

ALS Environmental ALS Group USA, Corp 1317 South 13th Avenue Kelso, WA 98626 **T** : +1 360 577 7222 **F** : +1 360 636 1068 www.alsglobal.com

November 30, 2017

Analytical Report for Service Request No: K1712199

Gary Panther AECOM 528 E. Spokane Falls Boulevard, Suite 503 Spokane, WA 99202

RE: SIA New Wells / 60557313

Dear Gary,

Enclosed are the results of the sample(s) submitted to our laboratory November 09, 2017 For your reference, these analyses have been assigned our service request number **K1712199**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf Project Manager



ALS Environmental ALS Group USA, Corp 1317 South 13th Avenue Kelso, WA 98626 **T**: +1 360 577 7222 **F**: +1 360 636 1068 www.alsglobal.com

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Acronyms Qualifiers State Certifications, Accreditations, And Licenses Chain of Custody Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLCMS

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 MCL	Modified 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 tr	Total Petroleum Hydrocarbons Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

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.

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

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



Chain of Custody

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Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

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	Analytical R	eport
Client:	AECOM	Service Request: K1712199
Project:	SIA New Wells/60557313	Date Collected: 11/08/17 13:00
Sample Matrix:	Water	Date Received: 11/09/17 09:30
Sample Name:	MW-5	Units: ng/L
Lab Code:	K1712199-001	Basis: NA

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

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctanoic acid (PFOA)	66	1.8	1	11/22/17 22:27	11/15/17	
Perfluorooctane sulfonic acid (PFOS)	120	4.6	1	11/22/17 22:27	11/15/17	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	77	31 - 142	11/22/17 22:27	
13C4-PFOS	72	27 - 142	11/22/17 22:27	

Analytical Report **Client:** AECOM Service Request: K1712199 Date Collected: 11/08/17 12:00 **Project:** SIA New Wells/60557313 Sample Matrix: Water Date Received: 11/09/17 09:30 Sample Name: MW-13 Units: ng/L Lab Code: K1712199-002 Basis: NA

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

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctanoic acid (PFOA)	85	1.8	1	11/22/17 22:37	11/15/17	
Perfluorooctane sulfonic acid (PFOS)	72	4.6	1	11/22/17 22:37	11/15/17	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	70	31 - 142	11/22/17 22:37	
13C4-PFOS	70	27 - 142	11/22/17 22:37	

	An	alytical Report	
Client:	AECOM	Service Request: 4	K1712199
Project:	SIA New Wells/60557313	Date Collected: 1	11/08/17 11:00
Sample Matrix:	Water	Date Received: 1	11/09/17 09:30
Sample Name:	MW-14	Units: n	ng/L
Lab Code:	K1712199-003	Basis: N	NA

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

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctanoic acid (PFOA)	350	1.8	1	11/22/17 22:48	11/15/17	
Perfluorooctane sulfonic acid (PFOS)	50	4.5	1	11/22/17 22:48	11/15/17	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	65	31 - 142	11/22/17 22:48	
13C4-PFOS	71	27 - 142	11/22/17 22:48	

Analytical Report

Client:	AECOM	Service Request:	K1712199
Project:	SIA New Wells/60557313	Date Collected:	NA
Sample Matrix:	Water	Date Received:	NA
Sample Name:	Method Blank	Units:	ng/L
Lab Code:	KQ1717064-03	Basis:	NA

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

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctanoic acid (PFOA)	ND U	2.0	1	11/22/17 21:03	11/15/17	
Perfluorooctane sulfonic acid (PFOS)	ND U	5.0	1	11/22/17 21:03	11/15/17	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOA	73	31 - 142	11/22/17 21:03	
13C4-PFOS	67	27 - 142	11/22/17 21:03	

QA/QC Report

Service Request: K1712199

Client:AECOMProject:SIA New Wells/60557313Sample Matrix:Water

SURROGATE RECOVERY SUMMARY

Analysis Method:	PFC/537M
Extraction Method:	EPA 3535A

		13C4-PFOA	13C4-PFOS	
Sample Name	Lab Code	31 - 142	27 - 142	
MW-5	K1712199-001	77	72	
MW-13	K1712199-002	70	70	
MW-14	K1712199-003	65	71	
Lab Control Sample	KQ1717064-01	72	69	
Duplicate Lab Control Sample	KQ1717064-02	69	65	
Method Blank	KQ1717064-03	73	67	

QA/QC Report

Client:	AECOM	Service Request:	K1712199
Project:	SIA New Wells/60557313	Date Analyzed:	11/22/17
Sample Matrix:	Water	Date Extracted:	11/15/17

Duplicate Lab Control Sample Summary

Analysis Method:	PFC/537M	Units:	ng/L
Prep Method:	EPA 3535A	Basis:	NA
		Analysis Lot:	571129

	Lab K	Control Sam Q1717064-01	iple 1	Duplicate Lab Control Sample KQ1717064-02					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Perfluorooctane sulfonic acid (PFOS)	138	155	89	145	155	94	29-162	5	30
Perfluorooctanoic acid (PFOA)	164	167	98	170	167	102	52-147	4	30



SITE ASSESSMENT REPORT

Spokane International Airport

Spokane, WA

APPENDIX B.2

SES, 2018. 2018 Monitoring Well Installation and Groundwater Monitoring for Perfluorinated Chemicals.



September 10, 2018

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

RE: Monitoring Well Installation and Groundwater Monitoring for Perfluorinated Chemicals Spokane International Airport Spokane, Washington SIA Contract #18-43-9999-028-001-00 <u>SES Project No.:0270-001</u>

Dear Mr. Breen:

Attached are the results and supporting documentation for the recent, limited groundwater monitoring event for the perfluorinated chemicals, Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS). This monitoring event was conducted per your request so that Spokane International Airport's (SIA) could ascertain if detectable levels of perfluorinated chemicals are present in shallow groundwater beneath the airport. Samples were collected from newly installed monitoring wells MW-15, MW-17 and MW-18. Monitoring well MW-16 was observed to be dry and was not sampled.

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

- Contracted and provided oversight for the installation of additional monitoring wells with locations near the east property line of the Airport. Boring locations were screened for utilities by both public and private utility locate contractors. Monitoring wells were installed on July 30 and 31, 2018 by Geologic Drill, LLC, a Washingtonlicensed driller in accordance with applicable state regulations.
- Performed one limited groundwater monitoring and sampling event on August 6, 2018. Groundwater samples were collected from the three of the four new monitoring wells MW-15, MW-17 and MW-18. The locations of the wells are shown on Figure 1.
- Groundwater samples were shipped to ALS Global Laboratories' (ALS) laboratory in Kelso, Washington for analysis. 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.

Monitoring Well Installation

Three groundwater monitoring wells (MW-16, MW-17 and MW-18) were installed on July 30 with MW-15 being installed on July 31, 2018. The locations of the wells were approved prior to installation by SIA personnel. Utility clearance was conducted through the public One Call system, with specific boring locations cleared by Advance Underground Utility Locating (AUUL) prior to bringing the driller on site. Monitoring wells were installed using 2-inch diameter polyvinyl chloride screen and casing and were finished with aboveground steel monuments and protective bollards.

MW-15 is located in an undeveloped area west of the former USAF Ammo Storage area. The well is located in an inferred cross-gradient location to the Airport.

MW-16 is located in an undeveloped area west of runway 3/21. The well is located in an inferred up-gradient location to the Airport.

MW-17 is located in an undeveloped area south of runway 3/21. The well is located in an inferred up-gradient location to the Airport.

MW-18 is located in an area which was part of the former Geiger Field. The well is located in an inferred up-gradient location to the Airport.

Groundwater flow direction was not calculated for this event. Various studies have been conducted in support of the pending Stormwater Discharge Permit and each has concluded that the direction of flow for shallow groundwater across the site is generally northeasterly.

Monitoring well locations are shown on **Figure 1**. Boring logs and well construction information are included in **Attachment A - Boring Logs**.

Groundwater Sampling

Depth to water in each well was measured to the nearest 1/100th of a foot prior to sampling. Groundwater samples were collected from each well using a peristaltic pump. The new wells were purged for approximately one hour prior to measuring field parameters. Purging and sampling using low-flow sampling techniques where flow rates were generally about 0.3 to 0.5 liters per minute (I/min). The purge rate was adjusted to minimize the drawdown of groundwater in the wells during purging.

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.

Results

Groundwater levels were measured in the monitoring wells on August 6, 2018. Depth to water ranged from 10.32 to 15.52 feet bgs. Groundwater samples were collected from monitoring wells MW-15, MW-17 and MW-18. Monitoring well MW-16 was observed to be dry.

PFOA was not detected at a concentration exceeding the Method Reporting Limit in the sample collected from monitoring well MW-15. Only one sample (MW-18) collected from the three monitoring wells had detection of PFOS at a level exceeding the screening level of 70 ng\L.



Concentrations of PFOA/PFOS in the remaining samples did not exceed the 70 ng/L screening level.

Analytical results are shown on **Table 1** and the laboratory analytical report is included in **Attachment B – Analytical Results**.

Summary

The highest concentration of perfluorinated compounds was detected in the groundwater sample collected from MW-18. This well is located within the former Geiger Field area. Current and historic aviation practices appear to have impacted shallow groundwater quality in this portion of the Airport.

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 SES proposal dated July 2, 2018. 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: Spokane International Airport Additional Site Monitoring Wells
Table 1: Summary of Groundwater Analytical Results
Attachment A: Boring Logs
Attachment B: Analytical Results



Figures







Tables



 Table 1

 Summary of Groundwater Analytical Results

 Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS)

 Spokane International Airport

		Depth to Water	PFOA	PFOS
Well ID	Sample Date		(ng/L)	(ng/L)
	Groundwater Scree	ening Level (ng/L) ¹	70	70
MW-15	8/6/2018	10.32	<3.8	1.6
MW-16	8/6/2018	Dry		
MW-17	8/6/2018	15.52	6.2	3.9
MW-18	8/6/2018	10.56	72	22

Notes:

¹ Groundwater screening levels were obtained from EPA's "Fact Sheet, PFOA & PFOS Drinking Water Health Advisories," dated November 2016. Values in **bold** font indicate that the result reported meets or exceeds the groundwater screening level.

Depth to water measured from top of casing.

ng/L - nanogram per liter

PFOA - perfluorooctanoic acid

PFOS - perfluorooctane sulfonic acid

Samples analyzed by ALS Global Laboratories, Kelso, Washington.

Spokane Environmental Solutions, LLC

Attachment – A

Boring Logs



					SES Project Number: 0270-001	Spokane International Airports, New Wells PFOA-PFOS Assessment	Boring Number: MW-15 Well Tag: BKP-260
					Equipment Type/ model #: Mobile G-2	2400	Location NAD 83
					Auger type/diameter: 8-inch Hollow Stem		-117.552446 W
					Contractor: Geologic Drill, LLC		
					Sampling method: 2-inch SPT		Sheet 1 of 1
					Hammer Weight: 140 Lbs	Above-Grade	
	%			<u> </u>	Location of Boring: West of SE Ammo	Time 800	
Count	'ery	et in	hic	raph	Surface conditions/ Topsoil Depth: G	rass-covered.	
Blow 0	Recov	Depi	Grap -og	soil G JSCS	Material Description	Date 7/31/18	
2 2 4	80%	0		GM	Brown silty GRAVEL with sand. Loose	e, Dry. With organics.	
2-2-4	00%						
		1					
		2	1				
			1				
		3					
		4					
		'-	1				
3-10-9	50%	5		GP	Grey- brown GRAVEL with trace silt, L	_oose, Moist.	
		6					
		7					
			-				
		9	1				
		10		CD	Cray brown CRAVEL with trace site	anna Wat	
6-10-9	50%	10		GP	Grey- brown GRAVEL with trace slit, L	_oose, wet.	
		11					
		12]				
			-				
			1				
		14	1				
		15	-				
		"	1				
		16]				
			4				
			4				
		18	4				
]				
		19	4			_	
		20	1		Completed well depth is 12.0- feet bgs Well constructed with 5-feet of 20-slot	5. t screen.	
]				
		21	4				
				1	Boring Completed at 12-feet BGS. Gro	oundwater encountered at 10.0 feet	ogs.

					SES Project Number: 0270-001	Spokane International Airports, New Wells PFOA-PFOS Assessment	Boring Number: MW-16 Well Tag: BKP-263
					Equipment Type/ model #: Mobile G-2	2400	Location NAD 83
					Augestung/diamates: 9 inch Hollow S	tom	-117.558968 W
					Contractor: Geologic Drill, LLC	tem	
					Sampling method: 2-inch SPT		Sheet 1 of 1
					Hammer Weight: 140 Lbs		Above-Grade
	.0	1	1		Free Fall: 30"		Monument
ounts	ery %	in the second	ic	hde/	Location of Boring: East of S. Center Surface conditions/ Topsoil Depth: G	Road.	
ow C	CO V	Fee	apt og	il Gr			Date 7/30/18
₫	Re		۲Ģ	°S N	Material Description		
2-3-2	8%	0		SM	Brown silty SAND with occasional gra	avel. Loose, Moist. With organics.	
		1					
		2	-				
		" -	-				
		4					
6-7-7	8%	5		SM	Grey- brown SAND with trace silt, Loo	ose, Moist.	
		6					
		Ŭ					
		7	1				
			-				
50/0	0%	8		RX	Refusal on Basalt.		
		9					
			1				
		10					
		11	4				
		''⊢	-				
		12	1				
]				
		13	ł				
		14	ł				
		`` -	1				
		15]				
			ł				
		16	-				
		17	1				
			1				
		18]				
			ł				
		19	4		Completed well denth is 8 5- foot boo		
		20	1		Well constructed with 2.5-feet of 20-sl	lot screen.	
]				
		21	4		Boring Completed at 9.5 feet PCS. C	oundwator was not anoquistored	
		1	1	1	Borning Completed at 0.5-feet BGS. Gr	oundwater was not encountered.	

					SES Project Number: 0270-001	Spokane International Airports, New Wells PFOA-PFOS Assessment	Boring Number: MW-17 Well Tag: BKP-262
					Equipment Type/ model #: Mobile G-2	2400	Location NAD 83
					Annua (m. 1/1) - material (m. 1) - h Hallow Otam		47.604917 N, -117.552602 W
					Auger type/diameter: 8-inch Hollow St Contractor: Geologic Drill, LLC	tem	
					Sampling method: 2-inch SPT		Sheet 1 of 1
					Hammer Weight: 140 Lbs		Above-Grade
	-	1		-	Free Fall: 30"		Monument
unts	ry %	.=	<u>.</u>	/yd	Location of Boring: South of W. Electr	ric Avenue.	Time 1000
K Co	ove	epth Fee	aph g	S Gra	Surface conditions/ Topsoli Deptn: Gr	ass-covered.	Date 7/30/18
Blo	Rec		L G	Soil USC	Material Description		
		0		SM	Brown silty SAND with occasional gra	vel. Loose, Moist. With organics.	
		2	•				
		3					
		4					
		5		SP	Grey- brown SAND with trace silt, Loo	ose, Moist.	
3-3-4	80%						
		6					
		7					
		8					
		9					
		10		SD	Grov- brown SAND with occasional gr	avol Modium.doneo Moist	
11-11-19	70%	10		Jor I	Grey- brown SAND with occasional gr	avel, mealan-aense, moist.	
		11					
		12					
		40					
		13					
		14					
15-19-26	80%	15		SP	Grey- brown SAND with occasional gr	avel, Medium-dense, Wet.	
		16					
		10					
		17					
		18					
		19					
40.44.40		20		sм	Brown silty SAND with occasional gra	vel. Medium-dense, Wet.	
10-11-12	90%				Completed well depth is 25.0- feet bgs	s.	
		21			Well constructed with 10-feet of 20-slo	ot screen.	4 h
					Boring Completed at 25.0-feet BGS. G	roundwater encountered at 15.5 fee	t bgs.

					SES Project Number: 0270-001	Spokane International Airports, New Wells PFOA-PFOS Assessment	Boring Number: MW-18 Well Tag: BKP-261
					Equipment Type/ model #: Mobile G-24	400	Location NAD 83
					Auger type/diameter: 8-inch Hollow Stem		-117.517124 W
					Contractor: Geologic Drill, LLC		
					Sampling method: 2-inch SPT		Sheet 1 of 1
					Hammer Weight: 140 Lbs		Above-Grade
<i>w</i>	%			<u> </u>	Location of Boring: South of W. Electri	ic Avenue.	Time 1300
Count	/ery	th in	hic	raph	Surface conditions/ Topsoil Depth: Gra	ass-covered.	
Blow 0	Recov	Dep	Grap - og	soil G JSCS	Material Description		Date 7/30/18
	-	0		GM	Brown silty Gravel with sand. Loose, D	ry. With organics.	
			4				
			-				
		2	1				
		3	-				
		4					
3-7-9	60%	5		GM	Grey- brown silty GRAVEL with sand, I	∟oose, Dry.	
		6					
		7	-				
		8					
		9	-				
40.40.45		10		SP	Grey- brown SAND, Loose, Wet.	Becomes weathered Basalt	
10-12-15	70%			_			
		11		Rx	Weathered Basalt, Refusal at 13.0 feet	has	
		12				.	
			1				
		13	-				
		14	1				
			1				
		15	4				
		16	1				
			1				
		17	4				
		18	-				
			1				
		19	4				
		20	-		Completed well depth is 12.0- feet bgs. Well constructed with 5-feet of 20-slot	screen.	
			1				
		21	4		Paring Completed at 42 0 fact DCC. Or	aundwater an accustored at 40 C.f	than
					Boring Completed at 13.0-feet BGS. Gr	oundwater encountered at 10.0 fee	ເມ່ຽວ.

Attachment – B

Analytical Results

Ses SPOKANE ENVIRONMENTAL SOLITIONS





Gary Panther Spokane Environmental Solutions, LLC 3810 E. Boone Avenue, Ste 101 Spokane, WA 99202

Laboratory Results or: SIA

Dear Gary,

Enclosed are the results of the sample(s) submitted to our laboratory August 08, 2018 For your reference, these analyses have been assigned our service request number **K1**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf ALSGlobal.com.

Respectfully submitted,

ALS Group SA, Corp. dba ALS Environmental

noe D. Dan

for Chris Leaf Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 PHO E 1 360 577 7222 FA 1 360 636 1068 ALS Group SA, Corp. dba ALS Environmental



Narrative Documents

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

RIGHT SOLUTIONS | RIGHT PARTNER



Client:	Spokane Environmental Solutions, L	LC	Service Request:	K1807404
Project:	SIA		Date Received:	08/08/2018
Sample Matrix:	Water			
		CASE NARRATIVE		

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS).

Sample Receipt:

Three water samples were received for analysis at ALS Environmental on 08/08/2018. The samples were received in good condition and consistent with the accompanying chain of custody form except as noted on the cooler receipt and preservation form included in this report. Please note that these samples were received above the recommended cooler temperature of six degrees C. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Organic LC:

No significant anomalies were noted with this analysis.

Approved by

noe D. Dan

Date 08/31/2018



SAMPLE DETECTIO S MMARY

CLIE TID: MW-1		Lab	D: K1	- 1		
Analyte	Results	Flag	MDL	MRL	nits	Method
Perfluorooctanoic acid (PFOA)	1.6			1.5	ng/L	PFC/537M
CLIE TID: MW-1		Lab	D: K1	-		
Analyte	Results	Flag	MDL	MRL	nits	Method
Perfluorooctanoic acid (PFOA)	3.9			1.5	ng/L	PFC/537M
Perfluorooctane sulfonic acid (PFOS)	6.2			3.8	ng/L	PFC/537M
CLIE TID: MW-1		Lab	D: K1	-		
Analyte	Results	Flag	MDL	MRL	nits	Method
Perfluorooctanoic acid (PFOA)	22			1.5	ng/L	PFC/537M
Perfluorooctane sulfonic acid (PFOS)	72			3.8	ng/L	PFC/537M



Sample Receipt Information

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

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