11/19/2013 12:07 PM
Surr: 2-Fluorobiphenyl	80.9		12-100	%REC	1	11/19/2013 12:07 PM
Surr: 4-Terphenyl-d14	116		25-137	%REC	1	11/19/2013 12:07 PM
Surr: Nitrobenzene-d5	114	S	37-107	%REC	1	11/19/2013 12:07 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: BG
Benzene	ND		0.035	mg/Kg-dry	1	11/21/2013 06:03 AM
Ethylbenzene	1.8		0.035	mg/Kg-dry	1	11/21/2013 06:03 AM
m,p-Xylene	45		0.35	mg/Kg-dry	5	11/21/2013 07:28 PM
o-Xylene	5.4		0.035	mg/Kg-dry	1	11/21/2013 06:03 AM
Toluene	2.6		0.035	mg/Kg-dry	1	11/21/2013 06:03 AM
Xylenes, Total	52		0.53	mg/Kg-dry	5	11/21/2013 07:28 PM
Surr: 1,2-Dichloroethane-d4	92.8		70-130	%REC	1	11/21/2013 06:03 AM
Surr: 1,2-Dichloroethane-d4	105		70-130	%REC	5	11/21/2013 07:28 PM
Surr: 4-Bromofluorobenzene	94.0		70-130	%REC	5	11/21/2013 07:28 PM
Surr: 4-Bromofluorobenzene	93.2		70-130	%REC	1	11/21/2013 06:03 AM
Surr: Dibromofluoromethane	89.4		70-130	%REC	1	11/21/2013 06:03 AM
Surr: Dibromofluoromethane	105		70-130	%REC	5	11/21/2013 07:28 PM
Surr: Toluene-d8	100		70-130	%REC	5	11/21/2013 07:28 PM
Surr: Toluene-d8	116		70-130	%REC	1	11/21/2013 06:03 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	5.6		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	30		0.59	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.59	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	15		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	8.7		s.u.		1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_NE_PB

Lab ID: 1311784-03

Collection Date: 11/12/2013 12:30 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 11/18/2013	Analyst: CW
DRO (C10-C28)	46		5.1	mg/Kg-dry	1	11/19/2013 06:52 AM
Surr: 4-Terphenyl-d14	49.6		39-115	%REC	1	11/19/2013 06:52 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015		Prep Date: 11/16/2013	Analyst: CW
GRO (C6-C10)	ND		3.1	mg/Kg-dry	1	11/17/2013 03:28 PM
Surr: Toluene-d8	115		50-150	%REC	1	11/17/2013 03:28 PM
MERCURY BY CVAA						
			SW7471		Prep Date: 11/15/2013	Analyst: LR
Mercury	ND		0.019	mg/Kg-dry	1	11/15/2013 05:52 PM
METALS BY ICP-MS						
			SW6020A		Prep Date: 11/18/2013	Analyst: ML
Arsenic	3.8		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Barium	250		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Cadmium	ND		1.0	mg/Kg-dry	5	11/20/2013 08:06 PM
Chromium	27		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Copper	9.3		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Lead	13		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Nickel	13		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Selenium	ND		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Silver	ND		2.6	mg/Kg-dry	5	11/20/2013 08:06 PM
Zinc	41		5.1	mg/Kg-dry	5	11/20/2013 08:06 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep Date: 11/19/2013	Analyst: CES
Calcium	31		10	mg/L	20	11/20/2013 09:21 AM
Magnesium	27		4.0	mg/L	20	11/20/2013 09:21 AM
Sodium	450		4.0	mg/L	20	11/20/2013 09:21 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
Sodium Adsorption Ratio	14		0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 11/17/2013	Analyst: CW
Acenaphthene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Anthracene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Benzo(a)anthracene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Benzo(a)pyrene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Benzo(b)fluoranthene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Benzo(k)fluoranthene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Chrysene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Dibenzo(a,h)anthracene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Fluoranthene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Fluorene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Indeno(1,2,3-cd)pyrene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_NE_PB

Lab ID: 1311784-03

Collection Date: 11/12/2013 12:30 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Pyrene	ND		0.0082	mg/Kg-dry	1	11/19/2013 11:47 AM
Surr: 2-Fluorobiphenyl	63.2		12-100	%REC	1	11/19/2013 11:47 AM
Surr: 4-Terphenyl-d14	108		25-137	%REC	1	11/19/2013 11:47 AM
Surr: Nitrobenzene-d5	66.3		37-107	%REC	1	11/19/2013 11:47 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: RS
Benzene	ND		0.037	mg/Kg-dry	1	11/21/2013 07:04 PM
Ethylbenzene	ND		0.037	mg/Kg-dry	1	11/21/2013 07:04 PM
m,p-Xylene	ND		0.075	mg/Kg-dry	1	11/21/2013 07:04 PM
o-Xylene	ND		0.037	mg/Kg-dry	1	11/21/2013 07:04 PM
Toluene	ND		0.037	mg/Kg-dry	1	11/21/2013 07:04 PM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	11/21/2013 07:04 PM
Surr: 1,2-Dichloroethane-d4	109		70-130	%REC	1	11/21/2013 07:04 PM
Surr: 4-Bromofluorobenzene	93.4		70-130	%REC	1	11/21/2013 07:04 PM
Surr: Dibromofluoromethane	107		70-130	%REC	1	11/21/2013 07:04 PM
Surr: Toluene-d8	93.8		70-130	%REC	1	11/21/2013 07:04 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	2.7		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	27		0.62	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.64	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	20		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	8.3			s.u.	1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_240_PB_10

Lab ID: 1311784-04

Collection Date: 11/12/2013 02:15 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	55		SW8015M		Prep Date: 11/18/2013	Analyst: CW
			4.8	mg/Kg-dry	1	11/19/2013 07:22 AM
Surr: 4-Terphenyl-d14	47.4		39-115	%REC	1	11/19/2013 07:22 AM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	20		SW8015		Prep Date: 11/16/2013	Analyst: CW
			3.0	mg/Kg-dry	1	11/17/2013 05:49 PM
Surr: Toluene-d8	106		50-150	%REC	1	11/17/2013 05:49 PM
MERCURY BY CVAA						
Mercury	ND		SW7471		Prep Date: 11/15/2013	Analyst: LR
			0.018	mg/Kg-dry	1	11/15/2013 05:54 PM
METALS BY ICP-MS						
Arsenic	4.1		SW6020A		Prep Date: 11/18/2013	Analyst: ML
			2.4	mg/Kg-dry	5	11/20/2013 09:58 PM
Barium	2,300		24	mg/Kg-dry	50	11/20/2013 09:52 PM
Cadmium	ND		0.97	mg/Kg-dry	5	11/20/2013 09:58 PM
Chromium	21		2.4	mg/Kg-dry	5	11/20/2013 09:58 PM
Copper	12		2.4	mg/Kg-dry	5	11/20/2013 09:58 PM
Lead	16		2.4	mg/Kg-dry	5	11/20/2013 09:58 PM
Nickel	16		2.4	mg/Kg-dry	5	11/20/2013 09:58 PM
Selenium	ND		2.4	mg/Kg-dry	5	11/20/2013 09:58 PM
Silver	ND		2.4	mg/Kg-dry	5	11/20/2013 09:58 PM
Zinc	56		4.9	mg/Kg-dry	5	11/20/2013 09:58 PM
SOLUBLE CATIONS FOR SAR						
Calcium	280		SW6020A		Prep Date: 11/19/2013	Analyst: CES
			10	mg/L	20	11/20/2013 09:27 AM
Magnesium	96		4.0	mg/L	20	11/20/2013 09:27 AM
Sodium	1,100		4.0	mg/L	20	11/20/2013 09:27 AM
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	15		USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
			0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthene	ND		SW8270		Prep Date: 11/18/2013	Analyst: CW
			0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Anthracene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Benzo(a)anthracene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Benzo(a)pyrene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Benzo(b)fluoranthene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Benzo(k)fluoranthene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Chrysene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Dibenzo(a,h)anthracene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Fluoranthene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Fluorene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Indeno(1,2,3-cd)pyrene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_240_PB_10

Lab ID: 1311784-04

Collection Date: 11/12/2013 02:15 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Pyrene	ND		0.0078	mg/Kg-dry	1	11/19/2013 01:48 PM
Surr: 2-Fluorobiphenyl	71.6		12-100	%REC	1	11/19/2013 01:48 PM
Surr: 4-Terphenyl-d14	104		25-137	%REC	1	11/19/2013 01:48 PM
Surr: Nitrobenzene-d5	72.5		37-107	%REC	1	11/19/2013 01:48 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: BG
Benzene	ND		0.035	mg/Kg-dry	1	11/21/2013 06:52 AM
Ethylbenzene	ND		0.035	mg/Kg-dry	1	11/21/2013 06:52 AM
m,p-Xylene	ND		0.071	mg/Kg-dry	1	11/21/2013 06:52 AM
o-Xylene	ND		0.035	mg/Kg-dry	1	11/21/2013 06:52 AM
Toluene	ND		0.035	mg/Kg-dry	1	11/21/2013 06:52 AM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	11/21/2013 06:52 AM
Surr: 1,2-Dichloroethane-d4	93.2		70-130	%REC	1	11/21/2013 06:52 AM
Surr: 4-Bromofluorobenzene	101		70-130	%REC	1	11/21/2013 06:52 AM
Surr: Dibromofluoromethane	89.7		70-130	%REC	1	11/21/2013 06:52 AM
Surr: Toluene-d8	97.3		70-130	%REC	1	11/21/2013 06:52 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	8.0		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	21		0.59	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.59	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	15		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	8.4			s.u.	1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27K_PB_8

Lab ID: 1311784-05

Collection Date: 11/12/2013 09:40 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 11/18/2013	Analyst: CW
DRO (C10-C28)	ND		5.2	mg/Kg-dry	1	11/19/2013 07:52 AM
Surr: 4-Terphenyl-d14	53.0		39-115	%REC	1	11/19/2013 07:52 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015		Prep Date: 11/16/2013	Analyst: CW
GRO (C6-C10)	ND		3.2	mg/Kg-dry	1	11/17/2013 03:51 PM
Surr: Toluene-d8	110		50-150	%REC	1	11/17/2013 03:51 PM
MERCURY BY CVAA						
			SW7471		Prep Date: 11/15/2013	Analyst: LR
Mercury	ND		0.016	mg/Kg-dry	1	11/15/2013 05:56 PM
METALS BY ICP-MS						
			SW6020A		Prep Date: 11/18/2013	Analyst: ML
Arsenic	3.8		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Barium	220		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Cadmium	ND		0.82	mg/Kg-dry	5	11/20/2013 10:04 PM
Chromium	30		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Copper	10		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Lead	12		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Nickel	14		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Selenium	ND		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Silver	ND		2.1	mg/Kg-dry	5	11/20/2013 10:04 PM
Zinc	44		4.1	mg/Kg-dry	5	11/20/2013 10:04 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep Date: 11/19/2013	Analyst: CES
Calcium	51		10	mg/L	20	11/20/2013 09:32 AM
Magnesium	24		4.0	mg/L	20	11/20/2013 09:32 AM
Sodium	92		4.0	mg/L	20	11/20/2013 09:32 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
Sodium Adsorption Ratio	2.7		0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 11/18/2013	Analyst: CW
Acenaphthene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Anthracene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Benzo(a)anthracene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Benzo(a)pyrene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Benzo(b)fluoranthene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Benzo(k)fluoranthene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Chrysene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Dibenzo(a,h)anthracene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Fluoranthene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Fluorene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Indeno(1,2,3-cd)pyrene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27K_PB_8

Lab ID: 1311784-05

Collection Date: 11/12/2013 09:40 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Pyrene	ND		0.0083	mg/Kg-dry	1	11/19/2013 02:08 PM
Surr: 2-Fluorobiphenyl	75.6		12-100	%REC	1	11/19/2013 02:08 PM
Surr: 4-Terphenyl-d14	113		25-137	%REC	1	11/19/2013 02:08 PM
Surr: Nitrobenzene-d5	79.0		37-107	%REC	1	11/19/2013 02:08 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: BG
Benzene	ND		0.039	mg/Kg-dry	1	11/21/2013 07:17 AM
Ethylbenzene	ND		0.039	mg/Kg-dry	1	11/21/2013 07:17 AM
m,p-Xylene	ND		0.077	mg/Kg-dry	1	11/21/2013 07:17 AM
o-Xylene	ND		0.039	mg/Kg-dry	1	11/21/2013 07:17 AM
Toluene	ND		0.039	mg/Kg-dry	1	11/21/2013 07:17 AM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	11/21/2013 07:17 AM
Surr: 1,2-Dichloroethane-d4	91.8		70-130	%REC	1	11/21/2013 07:17 AM
Surr: 4-Bromofluorobenzene	99.8		70-130	%REC	1	11/21/2013 07:17 AM
Surr: Dibromofluoromethane	89.8		70-130	%REC	1	11/21/2013 07:17 AM
Surr: Toluene-d8	96.6		70-130	%REC	1	11/21/2013 07:17 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	0.98		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	30		0.64	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.63	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	22		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	8.1			s.u.	1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_H_30_NE_10

Lab ID: 1311784-06

Collection Date: 11/12/2013 04:30 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 11/18/2013	Analyst: CW
DRO (C10-C28)	40		5.5	mg/Kg-dry	1	11/19/2013 08:22 AM
<i>Surr: 4-Terphenyl-d14</i>	<i>49.8</i>		<i>39-115</i>	<i>%REC</i>	1	11/19/2013 08:22 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015		Prep Date: 11/16/2013	Analyst: CW
GRO (C6-C10)	5.9		3.3	mg/Kg-dry	1	11/17/2013 05:02 PM
<i>Surr: Toluene-d8</i>	<i>110</i>		<i>50-150</i>	<i>%REC</i>	1	11/17/2013 05:02 PM
MERCURY BY CVAA						
			SW7471		Prep Date: 11/15/2013	Analyst: LR
Mercury	ND		0.019	mg/Kg-dry	1	11/15/2013 05:58 PM
METALS BY ICP-MS						
			SW6020A		Prep Date: 11/18/2013	Analyst: ML
Arsenic	5.1		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Barium	650		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Cadmium	ND		0.85	mg/Kg-dry	5	11/20/2013 10:10 PM
Chromium	38		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Copper	16		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Lead	15		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Nickel	25		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Selenium	ND		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Silver	ND		2.1	mg/Kg-dry	5	11/20/2013 10:10 PM
Zinc	57		4.3	mg/Kg-dry	5	11/20/2013 10:10 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep Date: 11/19/2013	Analyst: CES
Calcium	73		10	mg/L	20	11/20/2013 09:38 AM
Magnesium	51		4.0	mg/L	20	11/20/2013 09:38 AM
Sodium	160		4.0	mg/L	20	11/20/2013 09:38 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
Sodium Adsorption Ratio	3.6		0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 11/18/2013	Analyst: CW
Acenaphthene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Anthracene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Benzo(a)anthracene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Benzo(a)pyrene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Benzo(b)fluoranthene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Benzo(k)fluoranthene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Chrysene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Dibenzo(a,h)anthracene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Fluoranthene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Fluorene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Indeno(1,2,3-cd)pyrene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_H_30_NE_10

Lab ID: 1311784-06

Collection Date: 11/12/2013 04:30 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Pyrene	ND		0.0088	mg/Kg-dry	1	11/19/2013 02:28 PM
Surr: 2-Fluorobiphenyl	77.1		12-100	%REC	1	11/19/2013 02:28 PM
Surr: 4-Terphenyl-d14	110		25-137	%REC	1	11/19/2013 02:28 PM
Surr: Nitrobenzene-d5	82.1		37-107	%REC	1	11/19/2013 02:28 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: BG
Benzene	ND		0.040	mg/Kg-dry	1	11/21/2013 07:41 AM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	11/21/2013 07:41 AM
m,p-Xylene	ND		0.079	mg/Kg-dry	1	11/21/2013 07:41 AM
o-Xylene	ND		0.040	mg/Kg-dry	1	11/21/2013 07:41 AM
Toluene	ND		0.040	mg/Kg-dry	1	11/21/2013 07:41 AM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	11/21/2013 07:41 AM
Surr: 1,2-Dichloroethane-d4	92.0		70-130	%REC	1	11/21/2013 07:41 AM
Surr: 4-Bromofluorobenzene	99.8		70-130	%REC	1	11/21/2013 07:41 AM
Surr: Dibromofluoromethane	89.6		70-130	%REC	1	11/21/2013 07:41 AM
Surr: Toluene-d8	97.0		70-130	%REC	1	11/21/2013 07:41 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	1.7		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	38		0.66	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.66	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	24		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	7.9			s.u.	1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_H_30_SW_8

Lab ID: 1311784-07

Collection Date: 11/12/2013 03:40 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 11/18/2013	Analyst: CW
DRO (C10-C28)	30		6.1	mg/Kg-dry	1	11/19/2013 08:52 AM
<i>Surr: 4-Terphenyl-d14</i>	<i>50.7</i>		<i>39-115</i>	<i>%REC</i>	1	11/19/2013 08:52 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015		Prep Date: 11/16/2013	Analyst: CW
GRO (C6-C10)	ND		3.7	mg/Kg-dry	1	11/17/2013 04:15 PM
<i>Surr: Toluene-d8</i>	<i>110</i>		<i>50-150</i>	<i>%REC</i>	1	11/17/2013 04:15 PM
MERCURY BY CVAA						
			SW7471		Prep Date: 11/15/2013	Analyst: LR
Mercury	ND		0.019	mg/Kg-dry	1	11/15/2013 06:00 PM
METALS BY ICP-MS						
			SW6020A		Prep Date: 11/18/2013	Analyst: ML
Arsenic	4.6		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Barium	390		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Cadmium	ND		1.2	mg/Kg-dry	5	11/20/2013 10:16 PM
Chromium	36		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Copper	17		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Lead	16		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Nickel	20		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Selenium	ND		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Silver	ND		3.1	mg/Kg-dry	5	11/20/2013 10:16 PM
Zinc	61		6.2	mg/Kg-dry	5	11/20/2013 10:16 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep Date: 11/19/2013	Analyst: CES
Calcium	63		10	mg/L	20	11/20/2013 09:44 AM
Magnesium	38		4.0	mg/L	20	11/20/2013 09:44 AM
Sodium	140		4.0	mg/L	20	11/20/2013 09:44 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
Sodium Adsorption Ratio	3.3		0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 11/18/2013	Analyst: CW
Acenaphthene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Anthracene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Benzo(a)anthracene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Benzo(a)pyrene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Benzo(b)fluoranthene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Benzo(k)fluoranthene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Chrysene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Dibenzo(a,h)anthracene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Fluoranthene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Fluorene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Indeno(1,2,3-cd)pyrene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_H_30_SW_8

Lab ID: 1311784-07

Collection Date: 11/12/2013 03:40 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Pyrene	ND		0.0097	mg/Kg-dry	1	11/19/2013 02:48 PM
Surr: 2-Fluorobiphenyl	75.7		12-100	%REC	1	11/19/2013 02:48 PM
Surr: 4-Terphenyl-d14	115		25-137	%REC	1	11/19/2013 02:48 PM
Surr: Nitrobenzene-d5	75.4		37-107	%REC	1	11/19/2013 02:48 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: BG
Benzene	ND		0.045	mg/Kg-dry	1	11/21/2013 08:06 AM
Ethylbenzene	ND		0.045	mg/Kg-dry	1	11/21/2013 08:06 AM
m,p-Xylene	ND		0.089	mg/Kg-dry	1	11/21/2013 08:06 AM
o-Xylene	ND		0.045	mg/Kg-dry	1	11/21/2013 08:06 AM
Toluene	ND		0.045	mg/Kg-dry	1	11/21/2013 08:06 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	11/21/2013 08:06 AM
Surr: 1,2-Dichloroethane-d4	91.0		70-130	%REC	1	11/21/2013 08:06 AM
Surr: 4-Bromofluorobenzene	100		70-130	%REC	1	11/21/2013 08:06 AM
Surr: Dibromofluoromethane	89.9		70-130	%REC	1	11/21/2013 08:06 AM
Surr: Toluene-d8	97.4		70-130	%REC	1	11/21/2013 08:06 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	1.3		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	36		0.74	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.73	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	33		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	8.1			s.u.	1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_SW_6_8

Lab ID: 1311784-08

Collection Date: 11/12/2013 10:40 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 11/18/2013	Analyst: CW
DRO (C10-C28)	160		5.5	mg/Kg-dry	1	11/19/2013 09:22 AM
Surr: 4-Terphenyl-d14	58.8		39-115	%REC	1	11/19/2013 09:22 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015		Prep Date: 11/16/2013	Analyst: CW
GRO (C6-C10)	ND		3.3	mg/Kg-dry	1	11/17/2013 04:39 PM
Surr: Toluene-d8	111		50-150	%REC	1	11/17/2013 04:39 PM
MERCURY BY CVAA						
			SW7471		Prep Date: 11/15/2013	Analyst: LR
Mercury	ND		0.016	mg/Kg-dry	1	11/15/2013 06:03 PM
METALS BY ICP-MS						
			SW6020A		Prep Date: 11/18/2013	Analyst: ML
Arsenic	3.6		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Barium	270		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Cadmium	ND		0.99	mg/Kg-dry	5	11/20/2013 10:22 PM
Chromium	30		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Copper	10		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Lead	13		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Nickel	13		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Selenium	ND		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Silver	ND		2.5	mg/Kg-dry	5	11/20/2013 10:22 PM
Zinc	44		5.0	mg/Kg-dry	5	11/20/2013 10:22 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep Date: 11/19/2013	Analyst: CES
Calcium	28		10	mg/L	20	11/20/2013 10:07 AM
Magnesium	14		4.0	mg/L	20	11/20/2013 10:07 AM
Sodium	870		4.0	mg/L	20	11/20/2013 10:07 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: CES
Sodium Adsorption Ratio	34		0.010	none	1	11/18/2013
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 11/18/2013	Analyst: CW
Acenaphthene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Anthracene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Benzo(a)anthracene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Benzo(a)pyrene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Benzo(b)fluoranthene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Benzo(k)fluoranthene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Chrysene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Dibenzo(a,h)anthracene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Fluoranthene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Fluorene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Indeno(1,2,3-cd)pyrene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 23-Nov-13

Client: InterTech

Project: WOG Boies Ranch Pits 11.12.13

Work Order: 1311784

Sample ID: WOG_27_AH_SW_6_8

Lab ID: 1311784-08

Collection Date: 11/12/2013 10:40 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Naphthalene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Pyrene	ND		0.0089	mg/Kg-dry	1	11/19/2013 03:08 PM
Surr: 2-Fluorobiphenyl	79.5		12-100	%REC	1	11/19/2013 03:08 PM
Surr: 4-Terphenyl-d14	107		25-137	%REC	1	11/19/2013 03:08 PM
Surr: Nitrobenzene-d5	78.9		37-107	%REC	1	11/19/2013 03:08 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B		Prep Date: 11/16/2013	Analyst: BG
Benzene	ND		0.040	mg/Kg-dry	1	11/21/2013 08:30 AM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	11/21/2013 08:30 AM
m,p-Xylene	ND		0.080	mg/Kg-dry	1	11/21/2013 08:30 AM
o-Xylene	ND		0.040	mg/Kg-dry	1	11/21/2013 08:30 AM
Toluene	ND		0.040	mg/Kg-dry	1	11/21/2013 08:30 AM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	11/21/2013 08:30 AM
Surr: 1,2-Dichloroethane-d4	91.6		70-130	%REC	1	11/21/2013 08:30 AM
Surr: 4-Bromofluorobenzene	98.6		70-130	%REC	1	11/21/2013 08:30 AM
Surr: Dibromofluoromethane	89.7		70-130	%REC	1	11/21/2013 08:30 AM
Surr: Toluene-d8	96.3		70-130	%REC	1	11/21/2013 08:30 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 11/19/2013	Analyst: JB
Electrical Conductivity @ Saturation	4.5		0.050	mmhos/cm @2	10	11/19/2013 05:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	30		0.67	mg/Kg-dry	1	11/22/2013 09:30 AM
CHROMIUM, HEXAVALENT			SW7196A		Prep Date: 11/19/2013	Analyst: MB
Chromium, Hexavalent	ND		0.66	mg/Kg-dry	1	11/19/2013 04:00 PM
MOISTURE			A2540 G			Analyst: MEB
Moisture	25		0.050	% of sample	1	11/18/2013 04:20 PM
PH			SW9045D		Prep Date: 11/15/2013	Analyst: JB
pH	8.9			s.u.	1	11/15/2013 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: InterTech

QC BATCH REPORT

Work Order: 1311784

Project: WOG Boies Ranch Pits 11.12.13

Batch ID: 53319

Instrument ID GC8

Method: SW8015M

MBLK		Sample ID: DBLKS1-53319-53319				Units: mg/Kg		Analysis Date: 11/15/2013 03:33 PM		
Client ID:		Run ID: GC8_131115A				SeqNo: 2541318		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

ND

4.2

Surr: 4-Terphenyl-d14

0.9783

0

1.667

0

58.7

39-115

0

LCS		Sample ID: DLCSS1-53319-53319				Units: mg/Kg		Analysis Date: 11/15/2013 04:03 PM		
Client ID:		Run ID: GC8_131115A				SeqNo: 2541320		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

134.8

4.2

166.7

0

80.9

49-124

0

Surr: 4-Terphenyl-d14

1.038

0

1.667

0

62.3

39-115

0

MS		Sample ID: 1311701-01B MS				Units: mg/Kg		Analysis Date: 11/15/2013 04:33 PM		
Client ID:		Run ID: GC8_131115A				SeqNo: 2541321		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

286.5

8.1

323

21.33

82.1

49-130

0

Surr: 4-Terphenyl-d14

2.095

0

3.23

0

64.8

39-115

0

MSD		Sample ID: 1311701-01B MSD				Units: mg/Kg		Analysis Date: 11/15/2013 05:03 PM		
Client ID:		Run ID: GC8_131115A				SeqNo: 2541322		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

283.9

8.2

328.7

21.33

79.9

49-130

286.5

0.899

30

Surr: 4-Terphenyl-d14

2.176

0

3.287

0

66.2

39-115

2.095

3.83

30

The following samples were analyzed in this batch:

1311784-01B

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: 53395 Instrument ID GC8 Method: SW8015M

MBLK		Sample ID: DBLKS1-53395-53395				Units: mg/Kg		Analysis Date: 11/19/2013 04:53 A		
Client ID:		Run ID: GC8_131118A				SeqNo: 2544913		Prep Date: 11/18/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
Surr: 4-Terphenyl-d14	1.134	0	2	0	56.7	39-115	0			

LCS		Sample ID: DLCSS1-53395-53395				Units: mg/Kg		Analysis Date: 11/19/2013 05:52 A		
Client ID:		Run ID: GC8_131118A				SeqNo: 2544914		Prep Date: 11/18/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	162.2	5.0	200	0	81.1	49-124	0			
Surr: 4-Terphenyl-d14	1.156	0	2	0	57.8	39-115	0			

MS		Sample ID: 1311857-01A MS				Units: mg/Kg		Analysis Date: 11/19/2013 03:30 PM		
Client ID:		Run ID: GC8_131119A				SeqNo: 2546817		Prep Date: 11/18/2013		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	928.6	41	331.1	567.6	109	49-130	0			
Surr: 4-Terphenyl-d14	1.434	0	3.311	0	43.3	39-115	0			

MSD		Sample ID: 1311857-01A MSD				Units: mg/Kg		Analysis Date: 11/19/2013 03:59 PM		
Client ID:		Run ID: GC8_131119A				SeqNo: 2546818		Prep Date: 11/18/2013		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	939.5	39	313.5	567.6	119	49-130	928.6	1.17	30	
Surr: 4-Terphenyl-d14	1.461	0	3.135	0	46.6	39-115	1.434	1.87	30	

The following samples were analyzed in this batch:

1311784-02B	1311784-03B	1311784-04B
1311784-05B	1311784-06B	1311784-07B
1311784-08B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53374** Instrument ID **GC10** Method: **SW8015**

MBLK		Sample ID: MBLK-53374-53374				Units: µg/Kg		Analysis Date: 11/17/2013 10:44 A		
Client ID:		Run ID: GC10_131117A				SeqNo: 2541601		Prep Date: 11/16/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	4912	0	5000	0	98.2	50-150	0			

LCS		Sample ID: LCS-53374-53374				Units: µg/Kg		Analysis Date: 11/17/2013 09:34 A		
Client ID:		Run ID: GC10_131117A				SeqNo: 2541600		Prep Date: 11/16/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	467000	2,500	500000	0	93.4	70-130	0			
Surr: Toluene-d8	5752	0	5000	0	115	50-150	0			

MS		Sample ID: 1311782-03A MS				Units: µg/Kg		Analysis Date: 11/17/2013 07:00 PM		
Client ID:		Run ID: GC10_131117A				SeqNo: 2541615		Prep Date: 11/16/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	531400	2,500	500000	15380	103	70-130	0			
Surr: Toluene-d8	5906	0	5000	0	118	50-150	0			

MSD		Sample ID: 1311782-03A MSD				Units: µg/Kg		Analysis Date: 11/17/2013 07:24 PM		
Client ID:		Run ID: GC10_131117A				SeqNo: 2541616		Prep Date: 11/16/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	515400	2,500	500000	15380	100	70-130	531400	3.05	30	
Surr: Toluene-d8	5847	0	5000	0	117	50-150	5906	1	30	

The following samples were analyzed in this batch:

1311784-01A	1311784-02A	1311784-03A
1311784-04A	1311784-05A	1311784-06A
1311784-07A	1311784-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53340** Instrument ID **HG1** Method: **SW7471**

MBLK		Sample ID: MBLK-53340-53340				Units: mg/Kg		Analysis Date: 11/15/2013 04:58 PM		
Client ID:		Run ID: HG1_131115A				SeqNo: 2540510		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.005583	0.020								J

LCS		Sample ID: LCS-53340-53340				Units: mg/Kg		Analysis Date: 11/15/2013 05:00 PM		
Client ID:		Run ID: HG1_131115A				SeqNo: 2540511		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1793	0.020	0.1665	0	108	80-120	0			

MS		Sample ID: 1311782-03BMS				Units: mg/Kg		Analysis Date: 11/15/2013 06:23 PM		
Client ID:		Run ID: HG1_131115A				SeqNo: 2540537		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1341	0.012	0.1018	0.02243	110	75-125	0			

MSD		Sample ID: 1311782-03BMSD				Units: mg/Kg		Analysis Date: 11/15/2013 06:25 PM		
Client ID:		Run ID: HG1_131115A				SeqNo: 2540538		Prep Date: 11/15/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1347	0.013	0.1042	0.02243	108	75-125	0.1341	0.428	35	

The following samples were analyzed in this batch:

1311784-01B	1311784-02B	1311784-03B
1311784-04B	1311784-05B	1311784-06B
1311784-07B	1311784-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53357** Instrument ID **ICPMS2** Method: **SW6020A**

DUP		Sample ID: 1311782-01CDUP				Units: mg/L		Analysis Date: 11/20/2013 08:22 A		
Client ID:		Run ID: ICPMS2_131118A				SeqNo: 2546467		Prep Date: 11/19/2013		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	125.6	10	0	0	0	0-0	118	6.22		
Magnesium	49.46	4.0	0	0	0	0-0	45.2	9		
Sodium	770.8	4.0	0	0	0	0-0	727.4	5.79		

DUP		Sample ID: 1311782-01CDUP				Units: none		Analysis Date: 11/18/2013		
Client ID:		Run ID: SAR_131118B				SeqNo: 2547303		Prep Date: 11/19/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	14.75	0.010	0	0	0		14.44	2.12	50	

The following samples were analyzed in this batch:

1311784-01C	1311784-02C	1311784-03C
1311784-04C	1311784-05C	1311784-06C
1311784-07C	1311784-08C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53426** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK		Sample ID: MBLK-53426-53426				Units: mg/Kg		Analysis Date: 11/19/2013 09:27 PM		
Client ID:		Run ID: ICPMS1_131119A				SeqNo: 2545687		Prep Date: 11/18/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Cadmium	0.00138	0.10								J
Chromium	0.1816	0.25								J
Copper	0.0506	0.25								J
Lead	ND	0.25								
Nickel	0.03362	0.25								J
Selenium	ND	0.25								
Silver	ND	0.25								
Zinc	0.0918	0.50								J

MBLK		Sample ID: MBLK-53426-53426				Units: mg/Kg		Analysis Date: 11/20/2013 07:10 PM		
Client ID:		Run ID: ICPMS1_131120A				SeqNo: 2547574		Prep Date: 11/18/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	ND	0.25								

LCS		Sample ID: LCS-53426-53426				Units: mg/Kg		Analysis Date: 11/19/2013 09:34 PM		
Client ID:		Run ID: ICPMS1_131119A				SeqNo: 2545688		Prep Date: 11/18/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.409	0.25	5	0	88.2	80-120	0			
Cadmium	4.702	0.10	5	0	94	80-120	0			
Chromium	4.598	0.25	5	0	92	80-120	0			
Copper	4.764	0.25	5	0	95.3	80-120	0			
Lead	5.025	0.25	5	0	100	80-120	0			
Nickel	4.651	0.25	5	0	93	80-120	0			
Selenium	4.106	0.25	5	0	82.1	80-120	0			
Silver	5.4	0.25	5	0	108	80-120	0			
Zinc	4.532	0.50	5	0	90.6	80-120	0			

LCS		Sample ID: LCS-53426-53426				Units: mg/Kg		Analysis Date: 11/20/2013 07:17 PM		
Client ID:		Run ID: ICPMS1_131120A				SeqNo: 2547576		Prep Date: 11/18/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	4.993	0.25	5	0	99.9	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53426** Instrument ID **ICPMS1** Method: **SW6020A**

MS				Sample ID: 1311808-01BMS			Units: mg/Kg		Analysis Date: 11/20/2013 10:34 PM	
Client ID:		Run ID: ICPMS1_131120A			SeqNo: 2547645		Prep Date: 11/18/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.606	0.36	7.278	1.341	86.1	75-125	0			
Barium	13.49	0.36	7.278	5.754	106	75-125	0			
Cadmium	6.782	0.15	7.278	0.148	91.2	75-125	0			
Chromium	10.32	0.36	7.278	3.018	100	75-125	0			
Copper	13.06	0.36	7.278	6.865	85.2	75-125	0			
Lead	10.06	0.36	7.278	2.584	103	75-125	0			
Nickel	10.1	0.36	7.278	2.913	98.8	75-125	0			
Selenium	5.91	0.36	7.278	0.1358	79.3	75-125	0			
Silver	7.387	0.36	7.278	0.004448	101	75-125	0			
Zinc	19.55	0.73	7.278	12.46	97.4	75-125	0			

MSD				Sample ID: 1311808-01BMSD			Units: mg/Kg		Analysis Date: 11/20/2013 10:40 PM	
Client ID:		Run ID: ICPMS1_131120A			SeqNo: 2547646		Prep Date: 11/18/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.742	0.37	7.331	1.341	87.3	75-125	7.606	1.78	25	
Barium	13.43	0.37	7.331	5.754	105	75-125	13.49	0.463	25	
Cadmium	6.913	0.15	7.331	0.148	92.3	75-125	6.782	1.91	25	
Chromium	10.79	0.37	7.331	3.018	106	75-125	10.32	4.47	25	
Copper	13.24	0.37	7.331	6.865	87	75-125	13.06	1.34	25	
Lead	10.47	0.37	7.331	2.584	108	75-125	10.06	4	25	
Nickel	10.23	0.37	7.331	2.913	99.9	75-125	10.1	1.31	25	
Selenium	5.907	0.37	7.331	0.1358	78.7	75-125	5.91	0.0607	25	
Silver	7.397	0.37	7.331	0.004448	101	75-125	7.387	0.138	25	
Zinc	19.06	0.73	7.331	12.46	90	75-125	19.55	2.52	25	

The following samples were analyzed in this batch:

1311784-01B	1311784-02B	1311784-03B
1311784-04B	1311784-05B	1311784-06B
1311784-07B	1311784-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53318** Instrument ID **SVMS4** Method: **SW8270**

MBLK				Sample ID: SBLKS1-53318-53318				Units: µg/Kg			Analysis Date: 11/15/2013 03:41 PM		
Client ID:			Run ID: SVMS4_131115A				SeqNo: 2541621		Prep Date: 11/15/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Acenaphthene	ND	6.7											
Anthracene	ND	6.7											
Benzo(a)anthracene	ND	6.7											
Benzo(a)pyrene	ND	6.7											
Benzo(b)fluoranthene	ND	6.7											
Benzo(k)fluoranthene	ND	6.7											
Chrysene	ND	6.7											
Dibenzo(a,h)anthracene	ND	6.7											
Fluoranthene	ND	6.7											
Fluorene	ND	6.7											
Indeno(1,2,3-cd)pyrene	ND	6.7											
Naphthalene	ND	6.7											
Pyrene	ND	6.7											
Surr: 2-Fluorobiphenyl	1398	0	1667	0	83.9	12-100	0						
Surr: 4-Terphenyl-d14	1658	0	1667	0	99.5	25-137	0						
Surr: Nitrobenzene-d5	1363	0	1667	0	81.8	37-107	0						

LCS		Sample ID: SLCSS1-53318-53318				Units: µg/Kg		Analysis Date: 11/15/2013 03:01 PM		
Client ID:		Run ID: SVMS4_131115A			SeqNo: 2541620		Prep Date: 11/15/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	562	6.7	666.7	0	84.3	45-110	0			
Anthracene	631.3	6.7	666.7	0	94.7	55-105	0			
Benzo(a)anthracene	680	6.7	666.7	0	102	50-110	0			
Benzo(a)pyrene	614.7	6.7	666.7	0	92.2	50-110	0			
Benzo(b)fluoranthene	611	6.7	666.7	0	91.6	45-115	0			
Benzo(k)fluoranthene	603.7	6.7	666.7	0	90.5	45-115	0			
Chrysene	639.3	6.7	666.7	0	95.9	55-110	0			
Dibenzo(a,h)anthracene	675.3	6.7	666.7	0	101	40-125	0			
Fluoranthene	657.7	6.7	666.7	0	98.6	55-115	0			
Fluorene	596	6.7	666.7	0	89.4	50-110	0			
Indeno(1,2,3-cd)pyrene	691.7	6.7	666.7	0	104	40-120	0			
Naphthalene	538.3	6.7	666.7	0	80.7	40-105	0			
Pyrene	590	6.7	666.7	0	88.5	45-125	0			
Surr: 2-Fluorobiphenyl	1417	0	1667	0	85	12-100	0			
Surr: 4-Terphenyl-d14	1612	0	1667	0	96.7	25-137	0			
Surr: Nitrobenzene-d5	1391	0	1667	0	83.5	37-107	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: 53318 Instrument ID SVMS4 Method: SW8270

MS				Sample ID: 1311751-04B MS			Units: µg/Kg		Analysis Date: 11/15/2013 04:58 PM		
Client ID:			Run ID: SVMS4_131115A			SeqNo: 2541622		Prep Date: 11/15/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1548	19	1866	0	82.9	45-110	0				
Anthracene	1714	19	1866	0	91.8	55-105	0				
Benzo(a)anthracene	1796	19	1866	0	96.2	50-110	0				
Benzo(a)pyrene	1662	19	1866	0	89	50-110	0				
Benzo(b)fluoranthene	1615	19	1866	0	86.5	45-115	0				
Benzo(k)fluoranthene	1678	19	1866	0	89.9	45-115	0				
Chrysene	1688	19	1866	0	90.4	55-110	0				
Dibenzo(a,h)anthracene	1772	19	1866	0	94.9	40-125	0				
Fluoranthene	1889	19	1866	0	101	55-115	0				
Fluorene	1623	19	1866	0	86.9	50-110	0				
Indeno(1,2,3-cd)pyrene	1800	19	1866	0	96.4	40-120	0				
Naphthalene	1440	19	1866	0	77.1	40-105	0				
Pyrene	1660	19	1866	0	88.9	45-125	0				
Surr: 2-Fluorobiphenyl	3806	0	4665	0	81.6	12-100	0				
Surr: 4-Terphenyl-d14	4560	0	4665	0	97.7	25-137	0				
Surr: Nitrobenzene-d5	3760	0	4665	0	80.6	37-107	0				

MSD				Sample ID: 1311751-04B MSD			Units: µg/Kg		Analysis Date: 11/15/2013 05:30 PM		
Client ID:			Run ID: SVMS4_131115A			SeqNo: 2541623		Prep Date: 11/15/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1555	19	1886	0	82.4	45-110	1548	0.455	30		
Anthracene	1745	19	1886	0	92.5	55-105	1714	1.82	30		
Benzo(a)anthracene	1860	19	1886	0	98.6	50-110	1796	3.52	30		
Benzo(a)pyrene	1734	19	1886	0	91.9	50-110	1662	4.26	30		
Benzo(b)fluoranthene	1695	19	1886	0	89.9	45-115	1615	4.86	30		
Benzo(k)fluoranthene	1740	19	1886	0	92.2	45-115	1678	3.58	30		
Chrysene	1738	19	1886	0	92.1	55-110	1688	2.92	30		
Dibenzo(a,h)anthracene	1833	19	1886	0	97.2	40-125	1772	3.4	30		
Fluoranthene	1936	19	1886	0	103	55-115	1889	2.43	30		
Fluorene	1639	19	1886	0	86.9	50-110	1623	1	30		
Indeno(1,2,3-cd)pyrene	1874	19	1886	0	99.3	40-120	1800	4.02	30		
Naphthalene	1430	19	1886	0	75.8	40-105	1440	0.639	30		
Pyrene	1687	19	1886	0	89.4	45-125	1660	1.62	30		
Surr: 2-Fluorobiphenyl	3864	0	4715	0	82	12-100	3806	1.52	40		
Surr: 4-Terphenyl-d14	4700	0	4715	0	99.7	25-137	4560	3.03	40		
Surr: Nitrobenzene-d5	3806	0	4715	0	80.7	37-107	3760	1.21	40		

The following samples were analyzed in this batch: 1311784-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53385** Instrument ID **SVMS8** Method: **SW8270**

MBLK				Sample ID: SBLKS1-53385-53385				Units: µg/Kg			Analysis Date: 11/18/2013 07:57 A		
Client ID:			Run ID: SVMS8_131118A			SeqNo: 2543551			Prep Date: 11/17/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Acenaphthene	ND	6.7											
Anthracene	ND	6.7											
Benzo(a)anthracene	ND	6.7											
Benzo(a)pyrene	ND	6.7											
Benzo(b)fluoranthene	ND	6.7											
Benzo(k)fluoranthene	ND	6.7											
Chrysene	ND	6.7											
Dibenzo(a,h)anthracene	ND	6.7											
Fluoranthene	ND	6.7											
Fluorene	ND	6.7											
Indeno(1,2,3-cd)pyrene	ND	6.7											
Naphthalene	ND	6.7											
Pyrene	ND	6.7											
<i>Surr: 2-Fluorobiphenyl</i>	<i>1056</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>63.4</i>	<i>12-100</i>	<i>0</i>						
<i>Surr: 4-Terphenyl-d14</i>	<i>1533</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>92</i>	<i>25-137</i>	<i>0</i>						
<i>Surr: Nitrobenzene-d5</i>	<i>1137</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>68.2</i>	<i>37-107</i>	<i>0</i>						

LCS				Sample ID: SLCSS1-53385-53385				Units: µg/Kg		Analysis Date: 11/18/2013 08:17 A		
Client ID:			Run ID: SVMS8_131118A			SeqNo: 2543552		Prep Date: 11/17/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Acenaphthene	471	6.7	666.7	0	70.6	45-110	0					
Anthracene	537.7	6.7	666.7	0	80.6	55-105	0					
Benzo(a)anthracene	526.3	6.7	666.7	0	78.9	50-110	0					
Benzo(a)pyrene	719.7	6.7	666.7	0	108	50-110	0					
Benzo(b)fluoranthene	694.3	6.7	666.7	0	104	45-115	0					
Benzo(k)fluoranthene	724.3	6.7	666.7	0	109	45-115	0					
Chrysene	556	6.7	666.7	0	83.4	55-110	0					
Dibenzo(a,h)anthracene	801.7	6.7	666.7	0	120	40-125	0					
Fluoranthene	584.3	6.7	666.7	0	87.6	55-115	0					
Fluorene	495.3	6.7	666.7	0	74.3	50-110	0					
Indeno(1,2,3-cd)pyrene	706.7	6.7	666.7	0	106	40-120	0					
Naphthalene	453	6.7	666.7	0	67.9	40-105	0					
Pyrene	551	6.7	666.7	0	82.6	45-125	0					
Surr: 2-Fluorobiphenyl	1069	0	1667	0	64.1	12-100	0					
Surr: 4-Terphenyl-d14	1499	0	1667	0	90	25-137	0					
Surr: Nitrobenzene-d5	1206	0	1667	0	72.4	37-107	0					

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: 53385 Instrument ID SVMS8 Method: SW8270

MS				Sample ID: 1311808-05B MS				Units: µg/Kg		Analysis Date: 11/18/2013 08:55 A	
Client ID:			Run ID: SVMS8_131118A			SeqNo: 2543553		Prep Date: 11/17/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	985.6	13	1325	0	74.4	45-110	0				
Anthracene	1101	13	1325	0	83.1	55-105	0				
Benzo(a)anthracene	1108	13	1325	0	83.6	50-110	0				
Benzo(a)pyrene	1509	13	1325	0	114	50-110	0			S	
Benzo(b)fluoranthene	1450	13	1325	0	109	45-115	0				
Benzo(k)fluoranthene	1393	13	1325	0	105	45-115	0				
Chrysene	1105	13	1325	0	83.4	55-110	0				
Dibenzo(a,h)anthracene	1593	13	1325	0	120	40-125	0				
Fluoranthene	1201	13	1325	0	90.6	55-115	0				
Fluorene	1053	13	1325	0	79.5	50-110	0				
Indeno(1,2,3-cd)pyrene	1458	13	1325	0	110	40-120	0				
Naphthalene	929.3	13	1325	49.61	66.4	40-105	0				
Pyrene	1119	13	1325	0	84.4	45-125	0				
Surr: 2-Fluorobiphenyl	2227	0	3312	0	67.3	12-100	0				
Surr: 4-Terphenyl-d14	2981	0	3312	0	90	25-137	0				
Surr: Nitrobenzene-d5	2446	0	3312	0	73.9	37-107	0				

MSD				Sample ID: 1311808-05B MSD				Units: µg/Kg		Analysis Date: 11/18/2013 09:15 A	
Client ID:			Run ID: SVMS8_131118A			SeqNo: 2543554		Prep Date: 11/17/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	944	13	1265	0	74.6	45-110	985.6	4.31	30		
Anthracene	1022	13	1265	0	80.8	55-105	1101	7.39	30		
Benzo(a)anthracene	1009	13	1265	0	79.8	50-110	1108	9.35	30		
Benzo(a)pyrene	1366	13	1265	0	108	50-110	1509	9.91	30		
Benzo(b)fluoranthene	1337	13	1265	0	106	45-115	1450	8.08	30		
Benzo(k)fluoranthene	1266	13	1265	0	100	45-115	1393	9.51	30		
Chrysene	996.5	13	1265	0	78.8	55-110	1105	10.4	30		
Dibenzo(a,h)anthracene	1359	13	1265	0	107	40-125	1593	15.8	30		
Fluoranthene	1120	13	1265	0	88.5	55-115	1201	6.99	30		
Fluorene	1007	13	1265	0	79.6	50-110	1053	4.46	30		
Indeno(1,2,3-cd)pyrene	1288	13	1265	0	102	40-120	1458	12.4	30		
Naphthalene	901.6	13	1265	49.61	67.4	40-105	929.3	3.02	30		
Pyrene	997.7	13	1265	0	78.9	45-125	1119	11.4	30		
Surr: 2-Fluorobiphenyl	2137	0	3161	0	67.6	12-100	2227	4.14	40		
Surr: 4-Terphenyl-d14	2687	0	3161	0	85	25-137	2981	10.4	40		
Surr: Nitrobenzene-d5	2407	0	3161	0	76.1	37-107	2446	1.61	40		

The following samples were analyzed in this batch:

1311784-02B 1311784-03B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: 53394 Instrument ID SVMS8 Method: SW8270

MBLK				Sample ID: SBLKS1-53394-53394				Units: µg/Kg			Analysis Date: 11/19/2013 09:46 A		
Client ID:			Run ID: SVMS8_131119A				SeqNo: 2545135		Prep Date: 11/18/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Acenaphthene	ND	6.7											
Anthracene	ND	6.7											
Benzo(a)anthracene	ND	6.7											
Benzo(a)pyrene	ND	6.7											
Benzo(b)fluoranthene	ND	6.7											
Benzo(k)fluoranthene	ND	6.7											
Chrysene	ND	6.7											
Dibenzo(a,h)anthracene	ND	6.7											
Fluoranthene	ND	6.7											
Fluorene	ND	6.7											
Indeno(1,2,3-cd)pyrene	ND	6.7											
Naphthalene	ND	6.7											
Pyrene	ND	6.7											
Surr: 2-Fluorobiphenyl	1313	0	1667	0	78.8	12-100	0						
Surr: 4-Terphenyl-d14	1959	0	1667	0	118	25-137	0						
Surr: Nitrobenzene-d5	1370	0	1667	0	82.2	37-107	0						

LCS				Sample ID: SLCSS1-53394-53394				Units: µg/Kg		Analysis Date: 11/19/2013 10:06 A	
Client ID:			Run ID: SVMS8_131119A			SeqNo: 2545136		Prep Date: 11/18/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	565	6.7	666.7	0	84.7	45-110	0				
Anthracene	606.3	6.7	666.7	0	90.9	55-105	0				
Benzo(a)anthracene	629.7	6.7	666.7	0	94.4	50-110	0				
Benzo(a)pyrene	730.7	6.7	666.7	0	110	50-110	0				
Benzo(b)fluoranthene	749	6.7	666.7	0	112	45-115	0				
Benzo(k)fluoranthene	730.7	6.7	666.7	0	110	45-115	0				
Chrysene	622	6.7	666.7	0	93.3	55-110	0				
Dibenzo(a,h)anthracene	761.3	6.7	666.7	0	114	40-125	0				
Fluoranthene	585	6.7	666.7	0	87.7	55-115	0				
Fluorene	556.7	6.7	666.7	0	83.5	50-110	0				
Indeno(1,2,3-cd)pyrene	701.7	6.7	666.7	0	105	40-120	0				
Naphthalene	544.3	6.7	666.7	0	81.6	40-105	0				
Pyrene	736.3	6.7	666.7	0	110	45-125	0				
Surr: 2-Fluorobiphenyl	1416	0	1667	0	85	12-100	0				
Surr: 4-Terphenyl-d14	2039	0	1667	0	122	25-137	0				
Surr: Nitrobenzene-d5	1553	0	1667	0	93.2	37-107	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: 53394 Instrument ID SVMS8 Method: SW8270

MS				Sample ID: 1311872-09A MS		Units: µg/Kg		Analysis Date: 11/19/2013 10:46 A		
Client ID:			Run ID: SVMS8_131119A		SeqNo: 2545137		Prep Date: 11/18/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1018	13	1319	0	77.1	45-110	0			
Anthracene	1165	13	1319	0	88.3	55-105	0			
Benzo(a)anthracene	1250	13	1319	26.98	92.7	50-110	0			
Benzo(a)pyrene	1497	13	1319	39.66	110	50-110	0			S
Benzo(b)fluoranthene	1509	13	1319	66.97	109	45-115	0			
Benzo(k)fluoranthene	1431	13	1319	19.18	107	45-115	0			
Chrysene	1231	13	1319	37.71	90.4	55-110	0			
Dibenzo(a,h)anthracene	1520	13	1319	0	115	40-125	0			
Fluoranthene	1224	13	1319	62.09	88	55-115	0			
Fluorene	1050	13	1319	0	79.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1478	13	1319	61.77	107	40-120	0			
Naphthalene	933.4	13	1319	0	70.7	40-105	0			
Pyrene	1490	13	1319	62.42	108	45-125	0			
Surr: 2-Fluorobiphenyl	2437	0	3298	0	73.9	12-100	0			
Surr: 4-Terphenyl-d14	3908	0	3298	0	118	25-137	0			
Surr: Nitrobenzene-d5	2530	0	3298	0	76.7	37-107	0			

MSD				Sample ID: 1311872-09A MSD			Units: µg/Kg		Analysis Date: 11/19/2013 11:06 A		
Client ID:			Run ID: SVMS8_131119A			SeqNo: 2545138		Prep Date: 11/18/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1047	13	1327	0	78.9	45-110	1018	2.86	30		
Anthracene	1179	13	1327	0	88.8	55-105	1165	1.17	30		
Benzo(a)anthracene	1240	13	1327	26.98	91.4	50-110	1250	0.833	30		
Benzo(a)pyrene	1526	13	1327	39.66	112	50-110	1497	1.95	30	S	
Benzo(b)fluoranthene	1507	13	1327	66.97	109	45-115	1509	0.109	30		
Benzo(k)fluoranthene	1439	13	1327	19.18	107	45-115	1431	0.595	30		
Chrysene	1251	13	1327	37.71	91.5	55-110	1231	1.62	30		
Dibenzo(a,h)anthracene	1563	13	1327	0	118	40-125	1520	2.78	30		
Fluoranthene	1197	13	1327	62.09	85.6	55-115	1224	2.18	30		
Fluorene	1051	13	1327	0	79.2	50-110	1050	0.108	30		
Indeno(1,2,3-cd)pyrene	1512	13	1327	61.77	109	40-120	1478	2.27	30		
Naphthalene	953.8	13	1327	0	71.9	40-105	933.4	2.16	30		
Pyrene	1506	13	1327	62.42	109	45-125	1490	1.03	30		
Surr: 2-Fluorobiphenyl	2479	0	3316	0	74.8	12-100	2437	1.71	40		
Surr: 4-Terphenyl-d14	3965	0	3316	0	120	25-137	3908	1.44	40		
Surr: Nitrobenzene-d5	2566	0	3316	0	77.4	37-107	2530	1.43	40		

The following samples were analyzed in this batch:

1311784-04B	1311784-05B	1311784-06B
1311784-07B	1311784-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53373** Instrument ID **VMS6** Method: **SW8260B**

MBLK				Sample ID: MBLK-53373-53373			Units: µg/Kg		Analysis Date: 11/17/2013 01:11 PM		
Client ID:			Run ID: VMS6_131117A			SeqNo: 2542279		Prep Date: 11/16/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	ND	30									
Ethylbenzene	ND	30									
m,p-Xylene	ND	60									
o-Xylene	ND	30									
Toluene	ND	30									
Xylenes, Total	ND	90									
Surr: 1,2-Dichloroethane-d4	948	0	1000	0	94.8	70-130	0				
Surr: 4-Bromofluorobenzene	988	0	1000	0	98.8	70-130	0				
Surr: Dibromofluoromethane	853	0	1000	0	85.3	70-130	0				
Surr: Toluene-d8	920.5	0	1000	0	92	70-130	0				

LCS				Sample ID: LCS-53373-53373			Units: µg/Kg		Analysis Date: 11/17/2013 11:33 A	
Client ID:		Run ID: VMS6_131117A			SeqNo: 2542277		Prep Date: 11/16/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1008	30	1000	0	101	75-125	0			
Ethylbenzene	959	30	1000	0	95.9	75-125	0			
m,p-Xylene	1918	60	2000	0	95.9	80-125	0			
o-Xylene	973.5	30	1000	0	97.4	75-125	0			
Toluene	947	30	1000	0	94.7	70-125	0			
Xylenes, Total	2891	90	3000	0	96.4	75-125	0			
Surr: 1,2-Dichloroethane-d4	936.5	0	1000	0	93.6	70-130	0			
Surr: 4-Bromofluorobenzene	1014	0	1000	0	101	70-130	0			
Surr: Dibromofluoromethane	944	0	1000	0	94.4	70-130	0			
Surr: Toluene-d8	926.5	0	1000	0	92.6	70-130	0			

MS					Sample ID: 1311784-08A MS		Units: µg/Kg		Analysis Date: 11/21/2013 10:09 A		
Client ID: WOG_27_AH_SW_6_8			Run ID: VMS5_131120B			SeqNo: 2548668		Prep Date: 11/16/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	922.5	30	1000	0	92.2	75-125	0				
Ethylbenzene	933	30	1000	0	93.3	75-125	0				
m,p-Xylene	1944	60	2000	39	95.2	80-125	0				
o-Xylene	964.5	30	1000	0	96.4	75-125	0				
Toluene	932	30	1000	0	93.2	70-125	0				
Xylenes, Total	2908	90	3000	39	95.6	75-125	0				
Surr: 1,2-Dichloroethane-d4	903.5	0	1000	0	90.4	70-130	0				
Surr: 4-Bromofluorobenzene	1001	0	1000	0	100	70-130	0				
Surr: Dibromofluoromethane	928.5	0	1000	0	92.8	70-130	0				
Surr: Toluene-d8	956	0	1000	0	95.6	70-130	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53373** Instrument ID **VMS6** Method: **SW8260B**

MSD				Sample ID: 1311784-08A MSD			Units: µg/Kg		Analysis Date: 11/21/2013 10:33 A	
Client ID: WOG_27_AH_SW_6_8				Run ID: VMS5_131120B			SeqNo: 2548670		Prep Date: 11/16/2013	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	926	30	1000	0	92.6	75-125	922.5	0.379	30	
Ethylbenzene	928.5	30	1000	0	92.8	75-125	933	0.483	30	
m,p-Xylene	1930	60	2000	39	94.6	80-125	1944	0.697	30	
o-Xylene	965.5	30	1000	0	96.6	75-125	964.5	0.104	30	
Toluene	918.5	30	1000	0	91.8	70-125	932	1.46	30	
Xylenes, Total	2896	90	3000	39	95.2	75-125	2908	0.431	30	
Surr: 1,2-Dichloroethane-d4	905.5	0	1000	0	90.6	70-130	903.5	0.221	30	
Surr: 4-Bromofluorobenzene	1010	0	1000	0	101	70-130	1001	0.945	30	
Surr: Dibromofluoromethane	931	0	1000	0	93.1	70-130	928.5	0.269	30	
Surr: Toluene-d8	961	0	1000	0	96.1	70-130	956	0.522	30	

The following samples were analyzed in this batch:

1311784-01A	1311784-02A	1311784-03A
1311784-04A	1311784-05A	1311784-06A
1311784-07A	1311784-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53354** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-53354-53354				Units: s.u.			Analysis Date: 11/15/2013 03:00 PM			
Client ID:				Run ID: WETCHEM_131115N				SeqNo: 2540254			Prep Date: 11/15/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
pH	3.99	0	4	0	99.8	90-110	0							

DUP				Sample ID: 1311682-01B DUP				Units: s.u.		Analysis Date: 11/15/2013 03:00 PM			
Client ID:				Run ID: WETCHEM_131115N				SeqNo: 2540256		Prep Date: 11/15/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH	8.53	0	0	0	0	0-0	8.6	0.817	20				

DUP				Sample ID: 1311784-01B DUP				Units: s.u.		Analysis Date: 11/15/2013 03:00 PM			
Client ID: WOG_27_AH_SW_PB				Run ID: WETCHEM_131115N				SeqNo: 2540267		Prep Date: 11/15/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH	8.34	0	0	0	0	0-0	8.36	0.24	20				

The following samples were analyzed in this batch:

1311784-01B	1311784-02B	1311784-03B
1311784-04B	1311784-05B	1311784-06B
1311784-07B	1311784-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53357** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 1311782-01C DUP				Units: mmhos/cm @25°		Analysis Date: 11/19/2013 05:30 PM		
Client ID:		Run ID: WETCHEM_131119K				SeqNo: 2545429		Prep Date: 11/19/2013		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	5.24	0.050	0	0	0		4.98	5.09	50	

The following samples were analyzed in this batch:

1311784-01C	1311784-02C	1311784-03C
1311784-04C	1311784-05C	1311784-06C
1311784-07C	1311784-08C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
Work Order: 1311784
Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **53472** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-53472-53472				Units: mg/Kg		Analysis Date: 11/19/2013 04:00 PM		
Client ID:		Run ID: WETCHEM_131119I		SeqNo: 2545398		Prep Date: 11/19/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 0.50

LCS		Sample ID: LCS-53472-53472				Units: mg/Kg		Analysis Date: 11/19/2013 04:00 PM		
Client ID:		Run ID: WETCHEM_131119I		SeqNo: 2545397		Prep Date: 11/19/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.76 0.50 2 0 88 80-120 0

MS		Sample ID: 1311838-01B MS				Units: mg/Kg		Analysis Date: 11/19/2013 04:00 PM		
Client ID:		Run ID: WETCHEM_131119I		SeqNo: 2545389		Prep Date: 11/19/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.589 0.51 2.033 0 78.2 75-125 0

MS		Sample ID: 1311838-01B MSI				Units: mg/Kg		Analysis Date: 11/19/2013 04:00 PM		
Client ID:		Run ID: WETCHEM_131119I		SeqNo: 2545391		Prep Date: 11/19/2013		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1217 50 1207 0 101 75-125 0

MSD		Sample ID: 1311838-01B MSD				Units: mg/Kg		Analysis Date: 11/19/2013 04:00 PM		
Client ID:		Run ID: WETCHEM_131119I		SeqNo: 2545390		Prep Date: 11/19/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.737 0.49 1.961 0 88.6 75-125 1.589 8.89 20

The following samples were analyzed in this batch:

1311784-01B	1311784-02B	1311784-03B
1311784-04B	1311784-05B	1311784-06B
1311784-07B	1311784-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: InterTech
 Work Order: 1311784
 Project: WOG Boies Ranch Pits 11.12.13

QC BATCH REPORT

Batch ID: **R130804** Instrument ID **MOIST** Method: **A2540 G**

MBLK		Sample ID: WBLKS-R130804				Units: % of sample		Analysis Date: 11/18/2013 04:20 PM		
Client ID:		Run ID: MOIST_131118C				SeqNo: 2544553		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 0.05 0.050

LCS		Sample ID: LCS-R130804				Units: % of sample		Analysis Date: 11/18/2013 04:20 PM		
Client ID:		Run ID: MOIST_131118C				SeqNo: 2544541		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1311751-09B DUP				Units: % of sample		Analysis Date: 11/18/2013 04:20 PM		
Client ID:		Run ID: MOIST_131118C				SeqNo: 2544516		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 11.89 0.050 0 0 0 0-0 12.78 7.22 20

DUP		Sample ID: 1311753-02B DUP				Units: % of sample		Analysis Date: 11/18/2013 04:20 PM		
Client ID:		Run ID: MOIST_131118C				SeqNo: 2544519		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 7.17 0.050 0 0 0 0-0 7.74 7.65 20

The following samples were analyzed in this batch:

1311784-01B	1311784-02B	1311784-03B
1311784-04B	1311784-05B	1311784-06B
1311784-07B	1311784-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Environmental

Cincinnati, OH
+1 513 733 5336

Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: **93138**

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information			Project Information				ALS Project Manager: _____ ALS Work Order #: <u>131784</u>												
Parameter/Method Request for Analysis																			
Purchase Order		Project Name	<u>WOG-BOLES RANCH PITS</u>				A	BTEX, GRO											
Work Order		Project Number	<u>605-1210-00</u>				B	DRO, PAHs											
Company Name	<u>InterTech</u>	Bill To Company	<u>Intertech EE</u>				C	As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, Hg											
Send Report To	<u>Jana Sanders</u>	Invoice Attn	<u>Deanna Weston</u>				D	Cr+6, Cr+3											
Address	<u>743 Horizon Court, Suite 110</u>	Address	<u>3821 Beech Street</u>				E	pH, SAR											
							F	% Moisture											
City/State/Zip	<u>Grand Junction, CO 81506</u>	City/State/Zip	<u>Laramie, WY 82070</u>				G												
Phone	<u>(855) 687-8324</u>	Phone	<u>(307) 742-4991</u>				H												
Fax		Fax	<u>(307) 745-1582</u>				I												
e-Mail Address	<u>jsanders@cbmunc.com</u>	e-Mail Address					J												

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	<u>WOG-27-AH-SW-PB</u>	<u>11-12-13</u>	<u>1130</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
2	<u>WOG-27-AH-SW-4-8</u>	<u>11-12-13</u>	<u>1015</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
3	<u>WOG-27-AH-N2-PB-</u>	<u>11-12-13</u>	<u>1230</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
4	<u>WOG-240-PB-10</u>	<u>11-12-13</u>	<u>1415</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
5	<u>WOG-27K-PB-8</u>	<u>11-12-13</u>	<u>0940</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
6	<u>WOG-H-30-N2-10</u>	<u>11-12-13</u>	<u>1630</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
7	<u>WOG-H-30-SW-8</u>	<u>11-12-13</u>	<u>1540</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
8	<u>WOG-27-AH-SW-6-8</u>	<u>11-12-13</u>	<u>1040</u>	<u>SOIL</u>	<u>8</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						
9																	
10																	

Sampler(s) Please Print & Sign <u>MATTHEW FAUGHT</u>		Shipment Method <u>FedEx</u>		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour				Results Due Date:	
Relinquished by:		Date:	Time:	Received by:		Notes:			
Relinquished by: <u>FED EX</u>		Date: <u>11/14/13</u>	Time: <u>0930</u>	Received by (Laboratory): <u>[Signature]</u>		Cooler ID			
Logged by (Laboratory): <u>DFS</u>		Date: <u>11/14/13</u>	Time: <u>1330</u>	Checked by (Laboratory): <u>[Signature]</u>		Cooler Temp. <u>4.2°C</u>			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035						QC Package: (Check One Box Below) <input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other			

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

FedEx Express **NEW Package**
US Airbill

FedEx
Tracking
Number

8022 0269 8502

1 From

Date

11-13-13

Sender's
Name

INTERTECH

Phone

970 763 8679

Company

INTERTECH 812

Address

743 HAMILTON CT STE 110

City

GRAND JUNCTION

State

CO

ZIP

81506

2 Your Internal Billing Reference

3 To

Recipient's
Name

SHARPE RESEARCH

Phone

616 399 6170

Company

SHARPE RESEARCH

Address

3357 178TH AVE

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

GRAND JUNCTION

State

CO

ZIP

81506

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service

* To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the new
FedEx Express Freight US Airbill.

Next Business Day

☐ **FedEx First Overnight**
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless SATURDAY Delivery is selected.

☐ **FedEx Priority Overnight**
Next business morning. Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.

☒ **FedEx Standard Overnight**
Next business afternoon.
Saturday Delivery NOT available.

2 or 3 Business Days

☐ **FedEx 2Day A.M.**
Second business morning.
Saturday Delivery NOT available.

☐ **FedEx 2Day**
Second business afternoon. Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.

☐ **FedEx Express Saver**
Third business day.
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

☐ **FedEx Envelope***

☐ **FedEx Pak***

☐ **FedEx
Box**

☒ **FedEx
Tube**

☒ **Other**

6 Special Handling and Delivery Signature Options

☐ **SATURDAY Delivery**

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ **No Signature Required**
Package may be left without
obtaining a signature for delivery.

☐ **Direct Signature**
Someone at recipient's address
may sign for delivery. *Fee applies.*

☐ **Indirect Signature**
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods?

One box must be checked.

☒ **No**

☐ **Yes**

As per attached
Shipper's Declaration.

☐ **Yes**

Shipper's Declaration
not required.

☐ **Dry Ice**

Dry ice, 5, UN 1845

☐ **kg**

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging
or placed in a FedEx Express Drop Box.

☐ **Cargo Aircraft Only**

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No. ☐

☐ **Sender**
Acct. No. in Section

☒ **Recipient**

☐ **Third Party**

☐ **Credit Card**

☐ **Cash/Check**

Total Packages

Total Weight

* Check Card Avg.

Seal Broken By:

CUSTODY SEAL

Date:

Time:

Company:

ALS Environmental

3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185



449

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Sample Receipt Checklist

Client Name: **INTERTECH**

Date/Time Received: **14-Nov-13 09:30**

Work Order: **1311784**

Received by: **DS**

Checklist completed by Diane Shaw 14-Nov-13
eSignature Date

Reviewed by: Ann Preston 16-Nov-13
eSignature Date

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.2 c</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>11/14/2013 1:33:23 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

ANALYTICAL SUMMARY REPORT

August 06, 2011

Whiting Petroleum Corporation
2500 County Road 26
Rifle, CO 81641

Workorder No.: G11070820

Quote ID: G228 - COGCC Table 910-1 for Soil - Normal TAT

Project Name: Soil_Sampling

Energy Laboratories Inc. Gillette WY received the following 9 samples for Whiting Petroleum Corporation on 07/28/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
G11070820-001	SO_Boies_Background_Sect_1_1	07/27/11 10:00	07/28/11	Soil	Metals by ICP/ICPMS, Total Cations, sat. paste Saturated Paste Electrical Conductivity Mercury in Solid by CVAA Diesel Range Organics Gasoline Range Organics Saturated Paste pH Digestion, Total Metals Digestion, Mercury by CVAA Saturated Paste Extraction Sodium Adsorption Ratio Volatile Organic Compounds - Short List
G11070820-002	SO_Boies_Background_Sect_1_2	07/27/11 10:30	07/28/11	Soil	Same As Above
G11070820-003	SO_Boies_Background_Sect_2_1	07/27/11 11:30	07/28/11	Soil	Same As Above
G11070820-004	SO_Boies_Background_Sect_2_2	07/27/11 11:00	07/28/11	Soil	Same As Above
G11070820-005	SO_Boies_Background_Sect_2_3	07/27/11 11:45	07/28/11	Soil	Same As Above
G11070820-006	SO_Boies_Background_Sect_3_1	07/27/11 12:00	07/28/11	Soil	Same As Above
G11070820-007	SO_Boies_Background_Sect_3_2	07/27/11 12:15	07/28/11	Soil	Same As Above
G11070820-008	SO_Boies_Background_Sect_3_3	07/27/11 13:00	07/28/11	Soil	Same As Above
G11070820-009	SO_Boies_Background_Sect_3_4	07/27/11 13:20	07/28/11	Soil	Same As Above

This report was prepared by Energy Laboratories, Inc., 400 W. Boxelder Rd., Gillette, WY 82718. As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_1_1
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-001

Report Date: 08/06/11
Collection Date: 07/27/11 10:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192838

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
----------	--------	-------	----	-----------	--------	--------------------

PETROLEUM HYDROCARBONS-VOLATILE

Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/01/11 15:39 / eli-b
Total Purgeable Hydrocarbons	ND	mg/kg	2.0		SW8015B	08/01/11 15:39 / eli-b
Surr: Trifluorotoluene	98.0	%REC	70-130		SW8015B	08/01/11 15:39 / eli-b

- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.

- Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	ND	mg/kg	10		SW8015B	08/02/11 15:45 / eli-b
Total Extractable Hydrocarbons	31	mg/kg	10		SW8015B	08/02/11 15:45 / eli-b
Surr: o-Terphenyl	98.0	%REC	50-150		SW8015B	08/02/11 15:45 / eli-b

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.

- Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

VOLATILE ORGANIC COMPOUNDS

Benzene	ND	mg/kg	0.20		SW8260B	07/29/11 19:06 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/29/11 19:06 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/29/11 19:06 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/29/11 19:06 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/29/11 19:06 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/29/11 19:06 / eli-b
Surr: Dibromofluoromethane	100	%REC	70-132		SW8260B	07/29/11 19:06 / eli-b
Surr: 1,2-Dichloroethane-d4	84.0	%REC	60-136		SW8260B	07/29/11 19:06 / eli-b
Surr: Toluene-d8	104	%REC	75-138		SW8260B	07/29/11 19:06 / eli-b
Surr: p-Bromofluorobenzene	110	%REC	78-160		SW8260B	07/29/11 19:06 / eli-b

SATURATED PASTE

Conductivity, sat. paste	1.13	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:44 / eli-h
pH, sat. paste	7.6	s.u.	0.1		ASAM10-3.2	08/02/11 07:51 / eli-h
Calcium, sat. paste	7.13	meq/L	0.05		SW6010B	08/03/11 13:00 / eli-h
Magnesium, sat. paste	2.29	meq/L	0.08		SW6010B	08/03/11 13:00 / eli-h
Sodium, sat. paste	1.69	meq/L	0.04		SW6010B	08/03/11 13:00 / eli-h
Sodium Adsorption Ratio (SAR)	0.8	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h

METALS, TOTAL

Arsenic	10	mg/kg	5		SW6010B	08/02/11 14:37 / eli-h
Barium	321	mg/kg	5		SW6010B	08/02/11 14:37 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 14:37 / eli-h
Chromium	35	mg/kg	5		SW6010B	08/02/11 14:37 / eli-h
Copper	11	mg/kg	5		SW6010B	08/02/11 14:37 / eli-h
Lead	12	mg/kg	5		SW6010B	08/03/11 12:35 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 09:50 / eli-h
Nickel	15	mg/kg	5		SW6010B	08/02/11 14:37 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 14:37 / eli-h

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_1_1
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-001

Report Date: 08/06/11
Collection Date: 07/27/11 10:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192838

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:31 / eli-h
Zinc	42	mg/kg	5		SW6010B	08/02/11 14:37 / eli-h

Report
Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_1_2
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-002

Report Date: 08/06/11
Collection Date: 07/27/11 10:30
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192839

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE						
Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/01/11 16:14 / eli-b
Total Purgeable Hydrocarbons	ND	mg/kg	2.0		SW8015B	08/01/11 16:14 / eli-b
Surr: Trifluorotoluene	96.0	%REC	70-130		SW8015B	08/01/11 16:14 / eli-b
- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene. - Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.						
PETROLEUM HYDROCARBONS-SEMI-VOLATILE						
Diesel Range Organics (DRO)	ND	mg/kg	10		SW8015B	08/02/11 04:42 / eli-b
Total Extractable Hydrocarbons	10	mg/kg	10		SW8015B	08/02/11 04:42 / eli-b
Surr: o-Terphenyl	104	%REC	50-150		SW8015B	08/02/11 04:42 / eli-b
- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28. - Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.						
VOLATILE ORGANIC COMPOUNDS						
Benzene	ND	mg/kg	0.20		SW8260B	07/29/11 19:33 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/29/11 19:33 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/29/11 19:33 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/29/11 19:33 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/29/11 19:33 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/29/11 19:33 / eli-b
Surr: Dibromofluoromethane	99.0	%REC	70-132		SW8260B	07/29/11 19:33 / eli-b
Surr: 1,2-Dichloroethane-d4	86.0	%REC	60-136		SW8260B	07/29/11 19:33 / eli-b
Surr: Toluene-d8	103	%REC	75-138		SW8260B	07/29/11 19:33 / eli-b
Surr: p-Bromofluorobenzene	109	%REC	78-160		SW8260B	07/29/11 19:33 / eli-b
SATURATED PASTE						
Conductivity, sat. paste	0.51	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:45 / eli-h
pH, sat. paste	7.5	s.u.	0.1		ASAM10-3.2	08/02/11 07:52 / eli-h
Calcium, sat. paste	3.90	meq/L	0.05		SW6010B	08/03/11 13:03 / eli-h
Magnesium, sat. paste	0.73	meq/L	0.08		SW6010B	08/03/11 13:03 / eli-h
Sodium, sat. paste	1.13	meq/L	0.04		SW6010B	08/03/11 13:03 / eli-h
Sodium Adsorption Ratio (SAR)	0.7	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h
METALS, TOTAL						
Arsenic	ND	mg/kg	5		SW6010B	08/03/11 12:39 / eli-h
Barium	189	mg/kg	5		SW6010B	08/02/11 14:40 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 14:40 / eli-h
Chromium	29	mg/kg	5		SW6010B	08/02/11 14:40 / eli-h
Copper	13	mg/kg	5		SW6010B	08/02/11 14:40 / eli-h
Lead	14	mg/kg	5		SW6010B	08/03/11 12:39 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 09:52 / eli-h
Nickel	13	mg/kg	5		SW6010B	08/02/11 14:40 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 14:40 / eli-h

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_1_2
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-002

Report Date: 08/06/11
Collection Date: 07/27/11 10:30
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192839

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:34 / eli-h
Zinc	48	mg/kg	5		SW6010B	08/02/11 14:40 / eli-h

Report
Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_2_1
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-003

Report Date: 08/06/11
Collection Date: 07/27/11 11:30
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192840

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
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PETROLEUM HYDROCARBONS-VOLATILE

Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/01/11 16:50 / eli-b
Total Purgeable Hydrocarbons	ND	mg/kg	2.0		SW8015B	08/01/11 16:50 / eli-b
Surr: Trifluorotoluene	96.0	%REC	70-130		SW8015B	08/01/11 16:50 / eli-b

- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.

- Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	ND	mg/kg	10		SW8015B	08/02/11 23:29 / eli-b
Total Extractable Hydrocarbons	53	mg/kg	10		SW8015B	08/02/11 23:29 / eli-b
Surr: o-Terphenyl	101	%REC	50-150		SW8015B	08/02/11 23:29 / eli-b

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.

- Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

VOLATILE ORGANIC COMPOUNDS

Benzene	ND	mg/kg	0.20		SW8260B	07/29/11 19:59 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/29/11 19:59 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/29/11 19:59 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/29/11 19:59 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/29/11 19:59 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/29/11 19:59 / eli-b
Surr: Dibromofluoromethane	93.0	%REC	70-132		SW8260B	07/29/11 19:59 / eli-b
Surr: 1,2-Dichloroethane-d4	80.0	%REC	60-136		SW8260B	07/29/11 19:59 / eli-b
Surr: Toluene-d8	100	%REC	75-138		SW8260B	07/29/11 19:59 / eli-b
Surr: p-Bromofluorobenzene	106	%REC	78-160		SW8260B	07/29/11 19:59 / eli-b

SATURATED PASTE

Conductivity, sat. paste	0.70	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:45 / eli-h
pH, sat. paste	7.6	s.u.	0.1		ASAM10-3.2	08/02/11 07:52 / eli-h
Calcium, sat. paste	4.30	meq/L	0.05		SW6010B	08/03/11 13:06 / eli-h
Magnesium, sat. paste	1.65	meq/L	0.08		SW6010B	08/03/11 13:06 / eli-h
Sodium, sat. paste	1.40	meq/L	0.04		SW6010B	08/03/11 13:06 / eli-h
Sodium Adsorption Ratio (SAR)	0.8	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h

METALS, TOTAL

Arsenic	ND	mg/kg	5		SW6010B	08/03/11 12:43 / eli-h
Barium	343	mg/kg	5		SW6010B	08/02/11 14:44 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 14:44 / eli-h
Chromium	36	mg/kg	5		SW6010B	08/02/11 14:44 / eli-h
Copper	13	mg/kg	5		SW6010B	08/02/11 14:44 / eli-h
Lead	14	mg/kg	5		SW6010B	08/03/11 12:43 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 09:54 / eli-h
Nickel	17	mg/kg	5		SW6010B	08/02/11 14:44 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 14:44 / eli-h

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_2_1
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-003

Report Date: 08/06/11
Collection Date: 07/27/11 11:30
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192840

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:37 / eli-h
Zinc	48	mg/kg	5		SW6010B	08/02/11 14:44 / eli-h

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_2_2
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-004

Report Date: 08/06/11
Collection Date: 07/27/11 11:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192841

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE						
Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/01/11 20:22 / eli-b
Total Purgeable Hydrocarbons	ND	mg/kg	2.0		SW8015B	08/01/11 20:22 / eli-b
Surr: Trifluorotoluene	98.0	%REC	70-130		SW8015B	08/01/11 20:22 / eli-b
- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene. - Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.						
PETROLEUM HYDROCARBONS-SEMI-VOLATILE						
Diesel Range Organics (DRO)	ND	mg/kg	10		SW8015B	08/02/11 05:32 / eli-b
Total Extractable Hydrocarbons	45	mg/kg	10		SW8015B	08/02/11 05:32 / eli-b
Surr: o-Terphenyl	108	%REC	50-150		SW8015B	08/02/11 05:32 / eli-b
- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28. - Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.						
VOLATILE ORGANIC COMPOUNDS						
Benzene	ND	mg/kg	0.20		SW8260B	07/29/11 20:26 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/29/11 20:26 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/29/11 20:26 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/29/11 20:26 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/29/11 20:26 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/29/11 20:26 / eli-b
Surr: Dibromofluoromethane	109	%REC	70-132		SW8260B	07/29/11 20:26 / eli-b
Surr: 1,2-Dichloroethane-d4	95.0	%REC	60-136		SW8260B	07/29/11 20:26 / eli-b
Surr: Toluene-d8	116	%REC	75-138		SW8260B	07/29/11 20:26 / eli-b
Surr: p-Bromofluorobenzene	123	%REC	78-160		SW8260B	07/29/11 20:26 / eli-b
SATURATED PASTE						
Conductivity, sat. paste	0.85	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:46 / eli-h
pH, sat. paste	7.6	s.u.	0.1		ASAM10-3.2	08/02/11 07:53 / eli-h
Calcium, sat. paste	5.84	meq/L	0.05		SW6010B	08/03/11 13:09 / eli-h
Magnesium, sat. paste	1.23	meq/L	0.08		SW6010B	08/03/11 13:09 / eli-h
Sodium, sat. paste	2.12	meq/L	0.04		SW6010B	08/03/11 13:09 / eli-h
Sodium Adsorption Ratio (SAR)	1.1	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h
METALS, TOTAL						
Arsenic	8	mg/kg	5		SW6010B	08/02/11 14:48 / eli-h
Barium	267	mg/kg	5		SW6010B	08/02/11 14:48 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 14:48 / eli-h
Chromium	39	mg/kg	5		SW6010B	08/02/11 14:48 / eli-h
Copper	16	mg/kg	5		SW6010B	08/02/11 14:48 / eli-h
Lead	14	mg/kg	5		SW6010B	08/03/11 12:47 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 10:04 / eli-h
Nickel	18	mg/kg	5		SW6010B	08/02/11 14:48 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 14:48 / eli-h

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_2_2
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-004

Report Date: 08/06/11
Collection Date: 07/27/11 11:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192841

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:40 / eli-h
Zinc	53	mg/kg	5		SW6010B	08/02/11 14:48 / eli-h

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_2_3
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-005

Report Date: 08/06/11
Collection Date: 07/27/11 11:45
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192842

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
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PETROLEUM HYDROCARBONS-VOLATILE

Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/01/11 19:11 / eli-b
Total Purgeable Hydrocarbons	ND	mg/kg	2.0		SW8015B	08/01/11 19:11 / eli-b
Surr: Trifluorotoluene	91.0	%REC	70-130		SW8015B	08/01/11 19:11 / eli-b

- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.
- Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	ND	mg/kg	10		SW8015B	08/02/11 20:58 / eli-b
Total Extractable Hydrocarbons	25	mg/kg	10		SW8015B	08/02/11 20:58 / eli-b
Surr: o-Terphenyl	106	%REC	50-150		SW8015B	08/02/11 20:58 / eli-b

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.
- Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

VOLATILE ORGANIC COMPOUNDS

Benzene	ND	mg/kg	0.20		SW8260B	07/29/11 23:04 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/29/11 23:04 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/29/11 23:04 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/29/11 23:04 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/29/11 23:04 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/29/11 23:04 / eli-b
Surr: Dibromofluoromethane	100	%REC	70-132		SW8260B	07/29/11 23:04 / eli-b
Surr: 1,2-Dichloroethane-d4	84.0	%REC	60-136		SW8260B	07/29/11 23:04 / eli-b
Surr: Toluene-d8	110	%REC	75-138		SW8260B	07/29/11 23:04 / eli-b
Surr: p-Bromofluorobenzene	120	%REC	78-160		SW8260B	07/29/11 23:04 / eli-b

SATURATED PASTE

Conductivity, sat. paste	0.56	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:47 / eli-h
pH, sat. paste	7.6	s.u.	0.1		ASAM10-3.2	08/02/11 07:53 / eli-h
Calcium, sat. paste	4.34	meq/L	0.05		SW6010B	08/03/11 13:12 / eli-h
Magnesium, sat. paste	0.89	meq/L	0.08		SW6010B	08/03/11 13:12 / eli-h
Sodium, sat. paste	0.65	meq/L	0.04		SW6010B	08/03/11 13:12 / eli-h
Sodium Adsorption Ratio (SAR)	0.4	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h

METALS, TOTAL

Arsenic	ND	mg/kg	5		SW6010B	08/03/11 12:58 / eli-h
Barium	201	mg/kg	5		SW6010B	08/02/11 14:51 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 14:51 / eli-h
Chromium	32	mg/kg	5		SW6010B	08/02/11 14:51 / eli-h
Copper	14	mg/kg	5		SW6010B	08/02/11 14:51 / eli-h
Lead	13	mg/kg	5		SW6010B	08/03/11 12:58 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 10:06 / eli-h
Nickel	15	mg/kg	5		SW6010B	08/02/11 14:51 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 14:51 / eli-h

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_2_3
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-005

Report Date: 08/06/11
Collection Date: 07/27/11 11:45
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192842

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:43 / eli-h
Zinc	47	mg/kg	5		SW6010B	08/02/11 14:51 / eli-h

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_1
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-006

Report Date: 08/06/11
Collection Date: 07/27/11 12:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192843

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
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PETROLEUM HYDROCARBONS-VOLATILE

Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/01/11 21:32 / eli-b
Total Purgeable Hydrocarbons	1.8	mg/kg	2.0	J	SW8015B	08/01/11 21:32 / eli-b
Surr: Trifluorotoluene	100	%REC	70-130		SW8015B	08/01/11 21:32 / eli-b

- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.
- Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	11	mg/kg	10		SW8015B	08/02/11 17:31 / eli-b
Total Extractable Hydrocarbons	55	mg/kg	10		SW8015B	08/02/11 17:31 / eli-b
Surr: o-Terphenyl	99.0	%REC	50-150		SW8015B	08/02/11 17:31 / eli-b

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.
- Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

VOLATILE ORGANIC COMPOUNDS

Benzene	ND	mg/kg	0.20		SW8260B	07/29/11 23:31 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/29/11 23:31 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/29/11 23:31 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/29/11 23:31 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/29/11 23:31 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/29/11 23:31 / eli-b
Surr: Dibromofluoromethane	128	%REC	70-132		SW8260B	07/29/11 23:31 / eli-b
Surr: 1,2-Dichloroethane-d4	105	%REC	60-136		SW8260B	07/29/11 23:31 / eli-b
Surr: Toluene-d8	140	%REC	75-138	S	SW8260B	07/29/11 23:31 / eli-b
Surr: p-Bromofluorobenzene	151	%REC	78-160		SW8260B	07/29/11 23:31 / eli-b

SATURATED PASTE

Conductivity, sat. paste	0.65	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:47 / eli-h
pH, sat. paste	7.7	s.u.	0.1		ASAM10-3.2	08/02/11 07:54 / eli-h
Calcium, sat. paste	4.72	meq/L	0.05		SW6010B	08/03/11 13:15 / eli-h
Magnesium, sat. paste	1.94	meq/L	0.08		SW6010B	08/03/11 13:15 / eli-h
Sodium, sat. paste	1.05	meq/L	0.04		SW6010B	08/03/11 13:15 / eli-h
Sodium Adsorption Ratio (SAR)	0.6	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h

METALS, TOTAL

Arsenic	5	mg/kg	5		SW6010B	08/03/11 13:02 / eli-h
Barium	382	mg/kg	5		SW6010B	08/02/11 14:55 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 14:55 / eli-h
Chromium	37	mg/kg	5		SW6010B	08/02/11 14:55 / eli-h
Copper	23	mg/kg	5		SW6010B	08/02/11 14:55 / eli-h
Lead	14	mg/kg	5		SW6010B	08/03/11 13:02 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 10:16 / eli-h
Nickel	19	mg/kg	5		SW6010B	08/02/11 14:55 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 14:55 / eli-h

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

S - Spike recovery outside of advisory limits.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_1
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-006

Report Date: 08/06/11
Collection Date: 07/27/11 12:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192843

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:52 / eli-h
Zinc	63	mg/kg	5		SW6010B	08/02/11 14:55 / eli-h

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_2
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-007

Report Date: 08/06/11
Collection Date: 07/27/11 12:15
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192844

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE						
Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/01/11 18:01 / eli-b
Total Purgeable Hydrocarbons	3.3	mg/kg	2.0		SW8015B	08/01/11 18:01 / eli-b
Surr: Trifluorotoluene	82.0	%REC	70-130		SW8015B	08/01/11 18:01 / eli-b
- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene. - Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.						
PETROLEUM HYDROCARBONS-SEMI-VOLATILE						
Diesel Range Organics (DRO)	ND	mg/kg	10		SW8015B	08/02/11 22:39 / eli-b
Total Extractable Hydrocarbons	50	mg/kg	10		SW8015B	08/02/11 22:39 / eli-b
Surr: o-Terphenyl	103	%REC	50-150		SW8015B	08/02/11 22:39 / eli-b
- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28. - Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.						
VOLATILE ORGANIC COMPOUNDS						
Benzene	ND	mg/kg	0.20		SW8260B	07/29/11 23:57 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/29/11 23:57 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/29/11 23:57 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/29/11 23:57 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/29/11 23:57 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/29/11 23:57 / eli-b
Surr: Dibromofluoromethane	111	%REC	70-132		SW8260B	07/29/11 23:57 / eli-b
Surr: 1,2-Dichloroethane-d4	98.0	%REC	60-136		SW8260B	07/29/11 23:57 / eli-b
Surr: Toluene-d8	114	%REC	75-138		SW8260B	07/29/11 23:57 / eli-b
Surr: p-Bromofluorobenzene	124	%REC	78-160		SW8260B	07/29/11 23:57 / eli-b
SATURATED PASTE						
Conductivity, sat. paste	0.82	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:48 / eli-h
pH, sat. paste	7.8	s.u.	0.1		ASAM10-3.2	08/02/11 07:55 / eli-h
Calcium, sat. paste	5.94	meq/L	0.05		SW6010B	08/03/11 13:24 / eli-h
Magnesium, sat. paste	1.57	meq/L	0.08		SW6010B	08/03/11 13:24 / eli-h
Sodium, sat. paste	2.30	meq/L	0.04		SW6010B	08/03/11 13:24 / eli-h
Sodium Adsorption Ratio (SAR)	1.2	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h
METALS, TOTAL						
Arsenic	6	mg/kg	5		SW6010B	08/03/11 13:06 / eli-h
Barium	354	mg/kg	5		SW6010B	08/02/11 14:59 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 14:59 / eli-h
Chromium	29	mg/kg	5		SW6010B	08/02/11 14:59 / eli-h
Copper	14	mg/kg	5		SW6010B	08/02/11 14:59 / eli-h
Lead	14	mg/kg	5		SW6010B	08/03/11 13:06 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 10:18 / eli-h
Nickel	16	mg/kg	5		SW6010B	08/02/11 14:59 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 14:59 / eli-h

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_2
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-007

Report Date: 08/06/11
Collection Date: 07/27/11 12:15
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192844

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:55 / eli-h
Zinc	46	mg/kg	5		SW6010B	08/02/11 14:59 / eli-h

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_3
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-008

Report Date: 08/06/11
Collection Date: 07/27/11 13:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192845

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
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PETROLEUM HYDROCARBONS-VOLATILE

Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/02/11 02:15 / eli-b
Total Purgeable Hydrocarbons	ND	mg/kg	2.0		SW8015B	08/02/11 02:15 / eli-b
Surr: Trifluorotoluene	82.0	%REC	70-130		SW8015B	08/02/11 02:15 / eli-b

- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.

- Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	ND	mg/kg	10		SW8015B	08/02/11 09:44 / eli-b
Total Extractable Hydrocarbons	20	mg/kg	10		SW8015B	08/02/11 09:44 / eli-b
Surr: o-Terphenyl	103	%REC	50-150		SW8015B	08/02/11 09:44 / eli-b

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.

- Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

VOLATILE ORGANIC COMPOUNDS

Benzene	ND	mg/kg	0.20		SW8260B	07/30/11 00:23 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/30/11 00:23 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/30/11 00:23 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/30/11 00:23 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/30/11 00:23 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/30/11 00:23 / eli-b
Surr: Dibromofluoromethane	91.0	%REC	70-132		SW8260B	07/30/11 00:23 / eli-b
Surr: 1,2-Dichloroethane-d4	76.0	%REC	60-136		SW8260B	07/30/11 00:23 / eli-b
Surr: Toluene-d8	100	%REC	75-138		SW8260B	07/30/11 00:23 / eli-b
Surr: p-Bromofluorobenzene	109	%REC	78-160		SW8260B	07/30/11 00:23 / eli-b

SATURATED PASTE

Conductivity, sat. paste	0.49	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:48 / eli-h
pH, sat. paste	7.9	s.u.	0.1		ASAM10-3.2	08/02/11 07:55 / eli-h
Calcium, sat. paste	1.73	meq/L	0.05		SW6010B	08/03/11 13:27 / eli-h
Magnesium, sat. paste	0.83	meq/L	0.08		SW6010B	08/03/11 13:27 / eli-h
Sodium, sat. paste	2.74	meq/L	0.04		SW6010B	08/03/11 13:27 / eli-h
Sodium Adsorption Ratio (SAR)	2.4	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h

METALS, TOTAL

Arsenic	6	mg/kg	5		SW6010B	08/03/11 13:10 / eli-h
Barium	305	mg/kg	5		SW6010B	08/02/11 15:02 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 15:02 / eli-h
Chromium	33	mg/kg	5		SW6010B	08/02/11 15:02 / eli-h
Copper	17	mg/kg	5		SW6010B	08/02/11 15:02 / eli-h
Lead	12	mg/kg	5		SW6010B	08/03/11 13:10 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 10:21 / eli-h
Nickel	18	mg/kg	5		SW6010B	08/02/11 15:02 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 15:02 / eli-h

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_3
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-008

Report Date: 08/06/11
Collection Date: 07/27/11 13:00
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192845

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 15:58 / eli-h
Zinc	54	mg/kg	5		SW6010B	08/02/11 15:02 / eli-h

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_4
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-009

Report Date: 08/06/11
Collection Date: 07/27/11 13:20
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192846

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
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PETROLEUM HYDROCARBONS-VOLATILE

Gasoline Range Organics (GRO)	ND	mg/kg	2.0		SW8015B	08/02/11 03:25 / eli-b
Total Purgeable Hydrocarbons	18	mg/kg	2.0		SW8015B	08/02/11 03:25 / eli-b
Surr: Trifluorotoluene	96.0	%REC	70-130		SW8015B	08/02/11 03:25 / eli-b

- Note 1: Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.

- Note 2: Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	21	mg/kg	10		SW8015B	08/02/11 10:35 / eli-b
Total Extractable Hydrocarbons	52	mg/kg	10		SW8015B	08/02/11 10:35 / eli-b
Surr: o-Terphenyl	94.0	%REC	50-150		SW8015B	08/02/11 10:35 / eli-b

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.

- Note 2: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

VOLATILE ORGANIC COMPOUNDS

Benzene	ND	mg/kg	0.20		SW8260B	07/30/11 00:50 / eli-b
Ethylbenzene	ND	mg/kg	0.20		SW8260B	07/30/11 00:50 / eli-b
Toluene	ND	mg/kg	0.20		SW8260B	07/30/11 00:50 / eli-b
m+p-Xylenes	ND	mg/kg	0.20		SW8260B	07/30/11 00:50 / eli-b
o-Xylene	ND	mg/kg	0.20		SW8260B	07/30/11 00:50 / eli-b
Xylenes, Total	ND	mg/kg	0.20		SW8260B	07/30/11 00:50 / eli-b
Surr: Dibromofluoromethane	92.0	%REC	70-132		SW8260B	07/30/11 00:50 / eli-b
Surr: 1,2-Dichloroethane-d4	81.0	%REC	60-136		SW8260B	07/30/11 00:50 / eli-b
Surr: Toluene-d8	95.0	%REC	75-138		SW8260B	07/30/11 00:50 / eli-b
Surr: p-Bromofluorobenzene	106	%REC	78-160		SW8260B	07/30/11 00:50 / eli-b

SATURATED PASTE

Conductivity, sat. paste	0.38	mmhos/cm	0.05	D	ASAM10-3	08/02/11 09:49 / eli-h
pH, sat. paste	7.8	s.u.	0.1		ASAM10-3.2	08/02/11 07:56 / eli-h
Calcium, sat. paste	2.67	meq/L	0.05		SW6010B	08/03/11 13:31 / eli-h
Magnesium, sat. paste	0.84	meq/L	0.08		SW6010B	08/03/11 13:31 / eli-h
Sodium, sat. paste	0.70	meq/L	0.04		SW6010B	08/03/11 13:31 / eli-h
Sodium Adsorption Ratio (SAR)	0.5	unitless	0.1		USDA20b	08/03/11 10:49 / eli-h

METALS, TOTAL

Arsenic	8	mg/kg	5		SW6010B	08/02/11 15:13 / eli-h
Barium	245	mg/kg	5		SW6010B	08/02/11 15:13 / eli-h
Cadmium	ND	mg/kg	1		SW6010B	08/02/11 15:13 / eli-h
Chromium	28	mg/kg	5		SW6010B	08/02/11 15:13 / eli-h
Copper	14	mg/kg	5		SW6010B	08/02/11 15:13 / eli-h
Lead	11	mg/kg	5		SW6010B	08/03/11 13:15 / eli-h
Mercury	ND	mg/kg	0.5		SW7471A	08/02/11 10:23 / eli-h
Nickel	16	mg/kg	5		SW6010B	08/02/11 15:13 / eli-h
Selenium	ND	mg/kg	5		SW6010B	08/02/11 15:13 / eli-h

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Whiting Petroleum Corporation
Site Name: Boies_Ranch
Project: Soil_Sampling
Client Sample ID SO_Boies_Background_Sect_3_4
Location:
Samp FRQ/Type: SP
Lab ID: G11070820-009

Report Date: 08/06/11
Collection Date: 07/27/11 13:20
Date Received: 07/28/11
Sampled By: Scott Gustin
Matrix: Soil
Tracking Number: 192846

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
METALS, TOTAL						
Silver	ND	mg/kg	5		SW6010B	08/03/11 16:01 / eli-h
Zinc	47	mg/kg	5		SW6010B	08/02/11 15:13 / eli-h

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Workorder Receipt Checklist



G11070820

Login completed by: Misty Voegelé

Date Received: 7/28/2011

Reviewed by: BL2000\kruff

Received by: mav

Reviewed Date: 7/28/2011

Carrier FedEx
name:

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature:	16.0°C From Field		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

Page ____ of ____

PLEASE PRINT (Provide as much information as possible.)

Company Name: Whiting Petroleum Corp.	Project Name, PWS, Permit, Etc. Boies Ranch / Baseline Soils	Sample Origin State:	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>
Report Mail Address: InterTech	Contact Name: Scott Gustin	Phone/Fax: 910-262-8679	Email: sgustin@cbm-inc.com
Invoice Address: InterTech	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:			ANALYSIS REQUESTED SEE ATTACHED Standard Turnaround (TAT) RUSH	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page Comments:	Shipped by: FedEx Cooler ID(s):	
<input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:					Receipt Temp: 16.0°C On Ice: <input checked="" type="checkbox"/>	
<input type="checkbox"/> EDD/EDT (Electronic Data) Format: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC			Number of Containers Sample Type: A W S V B O DW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water	Custody Seal On Bottle <input checked="" type="checkbox"/> On Cooler <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Signature Match <input checked="" type="checkbox"/>	Laboratory Use Only 1070820	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time				MATRIX
1 SO-Boies-Backyard Sect 1-1	7/27/11	1000				4 Soils
2 SO-Boies-Backyard Sect 1-2		1030				
3 SO-Boies-Backyard Sect 2-1		1130				
4 SO-Boies-Backyard Sect 2-2		1100				
5 SO-Boies-Backyard Sect 2-3		1145				
6 SO-Boies-Backyard Sect 3-1		1200				
7 SO-Boies-Backyard Sect 3-2		1215				
8 SO-Boies-Backyard Sect 3-3		1300				
9 SO-Boies-Backyard Sect 3-4		1320				
10 SO-Boies-Backyard Sect 3-5						

Custody Record MUST be Signed	Relinquished by (print): Scott Gustin	Date/Time: 7/27/11 1700	Signature: <i>[Signature]</i>	Received by (print):	Date/Time:	Signature:
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Sample Disposal:	Return to Client:	Lab Disposal:	Received by Laboratory:	Date/Time: 7/28/11	Signature: 1000

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

11070820

Modified Table 910-1

Organic Compounds in Soil

- TPH (total volatile and extractable petroleum hydrocarbons)

VOCs

- Benzene

- Toluene

- Ethylbenzene

- Xylenes (Total)

Metals

- Arsenic

- Barium

- Cadmium

- Chromium (III)

- Copper

- Lead (inorganic)

- Mercury

- Nickel (soluble salts)

- Selenium

- Silver

- Zinc

Physical Parameters

- Electrical Conductivity (EC)

- Sodium Adsorption Ratio (SAR)

- pH