



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

LABORATORY REPORT

July 15, 2013

John Cleary
Washington State Department of Ecology
Eastern regional Office
4601 N Monroe St
Spokane, WA 99205

RE: Site L / PIC #9NWRR

Dear John:

Enclosed are the results of the samples submitted to our laboratory on June 28, 2013. For your reference, these analyses have been assigned our service request number P1302774.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental


By Samantha Henningsen at 12:37 pm, Jul 15, 2013

Samantha Henningsen
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: Washington State Department of Ecology
Project: Site L / PIC #9NWRR

Service Request No: P1302774

CASE NARRATIVE

The samples were received intact under chain of custody on June 28, 2013 and were stored in accordance with the analytical method requirements. The sample labeled "Mass Bed NE Corner" was received with insufficient hold time remaining to complete the analysis within the recommended limit. The analysis was performed as soon as possible after receipt by the laboratory and the data flagged to indicate the holding time exceedance. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-12-3
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA01527201-2-2
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946
Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com , or at the accreditation body's website.		
Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.		

ALS ENVIRONMENTAL**DETAIL SUMMARY REPORT**

Client: Washington State Department of Ecology Service Request: P1302774
Project ID: Site L / PIC #9NWRR

Date Received: 6/28/2013
Time Received: 07:20

ASTM D5504-01 - Sulfur Bag

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
Mass Bed NE Corner	P1302774-001	Air	6/27/2013	08:05	X
Mass Bed NW Corner	P1302774-002	Air	6/27/2013	09:15	X
Mass Bed Middle W	P1302774-003	Air	6/27/2013	10:25	X
Mass Bed Middle S	P1302774-004	Air	6/27/2013	11:45	X
Mass Bed Middle E	P1302774-005	Air	6/27/2013	13:00	X
Equipment Blank	P1302774-006	Air	6/27/2013	14:10	X



Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day Standard

Page _____ of _____

Company Name & Address (Reporting Information) Washington Department of Ecology 4601 North Monroe Street Spokane, WA		ALS Project # 1302174											
		Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard											
Project Manager John Cleary Phone (509) 329-3531 Email Address for Result Reporting jcle461@ecy.wa.gov		Project Name Site L Project Number PIc # 9NWRR P.O. # / Billing Information		Sampler (Print & Sign) John Cleary John P Cleary		Comments e.g. Actual Preservative or specific instructions							
Client Sample ID		Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC#)	Canister Start Pressure "Hg	Canister End Pressure "Hg	Sample Volume				
MASS BED NE Corner		①	6/27/13	8:05					Two x 1L				
MASS BED NW Corner		②		9:15					✓				
MASS BED Middle W		③		10:25					✓				
MASS BED Middle S		④		11:45					✓				
Mass Bed Middle E		⑤		1:00					✓				
Equipment Blank		⑥		2:10					✓				
Report Tier Levels - please select Tier I - Results (Default in not specified) _____ Tier II (Results + QC Summaries) _____ Tier III (Results + QC & Calibration Summaries) _____ Tier IV (Date Validation Package) 10% Surcharge _____													
Relinquished by: (Signature) John Cleary		Date: 6/27/13	Time: 3:00 pm	Received by: (Signature) John Cleary	Date: 6/27/13	Time: 3:00 pm	Received by: (Signature) John Cleary	Date: 6/27/13	Time: 3:00 pm	Received by: (Signature) John Cleary	Date: 6/27/13	Time: 3:00 pm	Received by: (Signature) John Cleary
Project Requirements (MRLs, QAPP) ALS Contact: _____													
Chain of Custody Seal: (Circle) INTACT BROKEN BSEN Date: _____ Time: _____													

ALS Environmental
Sample Acceptance Check Form

Client: Washington State Department of Ecology

Work order: P1302774

Project: Site L / PIC #9NWRR

Sample(s) received on: 6/28/13

Date opened: 6/28/13

by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were sample containers properly marked with client sample ID?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Container(s) supplied by ALS ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Did sample containers arrive in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Were chain-of-custody papers used and filled out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Did sample container labels and/or tags agree with custody papers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Was sample volume received adequate for analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Are samples within specified holding times?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	Was proper temperature (thermal preservation) of cooler at receipt adhered to?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Was a trip blank received?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Were custody seals on outside of cooler/Box?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Location of seal(s)? _____	Sealing Lid? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		
	Were signature and date included?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Were seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Were custody seals on outside of sample container?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Location of seal(s)? _____	Sealing Lid? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		
	Were signature and date included?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Were seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Do containers have appropriate preservation , according to method/SOP or Client specified information?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Is there a client indication that the submitted samples are pH preserved?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Were VOA vials checked for presence/absence of air bubbles?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12	Tubes: Are the tubes capped and intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Do they contain moisture?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	Badges: Are the badges properly capped and intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Are dual bed badges separated and individually capped and intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1302774-001.01	1.0 L Tedlar Bag					
P1302774-001.02	1.0 L Tedlar Bag					
P1302774-002.01	1.0 L Tedlar Bag					
P1302774-002.02	1.0 L Tedlar Bag					
P1302774-003.01	1.0 L Tedlar Bag					
P1302774-003.02	1.0 L Tedlar Bag					
P1302774-004.01	1.0 L Tedlar Bag					
P1302774-004.02	1.0 L Tedlar Bag					

Explain any discrepancies: (include lab sample ID numbers): _____

Sample -001 hold time expired in SMO during login.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

**ALS Environmental
Sample Acceptance Check Form**

Client: Washington State Department of Ecology

Work order: P1302774

Project: Site L / PIC #9NWRR

Sample(s) received on: 6/28/13

Lab Sample ID: C123456789

Date opened: 6/28/13

by: MZAMORA

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCl (pH<2); RSK - CO₂, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Mass Bed NE Corner

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P1302774-001

Test Code: ASTM D 5504-08
 Instrument ID: Agilent 7890A/GC22/SCD
 Analyst: Mike Conejo
 Sample Type: 1.0 L Tedlar Bag
 Test Notes: **H1**

Date Collected: 6/27/13
 Time Collected: 08:05
 Date Received: 6/28/13
 Date Analyzed: 6/28/13
 Time Analyzed: 08:42
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	390	13	150	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

H1 = Sample analysis performed past holding time. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Mass Bed NW Corner

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P1302774-002

Test Code: ASTM D 5504-08
 Instrument ID: Agilent 6890A/GC13/SCD
 Analyst: Mike Conejo
 Sample Type: 1.0 L Tedlar Bag
 Test Notes:

Date Collected: 6/27/13
 Time Collected: 09:15
 Date Received: 6/28/13
 Date Analyzed: 6/28/13
 Time Analyzed: 08:40
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Mass Bed Middle W

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P1302774-003

Test Code: ASTM D 5504-08
 Instrument ID: Agilent 7890A/GC22/SCD
 Analyst: Mike Conejo
 Sample Type: 1.0 L Tedlar Bag
 Test Notes:

Date Collected: 6/27/13
 Time Collected: 10:25
 Date Received: 6/28/13
 Date Analyzed: 6/28/13
 Time Analyzed: 09:44
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	850	13	330	5.0	
75-15-0	Carbon Disulfide	41	7.8	13	2.5	+
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

+ = Possible Tedlar bag artifact.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Mass Bed Middle S

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P1302774-004

Test Code: ASTM D 5504-08
 Instrument ID: Agilent 6890A/GC13/SCD
 Analyst: Mike Conejo
 Sample Type: 1.0 L Tedlar Bag
 Test Notes:

Date Collected: 6/27/13
 Time Collected: 11:45
 Date Received: 6/28/13
 Date Analyzed: 6/28/13
 Time Analyzed: 08:56
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	22	9.8	11	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	1,300	13	530	5.0	
75-15-0	Carbon Disulfide	34	7.8	11	2.5	+
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

+ = Possible Tedlar bag artifact.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Mass Bed Middle E

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P1302774-005

Test Code: ASTM D 5504-08
 Instrument ID: Agilent 6890A/GC13/SCD
 Analyst: Mike Conejo
 Sample Type: 1.0 L Tedlar Bag
 Test Notes:

Date Collected: 6/27/13
 Time Collected: 13:00
 Date Received: 6/28/13
 Date Analyzed: 6/28/13
 Time Analyzed: 10:02
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	21	12	8.4	5.0	+
74-93-1	Methyl Mercaptan	51	9.8	26	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	720	13	280	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

+ = Possible Tedlar bag artifact.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Equipment Blank

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P1302774-006

Test Code: ASTM D 5504-08
 Instrument ID: Agilent 6890A/GC13/SCD
 Analyst: Mike Conejo
 Sample Type: 1.0 L Tedlar Bag
 Test Notes:

Date Collected: 6/27/13
 Time Collected: 14:10
 Date Received: 6/28/13
 Date Analyzed: 6/28/13
 Time Analyzed: 09:12
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Method Blank

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P130628-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1.0 L Tedlar Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 6/28/13
Time Analyzed: 08:22
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Method Blank

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P130628-MB

Test Code: ASTM D 5504-08
 Instrument ID: Agilent 7890A/GC22/SCD
 Analyst: Mike Conejo
 Sample Type: 1.0 L Tedlar Bag
 Test Notes:

Date Collected: NA
 Time Collected: NA
 Date Received: NA
 Date Analyzed: 6/28/13
 Time Analyzed: 08:27
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Lab Control Sample

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P130628-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 6/28/13
Sample Type: 1.0 L Tedlar Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS	
					Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	1,990	97	63-140	
463-58-1	Carbonyl Sulfide	2,020	1,980	98	63-138	
74-93-1	Methyl Mercaptan	1,890	2,020	107	63-144	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Washington State Department of Ecology

Client Sample ID: Lab Control Sample

Client Project ID: Site L / PIC #9NWRR

ALS Project ID: P1302774

ALS Sample ID: P130628-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 6/28/13
Sample Type: 1.0 L Tedlar Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS	
					Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	2,050	100	63-140	
463-58-1	Carbonyl Sulfide	2,020	1,910	95	63-138	
74-93-1	Methyl Mercaptan	1,890	1,820	96	63-144	