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LABORATORY REPORT

April 19, 2018

Cindy Bartlett
GeoSyntec Consultants
621 SW Morrison Street Suite 600
Portland, OR 97205

RE: Cascade SVE / PNG 0564 515-2.01

Dear Cindy:

Enclosed are the results of the sample submitted to our laboratory on April 12, 2018. For your reference, this analysis has been assigned our service request number P1801823.

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 Kate Kaneko at 1:50 pm, 04/26/18

Kate Kaneko
Project Manager



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Client: GeoSyntec Consultants
Project: Cascade SVE / PNG 0564 515-2.01

Service Request No: P1801823

CASE NARRATIVE

The sample was received intact under chain of custody on April 12, 2018 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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.



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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
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	4068-005
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-17-8
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA01627201 7-8
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: GeoSyntec Consultants
Project ID: Cascade SVE / PNG 0564 515-2.01

Service Request: P1801823

Date Received: 4/12/2018
Time Received: 13:22

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
VMWEFF-041018	P1801823-001	Air	4/10/2018	14:42	1SC00827	-1.93	7.09	X

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: GeoSyntec Consultants
Client Sample ID: VMWEFF-041018
Client Project ID: Cascade SVE / PNG 0564 515-2.01

ALS Project ID: P1801823
 ALS Sample ID: P1801823-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
 Analyst: Anusha Bayyrapu
 Sample Type: 1.0 L Summa Canister
 Test Notes:
 Container ID: 1SC00827

Date Collected: 4/10/18
 Date Received: 4/12/18
 Date Analyzed: 4/16/18
 Volume(s) Analyzed: 0.40 Liter(s)
 0.040 Liter(s)

Initial Pressure (psig): -1.93 Final Pressure (psig): 7.09

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	2.1	ND	0.84	
75-35-4	1,1-Dichloroethene	ND	2.1	ND	0.54	
156-59-2	cis-1,2-Dichloroethene	52	2.1	13	0.54	
79-01-6	Trichloroethene	770	21	140	4.0	D
127-18-4	Tetrachloroethene	62	2.1	9.1	0.32	

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.

D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: GeoSyntec Consultants
Client Sample ID: Method Blank
Client Project ID: Cascade SVE / PNG 0564 515-2.01

ALS Project ID: P1801823
 ALS Sample ID: P180416-MB

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
 Analyst: Anusha Bayyrapu
 Sample Type: 1.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 4/16/18
 Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result $\mu\text{g}/\text{m}^3$	MRL $\mu\text{g}/\text{m}^3$	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	

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

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: GeoSyntec Consultants
Client Project ID: Cascade SVE / PNG 0564 515-2.01

ALS Project ID: P1801823

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
 Analyst: Anusha Bayyrapu
 Sample Type: 1.0 L Summa Canister(s)
 Test Notes:

Date(s) Collected: 4/10/18
 Date(s) Received: 4/12/18
 Date(s) Analyzed: 4/16/18

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P180416-MB	93	102	96	70-130	
Lab Control Sample	P180416-LCS	92	102	97	70-130	
VMWEFF-041018	P1801823-001	92	104	96	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: GeoSyntec Consultants
Client Sample ID: Lab Control Sample
Client Project ID: Cascade SVE / PNG 0564 515-2.01

ALS Project ID: P1801823
 ALS Sample ID: P180416-LCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
 Analyst: Anusha Bayyrapu
 Sample Type: 1.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 4/16/18
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
75-01-4	Vinyl Chloride	211	156	74	63-127	
75-35-4	1,1-Dichloroethene	213	191	90	72-118	
156-59-2	cis-1,2-Dichloroethene	212	191	90	69-121	
79-01-6	Trichloroethene	212	180	85	69-112	
127-18-4	Tetrachloroethene	212	181	85	62-119	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.