

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001

**Service Request:** K1807404

**SAMPLE CROSS-REFERENCE**

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
K1807404-001	MW-15	8/6/2018	1500
K1807404-002	MW-17	8/6/2018	1230
K1807404-003	MW-18	8/6/2018	1100



## CHAIN OF CUSTODY

91636

001

SR# 1817404

COC Set of

COC#

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-685-7222 / FAX (360) 636-1068  
www.alsglobal.com

Page 1 of 1

Project Name: SIA		Project Number: 270-001	
Project Manager: GARY PANTHER			
Company: SES			
Address: 3808 E. Boone, Spokane, WA 99202			
Phone # 509-954-5090		Email: GARY@SPokaneENVIRONMENTAL.com	
Sampler Signature: [Signature]		Sampler Printed Name: GARY D. PANTHER	
NUMBER OF CONTAINERS		14D	
PFCL/3TM / PFOA			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Remarks			

<b>Report Requirements</b>		<b>Invoice Information</b>		<b>Circle which metals are to be analyzed</b>	
<input checked="" type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required		P.O.# 270-001		Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg	
<input type="checkbox"/> II. Report Dup., MS, MSD as required		Bill To: SES		Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg	
<input type="checkbox"/> III. CLP Like Summary (no raw data)		<b>Turnaround Requirements</b>		Special Instructions/Comments: <input type="checkbox"/> Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other (Circle One)	
<input type="checkbox"/> IV. Data Validation Report		Requested Report Date			
<input type="checkbox"/> V. EDD		<input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input checked="" type="checkbox"/> Standard			
<b>Relinquished By:</b>		<b>Received By:</b>		<b>Relinquished By:</b>	
Signature: [Signature]		Signature: [Signature]		Signature: [Signature]	
Printed Name: Gary D. Panther		Printed Name: [Signature]		Printed Name: [Signature]	
Firm: SES		Firm: [Signature]		Firm: [Signature]	
Date/Time: 8-6-18 1600		Date/Time: 8/8/18 1010		Date/Time: [Signature]	

PC CL

## Cooler Receipt and Preservation Form

Client SFS Service Request K18 074041  
 Received: 8/8/18 Opened: 8/8/18 By: [Signature] Unloaded: 8/8/18 By: [Signature]

1. Samples were received via? USPS FedEx UPS DHL PDX Courier Hand Delivered  
 2. Samples were received in: (circle) Cooler Box Envelope Other NA  
 3. Were custody seals on coolers? NA Y N If yes, how many and where? one, front  
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
13.4	13.5	13.2	13.3	+0.1	384		7227 2443 3404		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves  
 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N  
 6. Were samples received in good condition (temperature, unbroken)? Indicate in the table below. NA Y N  
 If applicable, tissue samples were received: Frozen Partially Thawed Thawed  
 7. Were all sample labels complete (i.e. analysis, preservation, etc.)? NA Y N  
 8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N  
 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N  
 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y N  
 11. Were VOA vials received without headspace? Indicate in the table below. NA Y N  
 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
<u>ALL</u>			<u>X</u>								

Notes, Discrepancies, & Resolutions:



## Miscellaneous Forms

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)

### **Inorganic Data Qualifiers**

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

### **Metals Data Qualifiers**

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

### **Organic Data Qualifiers**

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

### **Additional Petroleum Hydrocarbon Specific Qualifiers**

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**  
**State Certifications, Accreditations, and Licenses**

<b>Agency</b>	<b>Web Site</b>	<b>Number</b>
Alaska DEH	<a href="http://dec.alaska.gov/eh/lab/cs/csapproval.htm">http://dec.alaska.gov/eh/lab/cs/csapproval.htm</a>	UST-040
Arizona DHS	<a href="http://www.azdhs.gov/lab/license/env.htm">http://www.azdhs.gov/lab/license/env.htm</a>	AZ0339
Arkansas - DEQ	<a href="http://www.adeq.state.ar.us/techsvs/labcert.htm">http://www.adeq.state.ar.us/techsvs/labcert.htm</a>	88-0637
California DHS (ELAP)	<a href="http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx">http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx</a>	2795
DOD ELAP	<a href="http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm">http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm</a>	L16-58-R4
Florida DOH	<a href="http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm">http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm</a>	E87412
Hawaii DOH	<a href="http://health.hawaii.gov/">http://health.hawaii.gov/</a>	-
ISO 17025	<a href="http://www.pjllabs.com/">http://www.pjllabs.com/</a>	L16-57
Louisiana DEQ	<a href="http://www.deq.louisiana.gov/page/la-lab-accreditation">http://www.deq.louisiana.gov/page/la-lab-accreditation</a>	03016
Maine DHS	<a href="http://www.maine.gov/dhhs/">http://www.maine.gov/dhhs/</a>	WA01276
Minnesota DOH	<a href="http://www.health.state.mn.us/accreditation">http://www.health.state.mn.us/accreditation</a>	053-999-457
Nevada DEP	<a href="http://ndep.nv.gov/bsdwlabservice.htm">http://ndep.nv.gov/bsdwlabservice.htm</a>	WA01276
New Jersey DEP	<a href="http://www.nj.gov/dep/enforcement/oqa.html">http://www.nj.gov/dep/enforcement/oqa.html</a>	WA005
New York - DOH	<a href="https://www.wadsworth.org/regulatory/elap">https://www.wadsworth.org/regulatory/elap</a>	12060
North Carolina DEQ	<a href="https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification">https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification</a>	605
Oklahoma DEQ	<a href="http://www.deq.state.ok.us/CSDnew/labcert.htm">http://www.deq.state.ok.us/CSDnew/labcert.htm</a>	9801
Oregon – DEQ (NELAP)	<a href="http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx">http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx</a>	WA100010
South Carolina DHEC	<a href="http://www.scdhec.gov/environment/EnvironmentalLabCertification/">http://www.scdhec.gov/environment/EnvironmentalLabCertification/</a>	61002
Texas CEQ	<a href="http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html">http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html</a>	T104704427
Washington DOE	<a href="http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html">http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html</a>	C544
Wyoming (EPA Region 8)	<a href="https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water">https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water</a>	-
Kelso Laboratory Website	<a href="http://www.alsglobal.com">www.alsglobal.com</a>	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at [www.ALSGlobal.com](http://www.ALSGlobal.com) or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

## Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.  
dba ALS Environmental

Analyst Summary report

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001

**Service Request:** K1807404

**Sample Name:** MW-15  
**Lab Code:** K1807404-001  
**Sample Matrix:** Water

**Date Collected:** 08/6/18  
**Date Received:** 08/8/18

**Analysis Method**  
PFC/537M

**Extracted/Digested By**  
NHILLIKER

**Analyzed By**  
CMULLER

**Sample Name:** MW-17  
**Lab Code:** K1807404-002  
**Sample Matrix:** Water

**Date Collected:** 08/6/18  
**Date Received:** 08/8/18

**Analysis Method**  
PFC/537M

**Extracted/Digested By**  
NHILLIKER

**Analyzed By**  
CMULLER

**Sample Name:** MW-18  
**Lab Code:** K1807404-003  
**Sample Matrix:** Water

**Date Collected:** 08/6/18  
**Date Received:** 08/8/18

**Analysis Method**  
PFC/537M

**Extracted/Digested By**  
NHILLIKER

**Analyzed By**  
CMULLER





## Sample Results

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)



# High Performance Liquid Chromatography

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001  
**Sample Matrix:** Water

**Service Request:** K1807404  
**Date Collected:** 08/06/18 15:00  
**Date Received:** 08/08/18 10:10

**Sample Name:** MW-15  
**Lab Code:** K1807404-001

**Units:** ng/L  
**Basis:** NA

**Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS**

**Analysis Method:** PFC/537M  
**Prep Method:** EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
<b>Perfluoroalkane Sulfonic Acids</b>						
Perfluorooctane sulfonic acid (PFOS)	ND U	3.8	1	08/22/18 13:08	8/10/18	
<b>Perfluoroalkane Carboxylic Acids</b>						
Perfluorooctanoic acid (PFOA)	1.6	1.5	1	08/22/18 13:08	8/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	67	31 - 142	08/22/18 13:08	
13C4-PFOS	62	27 - 142	08/22/18 13:08	

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001  
**Sample Matrix:** Water

**Service Request:** K1807404  
**Date Collected:** 08/06/18 12:30  
**Date Received:** 08/08/18 10:10

**Sample Name:** MW-17  
**Lab Code:** K1807404-002

**Units:** ng/L  
**Basis:** NA

**Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS**

**Analysis Method:** PFC/537M  
**Prep Method:** EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
<b>Perfluoroalkane Sulfonic Acids</b>						
Perfluorooctane sulfonic acid (PFOS)	<b>6.2</b>	3.8	1	08/22/18 13:18	8/10/18	
<b>Perfluoroalkane Carboxylic Acids</b>						
Perfluorooctanoic acid (PFOA)	<b>3.9</b>	1.5	1	08/22/18 13:18	8/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	67	31 - 142	08/22/18 13:18	
13C4-PFOS	65	27 - 142	08/22/18 13:18	

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001  
**Sample Matrix:** Water

**Service Request:** K1807404  
**Date Collected:** 08/06/18 11:00  
**Date Received:** 08/08/18 10:10

**Sample Name:** MW-18  
**Lab Code:** K1807404-003

**Units:** ng/L  
**Basis:** NA

**Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS**

**Analysis Method:** PFC/537M  
**Prep Method:** EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
<b>Perfluoroalkane Sulfonic Acids</b>						
Perfluorooctane sulfonic acid (PFOS)	72	3.8	1	08/22/18 13:29	8/10/18	
<b>Perfluoroalkane Carboxylic Acids</b>						
Perfluorooctanoic acid (PFOA)	22	1.5	1	08/22/18 13:29	8/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	64	31 - 142	08/22/18 13:29	
13C4-PFOS	60	27 - 142	08/22/18 13:29	



## QC Summary Forms

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
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## High Performance Liquid Chromatography

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[www.alsglobal.com](http://www.alsglobal.com)

ALS Group USA, Corp.  
dba ALS Environmental

QA/QC Report

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001  
**Sample Matrix:** Water

**Service Request:** K1807404

**SURROGATE RECOVERY SUMMARY**

**Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS**

**Analysis Method:** PFC/537M

**Extraction Method:** EPA 3535A

Sample Name	Lab Code	13C4-PFOA	13C4-PFOS
		31-142	27-142
MW-15	K1807404-001	67	62
MW-17	K1807404-002	67	65
MW-18	K1807404-003	64	60
Method Blank	KQ1810863-03	85	75
Lab Control Sample	KQ1810863-01	79	72
Duplicate Lab Control Sample	KQ1810863-02	68	65



ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001  
**Sample Matrix:** Water

**Service Request:** K1807404  
**Date Collected:** NA  
**Date Received:** NA

**Sample Name:** Method Blank  
**Lab Code:** KQ1810863-03

**Units:** ng/L  
**Basis:** NA

**Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS**

**Analysis Method:** PFC/537M  
**Prep Method:** EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
<b>Perfluoroalkane Sulfonic Acids</b>						
Perfluorooctane sulfonic acid (PFOS)	ND U	5.0	1	08/22/18 10:52	8/10/18	
<b>Perfluoroalkane Carboxylic Acids</b>						
Perfluorooctanoic acid (PFOA)	ND U	2.0	1	08/22/18 10:52	8/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	85	31 - 142	08/22/18 10:52	
13C4-PFOS	75	27 - 142	08/22/18 10:52	

ALS Group USA, Corp.  
dba ALS Environmental

QA/QC Report

**Client:** Spokane Environmental Solutions, LLC  
**Project:** SIA/270-001  
**Sample Matrix:** Water

**Service Request:** K1807404  
**Date Analyzed:** 08/22/18  
**Date Extracted:** 08/10/18

**Duplicate Lab Control Sample Summary**  
**Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS**

**Analysis Method:** PFC/537M  
**Prep Method:** EPA 3535A

**Units:** ng/L  
**Basis:** NA  
**Analysis Lot:** 603453

Analyte Name	Lab Control Sample KQ1810863-01			Duplicate Lab Control Sample KQ1810863-02			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Perfluorooctane sulfonic acid (PFOS)	161	149	108	170	149	114	29-162	5	30
Perfluorooctanoic acid (PFOA)	134	160	84	174	160	109	52-147	26	30

**SITE ASSESSMENT REPORT**  
**Spokane International Airport**  
Spokane, WA

**APPENDIX B**

SES, 2019a. Limited Groundwater Assessment Park Drive Disposal Area.



3810 East Boone Avenue, Suite 101  
Spokane, Washington 99202  
509.688.5376

April 2, 2019

Mr. Matt Breen  
Spokane International Airport  
9000 West Airport Drive  
Spokane, Washington 99219

RE: Limited Groundwater Assessment Park Drive Disposal Area  
Spokane International Airport  
Spokane, Washington  
SIA Contract #19-43-9999-006-001-00  
SES Project No.:0270-002

Dear Mr. Breen:

Attached are the results and supporting documentation for the recent, limited groundwater monitoring event for perfluorinated chemicals and conventional chemistry contaminants of concern historically associated with this site. This monitoring event was conducted per your request to provide a snap shot of current shallow groundwater conditions beneath the Site. Samples were collected from historic groundwater monitoring wells installed in the 1990s on behalf of the Army Corps of Engineers.

SES understands that the site was formerly used as a borrow source, with an associated asphalt batch plant being located to the north. Later, portions of the site were used as a construction waste disposal site. The Site location is shown on **Figure 1**.

The latest Site Closure Summary was conducted by Herrera and Associates in 2003 which reported that the only contaminants of concern (COCs) exceeding the Model Toxics Control Act (MTCA) Method A cleanup criteria for unrestricted use in shallow groundwater were oil-range petroleum hydrocarbons and arsenic. Detections of TCE were also observed in samples collected from site wells but these detections were reported as 'minor and infrequent'. The last reported sampling of these wells was in 1999.

Our scope of work for this project included the following tasks:

- SES developed a Work Plan which dictated site sampling protocol. The Work plan included a sampling and analysis plan and a site-specific health and safety plan.
- Conducted one (1) groundwater sampling event on February 28, 2019. Groundwater samples were collected from the well pair from MW1-A and MW1-B.
- Groundwater samples were delivered to TestAmerica in Spokane, Washington for analysis of: diesel-range petroleum hydrocarbons by Northwest Method NWTPH-Dx, volatile organic compounds (VOCs) by EPA Method 8260, and total arsenic by EPA Methods 6000/7000. Sample containers collected for perfluorinated compounds were sent to ALS Global laboratory for analysis by EPA Method 537M. ALS is accredited by the Washington State Department of Ecology with the certification number C544. The samples were analyzed for PFOA and PFOS by USEPA Method 537M.

Samples were submitted on a standard turnaround time of 15-business days. SES reviewed the analytical data and no data usability issues were identified.

- Prepared this letter report presenting the results of the sampling event, compared the analytical results to national standards, and provided our conclusions and recommendations.

### **Groundwater Sampling**

Depth to water in each well was measured to the nearest 1/100<sup>th</sup> of a foot prior to sampling.

Depth to water was measured at 14.35 feet below top of casing in MW-1A and 13.23 feet below top of casing in MW-1B.

Groundwater samples were collected from each well using a peristaltic pump. Purging and sampling using low-flow sampling techniques where flow rates were generally about 0.2 to 0.3 liters per minute (l/min). The purge rate was adjusted to minimize the drawdown of groundwater in the wells during purging.

Groundwater levels were measured in the monitoring wells on February 28, 2019. Depth to water ranged from 13.23 to 14.35 feet below top of casing in monitoring wells MW-1B and MW-1A, respectively.

The well pair are located on the south side of the Site, north of the current pond. MW-1A is the deepest of the wells and has an installed depth of 83 feet. The well is screened from 65 - 75 feet. SES was not able to advance the sample tubing to the screened interval due to an obstruction in the well casing at about 50 feet below top of casing. This obstruction is likely a joint in the casing that has loosened over time and creates a ridge which does not allow the tubing to pass as it hangs on the sidewall. The well is screened into a deeper, semi-confined water-bearing unit. The connection, if any with the water-bearing unit sampled from MW-1B is not fully understood.

Monitoring well MW-1B has an installed depth of 65.5 feet and has screened intervals between 2.5 - 32.5 feet and from 35 – 45 feet. SES placed the sample tubing intake at approximately 20 feet for this sample.

Field parameters were measured with a Horiba-U52 water quality meter. Parameters include pH, conductivity, turbidity, dissolved oxygen (DO), temperature, and oxidation reduction potential (ORP). Once field parameters stabilized within 10% from reading to reading for each parameter, laboratory-prepared sample containers were filled with water from the wells, sealed, and placed on ice. Samples were shipped next-day delivery to the laboratory the same day as collected.

Monitoring well locations are shown on **Figure 2**. Boring logs and well construction information is included in **Attachment A - Boring Logs**.

### **Analytical Results**

PFOA and PFOS were not detected at a concentration exceeding the screening level of 70 ng/L in either sample.

Concentrations of BTEX, TCE and Dx did not exceed Method Reporting Limits (MRL) and/or MTCA Method A cleanup criteria in either sample.

Concentrations of total arsenic in groundwater samples did not exceed the MRL and/or MTCA Method A cleanup criteria in either sample.

Analytical results are shown on **Table 1 and Table 2**. Laboratory analytical reports are included in **Attachment B – Analytical Results**.

### **Summary**

The highest concentration of perfluorinated compounds was detected in the groundwater sample collected from MW-1B. This well is screened near-surface and groundwater is likely interconnected to surface water in the adjacent pond. In general, contaminants of concern in both wells do not exceed applicable cleanup criteria.

### **Limitations**

The findings and conclusions documented in this report have been prepared for specific application to this project and have been developed in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area and in general accordance with the terms and conditions set forth in our Agreement, and with the revised SES proposal dated February 9, 2019. No other warranty, express or implied, is made.

The findings presented in this report are based on conditions observed at specific site locations and sampling intervals at the time of the assessment. Because conditions between the wells and sampling intervals may vary over distance and time, the potential always remains for the presence of unknown, unidentified, unforeseen, or changed surface and subsurface contamination.

This report is for the exclusive use of Spokane International Airport and its representatives. No third party shall have the right to rely on SES's opinions rendered in connection with the services or in this document without our written consent and the third party's agreement to be bound to the same conditions and limitations as Spokane International Airport.

SES appreciates the opportunity to provide these services. Please contact the undersigned regarding any questions related to the information provided in this letter report.

Sincerely,

**Spokane Environmental Solutions, LLC.**



Gary D. Panther, LG, LEG

### **Attachments:**

**Figure 1:** Location Map

**Table 1:** Summary of Groundwater Analytical Results - PFOA-PFOS

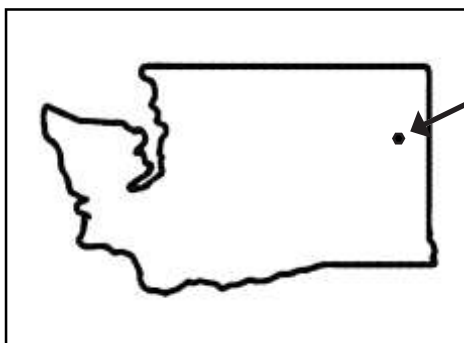
**Table 2:** Summary of Groundwater Analytical Results - Conventional Chemistry

**Attachment A:** Boring Logs

**Attachment B:** Analytical Results

## Figures





**SPOKANE**



**Notes:**

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. it is intended to assist in showing features discussed in an attached document.

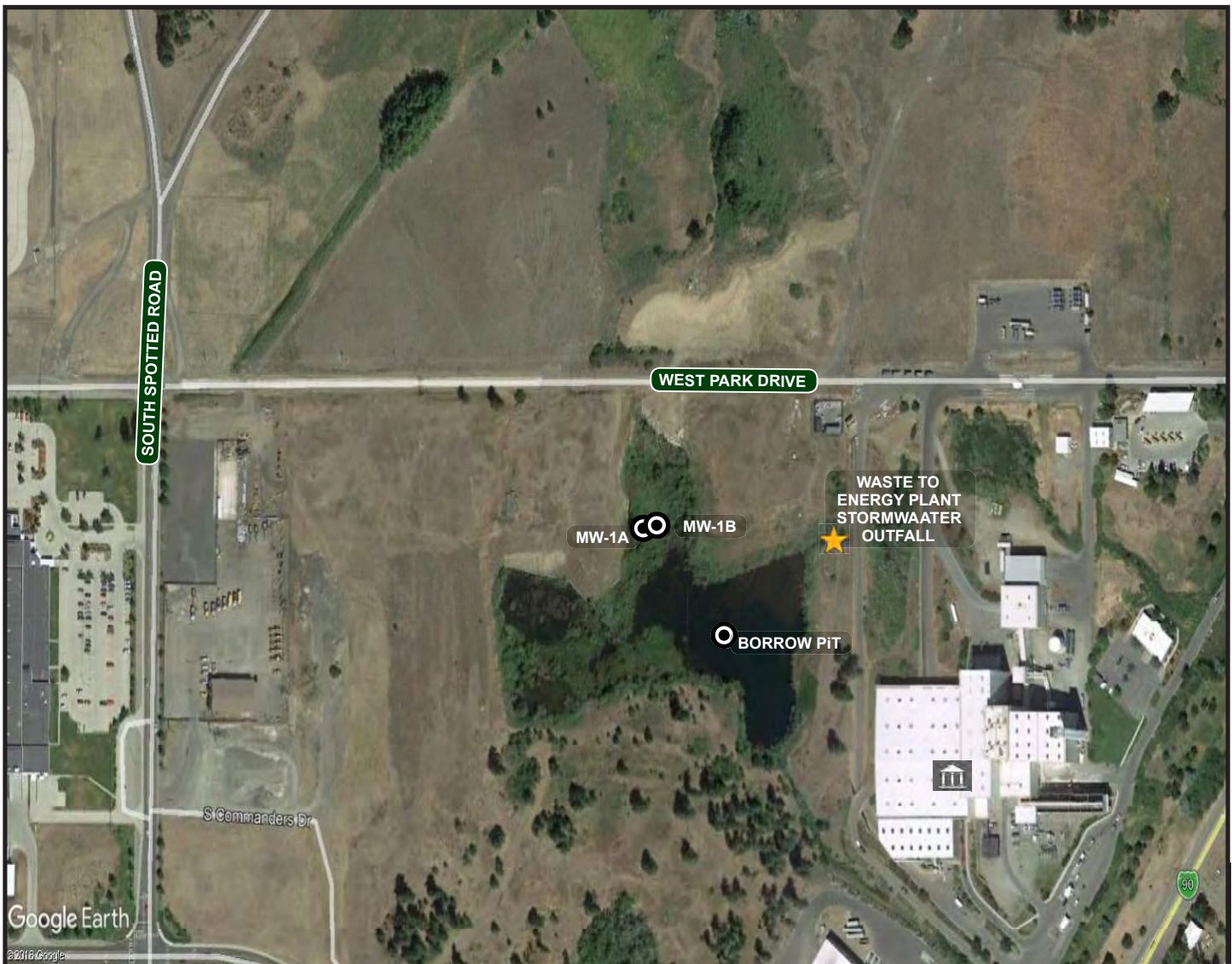
**LOCATION MAP**

SIA PARK DRIVE BORROW PIT  
LIMITED GROUNDWATER ASSESSMENT  
SPOKANE, WASHINGTON






**FIGURE 1**





**LEGEND:**

-  Monitoring Wells Sampled February 2019
-  Spokane Waste to Energy Plant
-  Waste to Energy Plant Stormwater Outfall



**Notes:**

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. it is intended to assist in showing features discussed in an attached document.

Source: Google Maps

**SAMPLE LOCATION MAP**

SIA PARK DRIVE BORROW PIT  
LIMITED GROUNDWATER ASSESSMENT  
SPOKANE, WASHINGTON



**FIGURE 2**