Laboratory Report of Analysis

To: Kenai Watershed Forum
44129 Sterling Highway
Soldotna, AK 99669
(907)260-5449

Report Number: **1194283**

Client Project: **Kenai River Water Quality**

Dear Branden Bornemann,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Justin Nelson
2019.08.20
17:18:58 -08'00'

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

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Case Narrative

SGS Client: **Kenai Watershed Forum**
SGS Project: **1194283**
Project Name/Site: **Kenai River Water Quality**
Project Contact: **Branden Bornemann**

Refer to sample receipt form for information on sample condition.

KWF-Bing's Landing (1194283001) PS

Calcium, Iron and Magnesium by 200.7 were analyzed by ALS of Kelso, WA.

LCS for HBN 1797362 [VXX/34565 (1523100) LCS

8260C - LCS recoveries for vinyl chloride and 1,1-dichloroethene do not meet QC criteria. These analytes were not detected above the LOQ in the associated samples.

LCSD for HBN 1797362 [VXX/3456 (1523101) LCSD

8260C - LCSD recovery for vinyl chloride does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1194397001MSD (1524595) MSD

4500NO3-F - Nitrate/Nitrite - MSD recovery for Total Nitrite / Nitrate is outside of QC criteria. Refer to LCS for accuracy requirements.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

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Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification, and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
KWF-Bing's Landing	1194283001	07/29/2019	07/31/2019	Water (Surface, Eff., Ground)
KWF-Upstream Of Dow Island	1194283002	07/29/2019	07/31/2019	Water (Surface, Eff., Ground)
KWF-Mouth Of Killey	1194283003	07/29/2019	07/31/2019	Water (Surface, Eff., Ground)
KWF-Skilak Lake Outflow	1194283004	07/29/2019	07/31/2019	Water (Surface, Eff., Ground)
Trip Blank	1194283005	07/29/2019	07/31/2019	Water (Surface, Eff., Ground)

Method	Method Description
EPA 602/624	602 Aromatics by 624 (W)
SM21 4500NO3-F	Nitrate/Nitrite Flow injection Pres.
SM21 4500P-B,E	Total Phosphorus (W)

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Detectable Results Summary

Client Sample ID: **KWF-Bing's Landing**
Lab Sample ID: 1194283001
Waters Department

Parameter	Result	Units
Total Nitrate/Nitrite-N	0.186J	mg/L
Total Phosphorus	0.0118J	mg/L

Client Sample ID: **KWF-Upstream Of Dow Island**
Lab Sample ID: 1194283002
Waters Department

Parameter	Result	Units
Total Nitrate/Nitrite-N	0.220	mg/L
Total Phosphorus	0.00650J	mg/L

Client Sample ID: **KWF-Mouth Of Killey**
Lab Sample ID: 1194283003
Waters Department

Parameter	Result	Units
Total Nitrate/Nitrite-N	0.0998J	mg/L
Total Phosphorus	0.0163J	mg/L

Client Sample ID: **KWF-Skilak Lake Outflow**
Lab Sample ID: 1194283004
Waters Department

Parameter	Result	Units
Total Nitrate/Nitrite-N	0.175J	mg/L

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Results of **KWF-Bing's Landing**

Client Sample ID: **KWF-Bing's Landing**
Client Project ID: **Kenai River Water Quality**
Lab Sample ID: 1194283001
Lab Project ID: 1194283

Collection Date: 07/29/19 06:41
Received Date: 07/31/19 16:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		08/02/19 19:55
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/02/19 19:55
o-Xylene	0.500	U	1.00	0.310	ug/L	1		08/02/19 19:55
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		08/02/19 19:55
Toluene	0.500	U	1.00	0.310	ug/L	1		08/02/19 19:55
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		08/02/19 19:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.6		81-118		%	1		08/02/19 19:55
4-Bromofluorobenzene (surr)	98.3		85-114		%	1		08/02/19 19:55
Toluene-d8 (surr)	101		89-112		%	1		08/02/19 19:55

Batch Information

Analytical Batch: VMS19262
Analytical Method: EPA 602/624
Analyst: CMC
Analytical Date/Time: 08/02/19 19:55
Container ID: 1194283001-C

Prep Batch: VXX34565
Prep Method: SW5030B
Prep Date/Time: 08/02/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **KWF-Bing's Landing**

Client Sample ID: **KWF-Bing's Landing**
Client Project ID: **Kenai River Water Quality**
Lab Sample ID: 1194283001
Lab Project ID: 1194283

Collection Date: 07/29/19 06:41
Received Date: 07/31/19 16:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.186	J	0.200	0.0500	mg/L	2		08/09/19 14:50

Batch Information

Analytical Batch: WFI2832
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 08/09/19 14:50
Container ID: 1194283001-A

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Phosphorus	0.0118	J	0.0200	0.00500	mg/L	1		08/10/19 10:13

Batch Information

Analytical Batch: WDA4625
Analytical Method: SM21 4500P-B,E
Analyst: DMM
Analytical Date/Time: 08/10/19 10:13
Container ID: 1194283001-A

Prep Batch: WXX12965
Prep Method: SM21 4500P-B,E
Prep Date/Time: 08/09/19 12:02
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Print Date: 08/20/2019 9:42:55AM

J flagging is activated

Results of **KWF-Upstream Of Dow Island**

Client Sample ID: **KWF-Upstream Of Dow Island**
Client Project ID: **Kenai River Water Quality**
Lab Sample ID: 1194283002
Lab Project ID: 1194283

Collection Date: 07/29/19 07:02
Received Date: 07/31/19 16:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200 U		0.400	0.120	ug/L	1		08/01/19 19:29
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		08/01/19 19:29
o-Xylene	0.500 U		1.00	0.310	ug/L	1		08/01/19 19:29
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		08/01/19 19:29
Toluene	0.500 U		1.00	0.310	ug/L	1		08/01/19 19:29
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		08/01/19 19:29
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		08/01/19 19:29
4-Bromofluorobenzene (surr)	98.6		85-114		%	1		08/01/19 19:29
Toluene-d8 (surr)	93.7		89-112		%	1		08/01/19 19:29

Batch Information

Analytical Batch: VMS19249
Analytical Method: EPA 602/624
Analyst: CMC
Analytical Date/Time: 08/01/19 19:29
Container ID: 1194283002-C

Prep Batch: VXX34564
Prep Method: SW5030B
Prep Date/Time: 08/01/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **KWF-Upstream Of Dow Island**

Client Sample ID: **KWF-Upstream Of Dow Island**
Client Project ID: **Kenai River Water Quality**
Lab Sample ID: 1194283002
Lab Project ID: 1194283

Collection Date: 07/29/19 07:02
Received Date: 07/31/19 16:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.220		0.200	0.0500	mg/L	2		08/09/19 14:52

Batch Information

Analytical Batch: WFI2832
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 08/09/19 14:52
Container ID: 1194283002-A

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Phosphorus	0.00650	J	0.0200	0.00500	mg/L	1		08/10/19 10:14

Batch Information

Analytical Batch: WDA4625
Analytical Method: SM21 4500P-B,E
Analyst: DMM
Analytical Date/Time: 08/10/19 10:14
Container ID: 1194283002-A

Prep Batch: WXX12965
Prep Method: SM21 4500P-B,E
Prep Date/Time: 08/09/19 12:02
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Results of **KWF-Mouth Of Killey**

Client Sample ID: **KWF-Mouth Of Killey**
Client Project ID: **Kenai River Water Quality**
Lab Sample ID: 1194283003
Lab Project ID: 1194283

Collection Date: 07/29/19 07:15
Received Date: 07/31/19 16:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.0998	J	0.200	0.0500	mg/L	2		08/09/19 14:54

Batch Information

Analytical Batch: WFI2832
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 08/09/19 14:54
Container ID: 1194283003-A

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Phosphorus	0.0163	J	0.0200	0.00500	mg/L	1		08/10/19 10:15

Batch Information

Analytical Batch: WDA4625
Analytical Method: SM21 4500P-B,E
Analyst: DMM
Analytical Date/Time: 08/10/19 10:15
Container ID: 1194283003-A

Prep Batch: WXX12965
Prep Method: SM21 4500P-B,E
Prep Date/Time: 08/09/19 12:02
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Print Date: 08/20/2019 9:42:55AM

J flagging is activated

Results of **KWF-Skilak Lake Outflow**

Client Sample ID: **KWF-Skilak Lake Outflow**
Client Project ID: **Kenai River Water Quality**
Lab Sample ID: 1194283004
Lab Project ID: 1194283

Collection Date: 07/29/19 07:37
Received Date: 07/31/19 16:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.175	J	0.200	0.0500	mg/L	2		08/09/19 14:56

Batch Information

Analytical Batch: WFI2832
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 08/09/19 14:56
Container ID: 1194283004-A

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Phosphorus	0.0100	U	0.0200	0.00500	mg/L	1		08/10/19 10:15

Batch Information

Analytical Batch: WDA4625
Analytical Method: SM21 4500P-B,E
Analyst: DMM
Analytical Date/Time: 08/10/19 10:15
Container ID: 1194283004-A

Prep Batch: WXX12965
Prep Method: SM21 4500P-B,E
Prep Date/Time: 08/09/19 12:02
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kenai River Water Quality**
Lab Sample ID: 1194283005
Lab Project ID: 1194283

Collection Date: 07/29/19 06:41
Received Date: 07/31/19 16:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200 U		0.400	0.120	ug/L	1		08/01/19 17:46
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		08/01/19 17:46
o-Xylene	0.500 U		1.00	0.310	ug/L	1		08/01/19 17:46
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		08/01/19 17:46
Toluene	0.500 U		1.00	0.310	ug/L	1		08/01/19 17:46
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		08/01/19 17:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		08/01/19 17:46
4-Bromofluorobenzene (surr)	102		85-114		%	1		08/01/19 17:46
Toluene-d8 (surr)	89.4		89-112		%	1		08/01/19 17:46

Batch Information

Analytical Batch: VMS19249
Analytical Method: EPA 602/624
Analyst: CMC
Analytical Date/Time: 08/01/19 17:46
Container ID: 1194283005-A

Prep Batch: VXX34564
Prep Method: SW5030B
Prep Date/Time: 08/01/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1797336 [VXX/34564]
Blank Lab ID: 1523008

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1194283002, 1194283005

Results by **EPA 602/624**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	95.6	85-114		%
Toluene-d8 (surr)	92.4	89-112		%

Batch Information

Analytical Batch: VMS19249
Analytical Method: EPA 602/624
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 8/1/2019 2:50:00PM

Prep Batch: VXX34564
Prep Method: SW5030B
Prep Date/Time: 8/1/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Leaching Blank

Blank ID: LB for HBN 1797218 [TCLP/10171
Blank Lab ID: 1522545

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1194283002, 1194283005

Results by **EPA 602/624**

Parameter	Results	LOQ/CL	DL	Units
Benzene	10.0U	20.0	6.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	105	81-118		%
4-Bromofluorobenzene (surr)	97.5	85-114		%
Toluene-d8 (surr)	92	89-112		%

Batch Information

Analytical Batch: VMS19249
Analytical Method: EPA 602/624
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 8/1/2019 6:45:00PM

Prep Batch: VXX34564
Prep Method: SW5030B
Prep Date/Time: 8/1/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1194283 [VXX34564]
Blank Spike Lab ID: 1523009
Date Analyzed: 08/01/2019 15:20

Spike Duplicate ID: LCSD for HBN 1194283 [VXX34564]
Spike Duplicate Lab ID: 1523010
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1194283002, 1194283005

Results by **EPA 602/624**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	26.8	90	30	27.6	92	(79-120)	2.70	(< 20)
Ethylbenzene	30	26.6	89	30	27.2	91	(79-121)	2.60	(< 20)
o-Xylene	30	25.6	85	30	26.9	90	(78-122)	4.80	(< 20)
P & M -Xylene	60	53.2	89	60	54.7	91	(80-121)	2.70	(< 20)
Toluene	30	24.8	83	30	26.2	87	(80-121)	5.30	(< 20)
Xylenes (total)	90	78.8	88	90	81.6	91	(79-121)	3.40	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	102	102	30	101	101	(81-118)	0.56	
4-Bromofluorobenzene (surr)	30	94.7	95	30	97.8	98	(85-114)	3.20	
Toluene-d8 (surr)	30	94.7	95	30	96.7	97	(89-112)	2.10	

Batch Information

Analytical Batch: **VMS19249**
Analytical Method: **EPA 602/624**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX34564**
Prep Method: **SW5030B**
Prep Date/Time: **08/01/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 08/20/2019 9:42:58AM

Method Blank

Blank ID: MB for HBN 1797362 [VXX/34565]
Blank Lab ID: 1523099

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1194283001

Results by **EPA 602/624**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	107	81-118		%
4-Bromofluorobenzene (surr)	95.6	85-114		%
Toluene-d8 (surr)	95.4	89-112		%

Batch Information

Analytical Batch: VMS19262
Analytical Method: EPA 602/624
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 8/2/2019 2:31:00PM

Prep Batch: VXX34565
Prep Method: SW5030B
Prep Date/Time: 8/2/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Leaching Blank

Blank ID: LB for HBN 1797319 [TCLP/10176
Blank Lab ID: 1522933

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1194283001

Results by **EPA 602/624**

Parameter	Results	LOQ/CL	DL	Units
Benzene	10.0U	20.0	6.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	98.9	81-118		%
4-Bromofluorobenzene (surr)	99.1	85-114		%
Toluene-d8 (surr)	101	89-112		%

Batch Information

Analytical Batch: VMS19262
Analytical Method: EPA 602/624
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 8/2/2019 8:24:00PM

Prep Batch: VXX34565
Prep Method: SW5030B
Prep Date/Time: 8/2/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Method Blank

Blank ID: SPW for HBN 1797317 [TCLP/1017
Blank Lab ID: 1522913

Matrix: Solid/Soil (Wet Weight)

QC for Samples:
1194283001

Results by **EPA 602/624**

Parameter	Results	LOQ/CL	DL	Units
Benzene	10.0U	20.0	6.00	ug/L
Ethylbenzene	25.0U	50.0	15.5	ug/L
o-Xylene	25.0U	50.0	15.5	ug/L
P & M -Xylene	50.0U	100	31.0	ug/L
Toluene	25.0U	50.0	15.5	ug/L
Xylenes (total)	75.0U	150	50.0	ug/L

Batch Information

Analytical Batch: VMS19262
Analytical Method: EPA 602/624
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 8/2/2019 8:09:00PM

Prep Batch: VXX34565
Prep Method: SW5030B
Prep Date/Time: 8/2/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1194283 [VXX34565]
Blank Spike Lab ID: 1523100
Date Analyzed: 08/02/2019 14:46

Spike Duplicate ID: LCSD for HBN 1194283 [VXX34565]
Spike Duplicate Lab ID: 1523101
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1194283001

Results by **EPA 602/624**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	28.0	93	30	27.6	92	(79-120)	1.50	(< 20)
Ethylbenzene	30	28.5	95	30	27.7	93	(79-121)	2.60	(< 20)
o-Xylene	30	27.9	93	30	27.6	92	(78-122)	1.10	(< 20)
P & M -Xylene	60	56.2	94	60	56.2	94	(80-121)	0.01	(< 20)
Toluene	30	26.8	89	30	26.4	88	(80-121)	1.70	(< 20)
Xylenes (total)	90	84.1	93	90	83.8	93	(79-121)	0.37	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	103	103	30	103	103	(81-118)	0.12	
4-Bromofluorobenzene (surr)	30	97	97	30	96	96	(85-114)	0.99	
Toluene-d8 (surr)	30	96.3	96	30	97.7	98	(89-112)	1.50	

Batch Information

Analytical Batch: **VMS19262**
Analytical Method: **EPA 602/624**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX34565**
Prep Method: **SW5030B**
Prep Date/Time: **08/02/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 08/20/2019 9:43:02AM

Method Blank

Blank ID: MB for HBN 1797709 (WFI/2832)
Blank Lab ID: 1524804

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500NO3-F**

Parameter	Results	LOQ/CL	DL	Units
Nitrate-N	0.100U	0.200	0.0500	mg/L
Nitrite-N	0.100U	0.200	0.0500	mg/L
Total Nitrate/Nitrite-N	0.100U	0.200	0.0500	mg/L

Batch Information

Analytical Batch: WFI2832
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 8/9/2019 2:28:09PM

Method Blank

Blank ID: MB for HBN 1797709 (WFI/2832)
Blank Lab ID: 1524806

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500NO3-F**

Parameter	Results	LOQ/CL	DL	Units
Nitrate-N	0.100U	0.200	0.0500	mg/L
Nitrite-N	0.100U	0.200	0.0500	mg/L
Total Nitrate/Nitrite-N	0.100U	0.200	0.0500	mg/L

Batch Information

Analytical Batch: WFI2832
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 8/9/2019 3:34:39PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1194283 [WFI2832]
Blank Spike Lab ID: 1524803
Date Analyzed: 08/09/2019 14:26

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500NO3-F**

Blank Spike (mg/L)

Parameter	Spike	Result	Rec (%)	CL
Nitrate-N	2.5	2.52	101	(70-130)
Nitrite-N	2.5	2.58	103	(90-110)
Total Nitrate/Nitrite-N	5	5.10	102	(90-110)

Batch Information

Analytical Batch: **WFI2832**
Analytical Method: **SM21 4500NO3-F**
Instrument: **Astoria segmented flow**
Analyst: **EWW**

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1194283 [WFI2832]
Blank Spike Lab ID: 1524805
Date Analyzed: 08/09/2019 15:32

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500NO3-F**

Blank Spike (mg/L)

Parameter	Spike	Result	Rec (%)	CL
Nitrate-N	2.5	2.52	101	(70-130)
Nitrite-N	2.5	2.67	107	(90-110)
Total Nitrate/Nitrite-N	5	5.18	104	(90-110)

Batch Information

Analytical Batch: **WFI2832**
Analytical Method: **SM21 4500NO3-F**
Instrument: **Astoria segmented flow**
Analyst: **EWW**

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Matrix Spike Summary

Original Sample ID: 1194397001
MS Sample ID: 1524594 MS
MSD Sample ID: 1524595 MSD

Analysis Date: 08/09/2019 15:08
Analysis Date: 08/09/2019 15:10
Analysis Date: 08/09/2019 15:11
Matrix: Drinking Water

QC for Samples: 1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500NO3-F**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Total Nitrate/Nitrite-N	8.14	20.0	29.3	106	20.0	30.5	112 *	90-110	3.90	(< 25)

Batch Information

Analytical Batch: WFI2832
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 8/9/2019 3:10:09PM

Print Date: 08/20/2019 9:43:06AM

Method Blank

Blank ID: MB for HBN 1797823 [WXX/12965]
Blank Lab ID: 1525029

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500P-B,E**

Parameter	Results	LOQ/CL	DL	Units
Total Phosphorus	0.00640J	0.0200	0.00500	mg/L

Batch Information

Analytical Batch: WDA4625
Analytical Method: SM21 4500P-B,E
Instrument: Discrete Analyzer 2
Analyst: DMM
Analytical Date/Time: 8/10/2019 9:49:49AM

Prep Batch: WXX12965
Prep Method: SM21 4500P-B,E
Prep Date/Time: 8/9/2019 12:02:00PM
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1194283 [WXX12965]
Blank Spike Lab ID: 1525030
Date Analyzed: 08/10/2019 09:50

Spike Duplicate ID: LCSD for HBN 1194283 [WXX12965]
Spike Duplicate Lab ID: 1525031
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500P-B,E**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Total Phosphorus	0.2	0.193	97	0.2	0.182	91	(75-125)	6.10	(< 25)

Batch Information

Analytical Batch: **WDA4625**
Analytical Method: **SM21 4500P-B,E**
Instrument: **Discrete Analyzer 2**
Analyst: **DMM**

Prep Batch: **WXX12965**
Prep Method: **SM21 4500P-B,E**
Prep Date/Time: **08/09/2019 12:02**
Spike Init Wt./Vol.: 0.2 mg/L Extract Vol: 25 mL
Dupe Init Wt./Vol.: 0.2 mg/L Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1194182001
MS Sample ID: 1525032 MS
MSD Sample ID: 1525033 MSD

Analysis Date: 08/10/2019 9:52
Analysis Date: 08/10/2019 9:53
Analysis Date: 08/10/2019 9:54
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1194283001, 1194283002, 1194283003, 1194283004

Results by **SM21 4500P-B,E**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Total Phosphorus	0.0200U	0.200	.185	93	0.200	0.181	90	75-125	2.60	(< 25)

Batch Information

Analytical Batch: WDA4625
Analytical Method: SM21 4500P-B,E
Instrument: Discrete Analyzer 2
Analyst: DMM
Analytical Date/Time: 8/10/2019 9:53:41AM

Prep Batch: WXX12965
Prep Method: Total Phosphorus (W) Ext.
Prep Date/Time: 8/9/2019 12:02:00PM
Prep Initial Wt./Vol.: 25.00mL
Prep Extract Vol: 25.00mL

Print Date: 08/20/2019 9:43:10AM

SGS

CH

1194283

Locations Nationwide
Alaska Maryland
New Jersey New York
North Carolina Florida

www.us.sgs.com

Profile 362575 QM

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 1

Section 1

CLIENT: Kenai Watershed Forum

CONTACT: Maggie Havings — PHONE #: 907-260-5449 x1207

PROJECT NAME: Kenai River Water Quality — PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Maggie Havings — E-MAIL: maggie@kenaiwatershed.org

INVOICE TO: Kenai Watershed Forum — QUOTE #: — P.O. #:

Section 3 — Preservative

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Comp Grab MI (Multi-incremental)	H2SO4: SM4500 - Nitrate+Nitrate, Total Phosphorus	HNO3: EPA 200.7 - Ca, Mg, Fe <Ref Lab>	HNO3: EPA 200.8 - Dissolved As, Cd, Cr, Cu, Pb, Zn	HCl: EPA 624 - BTEX	REMARKS/LOC ID
1 AE	KWF - Bing's Landing	7-29-19	6:41am		3	grab	X	X		Y	
2 AE	KWF - upstream of Dow Island	7-29-19	7:02am		3	grab	X	X		Y	
3 AE	KWF - Mouth of Killey	7-29-19	7:15am		2	grab	X	X			
4 AE	KWF - Skilak Lake outflow	7-29-19	7:37am		2	grab	X	X			
5 AC											

Section 5

	Date	Time	
Relinquished By: (1)	7-29-19	8:30am	Received By:
Relinquished By: (2)	7-30-19	11:10am	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	7-31-19	16:40	Received For Laboratory By:

Section 4 — DOD Project? Yes No — Data Deliverable Requirements: —

Cooler ID:

Requested Turnaround Time and/or Special Instructions: —

Temp Blank °C: 3.5 DSR or Ambient [ ]

Chain of Custody Seal: (Circle) 2F INTACT BROKEN ABSENT

Delivery Method: Hand Delivery[ ] Commerical Delivery[ ]

e-Sample Receipt Form

SGS Workorder #: **1194283**

1194283

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	2F
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?		
**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 3.5 °C Therm. ID: D58
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1194283001-A	H2SO4 to pH < 2	OK			
1194283001-B	HNO3 to pH < 2	OK			
1194283001-C	HCL to pH < 2	OK			
1194283001-D	HCL to pH < 2	OK			
1194283001-E	HCL to pH < 2	OK			
1194283002-A	H2SO4 to pH < 2	OK			
1194283002-B	HNO3 to pH < 2	OK			
1194283002-C	HCL to pH < 2	OK			
1194283002-D	HCL to pH < 2	OK			
1194283002-E	HCL to pH < 2	OK			
1194283003-A	H2SO4 to pH < 2	OK			
1194283003-B	HNO3 to pH < 2	OK			
1194283004-A	H2SO4 to pH < 2	OK			
1194283004-B	HNO3 to pH < 2	OK			
1194283005-A	HCL to pH < 2	OK			
1194283005-B	HCL to pH < 2	OK			
1194283005-C	HCL to pH < 2	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

August 15, 2019 Service Request No:K1907049

Julie Shumway
SGS North America, Inc.
200 West Potter Drive
Anchorage, AK 99518

Laboratory Results for: 1194283

Dear Julie,

Enclosed are the results of the sample(s) submitted to our laboratory August 02, 2019
For your reference, these analyses have been assigned our service request number **K1907049.**

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 3364. You may also contact me via email at howard.holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, 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

ALS Environmental

Client: SGS North America, Inc. (SGS Environmental) **Service Request:** K1907049
Project: 1194283 **Date Received:** 08/02/2019
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 for the Tier II level requested by the client.

Sample Receipt:

Four water samples were received for analysis at ALS Environmental on 08/02/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

No significant anomalies were noted with this analysis.

Approved by  Date 08/15/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: KWF-Bing's Landing			Lab ID: K1907049-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Calcium	11.3		0.003	0.021	mg/L	200.7
Iron	0.511		0.008	0.021	mg/L	200.7
Magnesium	1.04		0.0004	0.0053	mg/L	200.7

CLIENT ID: KWF-Upstream of Dow Island			Lab ID: K1907049-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Calcium	11.3		0.003	0.021	mg/L	200.7
Iron	0.555		0.008	0.021	mg/L	200.7
Magnesium	1.05		0.0004	0.0053	mg/L	200.7

CLIENT ID: KWF-Mouth of Killey			Lab ID: K1907049-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Calcium	8.87		0.003	0.021	mg/L	200.7
Iron	1.26		0.008	0.021	mg/L	200.7
Magnesium	1.29		0.0004	0.0053	mg/L	200.7

CLIENT ID: KWF-Skilak Lake Outflow			Lab ID: K1907049-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Calcium	11.7		0.003	0.021	mg/L	200.7
Iron	0.269		0.008	0.021	mg/L	200.7
Magnesium	0.968		0.0004	0.0053	mg/L	200.7

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

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide

Alaska	Florida
New Jersey	Colorado
Texas	North Carolina
Virginia	Louisiana

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CLIENT:	SGS North America Inc. - Alaska Division	SGS Reference:	**ALS Kelso**
CONTACT:	Julie Shumway	PHONE NO: (907) 562-2343	Additional Comments: All soils report out in dry weight unless
PROJECT NAME:	1194283	PWSID#:	
		NPDL#:	
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com; Env.Alaska.RefLabTeam@sgs.com	
INVOICE TO:	SGS - Alaska	QUOTE #:	
		P.O. #: 1194283	

Page 1 of 1

K1907049

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/ MATRIX CODE	# CONTAINERS	Preserv-ative Used:	Calcium by 200.7 <Ref Lab>	Iron by 200.7 <Ref Lab>	Magnesium by 200.7 <Ref Lab>		MS	MSD	SGS lab #	Location ID
						TYPE C = COMP G = GRAB MI = Multi Incre-mental Soils								
	KWF-Bing's Landing	07/29/2019	06:41:00	Water	1		X	X	X				1194283001	
	KWF-Upstream Of Dow Island	07/29/2019	07:02:00	Water	1		X	X	X				1194283002	
	KWF-Mouth Of Killey	07/29/2019	07:15:00	Water	1		X	X	X				1194283003	
	KWF-Skilak Lake Outflow	07/29/2019	07:15:00	Water	1		X	X	X				1194283004	

Relinquished By: (1)	Date 8/2/19	Time 0925	Received By:	DOD Project? NO	Data Deliverable Requirements: LVL 2
Relinquished By: (2)	Date	Time	Received By:	Report to DL (J Flags)? YES If J- Report as DL/LOD/LOQ.	Cooler ID:
Relinquished By: (3)	Date	Time	Received By:	Requested Turnaround Time and-or Special Instructions:	
Relinquished By: (4)	Date 8/1/19	Time 0943	Received For Laboratory By:	Temp Blank °C: _____ or Ambient [ ]	Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

[X] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301

[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms_and_conditions.htm

ALS

PC H2

Cooler Receipt and Preservation Form

Client SGS Service Request *K19* 07049

Received: 8/2/19 Opened: 8/2/19 By: A Unloaded: 8/2/19 By: D

1. Samples were received via? *USPS* *Fed Ex* (*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? 2 sides
   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 (NA)	Tracking Number NA	Filed
3.5	3.7	2.6	2.8	+0.2	371		1ZA8619W0216833744	

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

Notes, Discrepancies, & Resolutions: _____

Miscellaneous Forms

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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

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
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
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/EnvironmentalLaboratoryAccreditation/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.

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.

Client: SGS North America, Inc. (SGS Environmental) **Service Request:** K1907049
Project: 1194283/

Sample Name: KWF-Bing's Landing **Date Collected:** 07/29/19
Lab Code: K1907049-001 **Date Received:** 08/2/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.7	YZOOK	JCHAN

Sample Name: KWF-Upstream of Dow Island **Date Collected:** 07/29/19
Lab Code: K1907049-002 **Date Received:** 08/2/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.7	YZOOK	JCHAN

Sample Name: KWF-Mouth of Killey **Date Collected:** 07/29/19
Lab Code: K1907049-003 **Date Received:** 08/2/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.7	YZOOK	JCHAN

Sample Name: KWF-Skilak Lake Outflow **Date Collected:** 07/29/19
Lab Code: K1907049-004 **Date Received:** 08/2/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.7	YZOOK	JCHAN

Sample Results

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Metals

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Analytical Report

Client:	SGS North America, Inc. (SGS Environmental)	**Service Request:**	K1907049
Project:	1194283	**Date Collected:**	07/29/19 06:41
Sample Matrix:	Water	**Date Received:**	08/02/19 09:25
Sample Name:	KWF-Bing's Landing	**Basis:**	NA
Lab Code:	K1907049-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	**11.3**	mg/L	0.021	0.003	1	08/07/19 10:50	08/06/19	
Iron	200.7	**0.511**	mg/L	0.021	0.008	1	08/07/19 10:50	08/06/19	
Magnesium	200.7	**1.04**	mg/L	0.0053	0.0004	1	08/07/19 10:50	08/06/19	

Analytical Report

Client:	SGS North America, Inc. (SGS Environmental)	**Service Request:**	K1907049
Project:	1194283	**Date Collected:**	07/29/19 07:02
Sample Matrix:	Water	**Date Received:**	08/02/19 09:25
Sample Name:	KWF-Upstream of Dow Island	**Basis:**	NA
Lab Code:	K1907049-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	**11.3**	mg/L	0.021	0.003	1	08/07/19 11:06	08/06/19	
Iron	200.7	**0.555**	mg/L	0.021	0.008	1	08/07/19 11:06	08/06/19	
Magnesium	200.7	**1.05**	mg/L	0.0053	0.0004	1	08/07/19 11:06	08/06/19	

Analytical Report

Client:	SGS North America, Inc. (SGS Environmental)	**Service Request:**	K1907049
Project:	1194283	**Date Collected:**	07/29/19 07:15
Sample Matrix:	Water	**Date Received:**	08/02/19 09:25
Sample Name:	KWF-Mouth of Killey	**Basis:**	NA
Lab Code:	K1907049-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	**8.87**	mg/L	0.021	0.003	1	08/07/19 11:09	08/06/19	
Iron	200.7	**1.26**	mg/L	0.021	0.008	1	08/07/19 11:09	08/06/19	
Magnesium	200.7	**1.29**	mg/L	0.0053	0.0004	1	08/07/19 11:09	08/06/19	

Analytical Report

Client:	SGS North America, Inc. (SGS Environmental)	**Service Request:**	K1907049
Project:	1194283	**Date Collected:**	07/29/19 07:15
Sample Matrix:	Water	**Date Received:**	08/02/19 09:25
Sample Name:	KWF-Skilak Lake Outflow	**Basis:**	NA
Lab Code:	K1907049-004		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	**11.7**	mg/L	0.021	0.003	1	08/07/19 11:12	08/06/19	
Iron	200.7	**0.269**	mg/L	0.021	0.008	1	08/07/19 11:12	08/06/19	
Magnesium	200.7	**0.968**	mg/L	0.0053	0.0004	1	08/07/19 11:12	08/06/19	

QC Summary Forms

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Analytical Report

Client:	SGS North America, Inc. (SGS Environmental)	**Service Request:**	K1907049
Project:	1194283	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1910864-05		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	ND U	mg/L	0.021	0.003	1	08/07/19 10:45	08/06/19	
Iron	200.7	ND U	mg/L	0.021	0.008	1	08/07/19 10:45	08/06/19	
Magnesium	200.7	ND U	mg/L	0.0053	0.0004	1	08/07/19 10:45	08/06/19	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	SGS North America, Inc. (SGS Environmental)	**Service Request:**	K1907049
Project:	1194283	**Date Collected:**	07/29/19
Sample Matrix:	Water	**Date Received:**	08/02/19
		Date Analyzed:	08/7/19
		Date Extracted:	08/6/19

Matrix Spike Summary
Total Metals

Sample Name:	KWF-Bing's Landing	**Units:**	mg/L
Lab Code:	K1907049-001	**Basis:**	NA
Analysis Method:	200.7		
Prep Method:	EPA CLP ILM04.0		

Matrix Spike
KQ1910864-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Calcium	11.3	21.3	10.0	100	70-130
Iron	0.511	1.47	1.00	96	70-130
Magnesium	1.04	10.8	10.0	98	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	SGS North America, Inc. (SGS Environmental)	**Service Request:**	K1907049
Project	1194283	**Date Collected:**	07/29/19
Sample Matrix:	Water	**Date Received:**	08/02/19
		Date Analyzed:	08/07/19

Replicate Sample Summary
Total Metals

Sample Name:	KWF-Bing's Landing	**Units:**	mg/L
Lab Code:	K1907049-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ1910864-01 Result	Average	RPD	RPD Limit
Calcium	200.7	0.021	0.003	11.3	11.4	11.4	<1	20
Iron	200.7	0.021	0.008	0.511	0.494	0.503	3	20
Magnesium	200.7	0.0053	0.0004	1.04	1.03	1.04	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: SGS North America, Inc. (SGS Environmental) **Service Request:** K1907049
Project: 1194283 **Date Analyzed:** 08/07/19
Sample Matrix: Water

Lab Control Sample Summary
Total Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ1910864-06

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Calcium	200.7	12.1	12.5	97	85-115
Iron	200.7	2.42	2.50	97	85-115
Magnesium	200.7	12.1	12.5	97	85-115