

Permits

From: Angela Love
Sent: Wednesday, June 1, 2016 11:00 AM
To: Permits
Subject: FW: Oil Water Separator Tank Results
Attachments: GK authorization letter water discharge May 31 2016 with COA attached.pdf

File: MV2005L2-0015

Hi Elaine,

Can you please put a copy of the below email as well as the attached documents into the file as well as onto the public registry under:

1. Permit-Licence-Other Issuances
External Authorizations

Titled:
MV2005L2-0015 – De Beers Gahcho Kue – Inspectors Authorization to Discharge Water within the Controlled Area - May 31_16

Thanks,
Angela

From: Andrew Howton [mailto:Andrew_Howton@gov.nt.ca]
Sent: May-31-16 4:03 PM
To: Kramers, Patrick <Patrick.Kramers@debeersgroup.com>
Cc: Marty Sanderson <Marty_Sanderson@gov.nt.ca>; Angela Love <angela.love@mvlwb.com>
Subject: RE: Oil Water Separator Tank Results

Hello Patrick,

Please see the attached letter authorizing the discharge of the Oil Water Separator Storage Tank water towards Area 4.

Thank you.

Andrew Howton
Resource Management Officer III
North Slave Regional Office
Department of Lands
Government of the Northwest Territories
#140 Bristol Avenue, Yellowknife Airport
Yellowknife NT, X1A 3T2

Phone: 867-767-9187 ext 24189
Cell: 867-444-6719
Email: andrew_howton@gov.nt.ca

From: Kramers, Patrick [<mailto:Patrick.Kramers@debeersgroup.com>]
Sent: Tuesday, May 31, 2016 3:51 PM
To: Andrew Howton
Subject: Oil Water Separator Tank Results

Hi Andrew

Please find attached, the results of the composite sample taken from the Oil Water Separator Storage Tank (100,000L). Results have been broken down into BTEX, F-Fractions and TPH for ease of reference. No exceedence of license parameters related to hydrocarbons were noted in the results. We are seeking authorization to discharge this water over the tundra at a location which drains towards the Water Management Pond.

I've also included the results in a summary table below.

Analyte (mg/L)	100,000L O/W Separator Storage Tank
Benzene	<0.00050
Ethylbenzene	<0.00050
Xylene	<0.00071
Toluene	<0.00050
F1 (C6-C10)	<0.10
F2 (C10-C16)	1.5
F3 (C16-C34)	1.45
F4 (C34-C50)	<0.25
TPH (C6-C50)	2.95

Thanks
Patrick

Patrick Kramers

Environmental Superintendent / Gahcho Kué Project

The De Beers Group of Companies

Suite 300, 5120 49th Street
Yellowknife, NT X1A 1P8

Tel: 416 645 1695 ext.6622
Cell:867 445 9065

www.debeersgroup.com/canada



16 Yellowknife Airport
Yellowknife, NT. X1A 3T2

Phone: (867)767-9187 ext. 24189
Fax: (867)446-0768

File: **MV2005L2-0015**

May 31st, 2016.

The De Beers Group of Companies
300-5120 49th Street
Yellowknife, NT.
X1A 1P8.

Attention: Patrick Kramers,
Environmental Superintendent, Gahcho Kué.

Re: Authorization to directly discharge water within the controlled area boundary.

Dear Mr. Kramers:

This letter is in response to the request submitted by the DeBeers Group of Companies on May 31st, 2016 seeking authorization to directly discharge water within the controlled area boundary from the Oil Water Separator Storage Tank (100,000L).

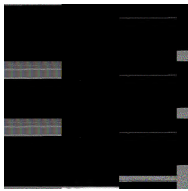
I have reviewed the Water License (MV2005L2-0015), the Operational Water Management Plan section 2.4.4 and the analytical results for the water in the contained areas and have determined that it is acceptable to directly discharge the water within the controlled area boundary as requested. As stated in the request the discharge must be directed towards Area 4 and steps will be taken to ensure that no erosion results from the discharge.

If you have any questions or concerns do not hesitate to contact me at (867) 767-9187 ext. 24189 or Andrew_Howton@gov.nt.ca.

Sincerely,

Andrew Howton
Inspector (Resource Management Officer III),
North Slave District, GNWT

cc. *Marty Sanderson; Angela Love*



De Beers Canada Inc.
ATTN: Rob Mellow / Ryan Marshall
Gahcho Kue Mine c/o Deton'Cho Logistics
101 McMillan Street, PO Box 2608
Yellowknife NT X1A 2P9

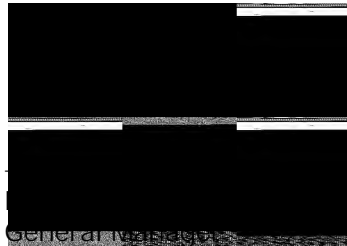
Date Received: 24-MAY-16
Report Date: 30-MAY-16 13:39 (MT)
Version: FINAL REV. 2

Client Phone: 867-873-6970

Certificate of Analysis


Lab Work Order #: L1772442
Project P.O. #: 42-547
Job Reference: 100,000L TANK
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 30-MAY-16 13:32



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ADDRESS: 314 Old Airport Road, Unit 116, Yellowknife, NT, X1A 3T3, Canada | Phone: +1 867 873 5593 |

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1772442-1 water 24-MAY-16 10:15 100,000 L			
Grouping	Analyte				
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)	4.95			
	Total Suspended Solids (mg/L)	15.7			
	Total Dissolved Solids (mg/L)	59			
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.501			
	Chloride (Cl) (mg/L)	2.14			
	Fluoride (F) (mg/L)	0.114			
	Nitrate (as N) (mg/L)	0.0150			
	Phosphorus (P)-Total (mg/L)	0.0869			
	Sulfate (SO4) (mg/L)	1.16			
Total Metals	Aluminum (Al)-Total (mg/L)	1.33			
	Antimony (Sb)-Total (mg/L)	0.00053			
	Arsenic (As)-Total (mg/L)	0.000117			
	Barium (Ba)-Total (mg/L)	0.00424			
	Beryllium (Be)-Total (mg/L)	<0.00020			
	Bismuth (Bi)-Total (mg/L)	<0.000050			
	Boron (B)-Total (mg/L)	<0.010			
	Cadmium (Cd)-Total (mg/L)	0.0000144			
	Calcium (Ca)-Total (mg/L)	1.29			
	Chromium (Cr)-Total (mg/L)	0.00069			
	Cobalt (Co)-Total (mg/L)	0.00011			
	Copper (Cu)-Total (mg/L)	0.00261			
	Iron (Fe)-Total (mg/L)	0.650			
	Lead (Pb)-Total (mg/L)	0.000614			
	Lithium (Li)-Total (mg/L)	0.0024			
	Magnesium (Mg)-Total (mg/L)	0.421			
	Manganese (Mn)-Total (mg/L)	0.00473			
	Molybdenum (Mo)-Total (mg/L)	0.00609			
	Nickel (Ni)-Total (mg/L)	0.00031			
	Phosphorus (P)-Total (mg/L)	<0.30			
	Potassium (K)-Total (mg/L)	13.8			
	Selenium (Se)-Total (mg/L)	<0.00010			
	Silicon (Si)-Total (mg/L)	0.905			
	Silver (Ag)-Total (mg/L)	<0.000010			
	Sodium (Na)-Total (mg/L)	6.35			
	Strontium (Sr)-Total (mg/L)	0.00305			
	Thallium (Tl)-Total (mg/L)	<0.000050			
	Tin (Sn)-Total (mg/L)	<0.00010			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1772442-1			
Grouping	Analyte				
WATER					
Total Metals	Titanium (Ti)-Total (mg/L)	0.013			
	Uranium (U)-Total (mg/L)	0.000172			
	Zinc (Zn)-Total (mg/L)	0.0369			
Volatile Organic Compounds	Benzene (mg/L)	<0.00050			
	Ethylbenzene (mg/L)	<0.00050			
	Toluene (mg/L)	<0.00050			
	o-Xylene (mg/L)	<0.00050			
	m+p-Xylene (mg/L)	<0.00050			
	Xylenes (mg/L)	<0.00071			
	F1(C6-C10) (mg/L)	<0.10			
	F1-BTEX (mg/L)	<0.10			
	Surrogate: 4-Bromofluorobenzene (SS) (%)	88.0			
	Surrogate: 3,4-Dichlorotoluene (SS) (%)	95.0			
Surrogate: 1,4-Difluorobenzene (SS) (%)	98.0				
Hydrocarbons	F2 (>C10-C16) (mg/L)	1.50			
	F3 (C16-C34) (mg/L)	1.45			
	F4 (C34-C50) (mg/L)	<0.25			
	TPH (C6-C50) (mg/L)	2.95			
	Surrogate: 2-Bromobenzotrifluoride (%)	92.5			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
RWHS	Samples Received With Headspace - BTX,F1 received in 60mL vials with headspace.

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Nitrate (as N)	MS-B	L1772442-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BE-T-L-CCMS-VA	Water	Total Be (Low) in Water by CRC ICPMS Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.	EPA 200.2/6020A (mod)
BTX,F1-ED	Water	BTEX and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level) Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
F-IC-N-VA	Water	Fluoride in Water by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
F2,F3,F4-ED	Water	F2, F3, F4 Water samples are spiked with 2-BBTF surrogate, and extracted by reciprocal action shaker for 30 minutes using a single micro-extraction with 2 mL hexane. After extraction, hexane extracts are dispensed into GC vials for GC-FID analysis.	EPA 3510/CCME PHC CWS-GC-FID
FE-TOT-LOW-ICP-VA	Water	Total Fe in Water by ICPOES This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).	EPA SW-846 3005A/6010B
HARDNESS-CALC-VA	Water	Hardness Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.	APHA 2340B
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.	EPA 200.2/6020A (mod)
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).	EPA SW-846 3005A/6010B
MET-TOT-ULTRA-MS-VA	Water	Total Metals in Water by ICPMS (Ultra) This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).	EPA SW-846 3005A/6020A
NH3-CFA-ED	Water	Ammonia in Water by Colour This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.	APHA 4500 NH3-NITROGEN (AMMONIA)
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level) Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)

Reference Information

P-T-L-COL-ED	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
SO4-L-IC-N-VA	Water	Sulfate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TPH(C6-C50)-CALC-ED	Water	Total Petroleum Hydrocarbons (C6-C50)	CCME CWS-PHC, Pub #1310, Dec 2001
TPH (C6-C50) is determined as the sum of CCME F1, F2, F3 and F4. The CCME F2-F4 test includes an in-situ silica gel cleanup to remove polar organic constituents that are not representative of petroleum hydrocarbons. Even after silica gel cleanup, some non-petroleum source hydrocarbons may be detected by this test.			
TSS-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540D
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1772442

Report Date: 30-MAY-16

Page 1 of 8

Client: De Beers Canada Inc.
 Gahcho Kue Mine c/o Deton'Cho Logistics 101 McMillan Street, PO Box
 2608
 Yellowknife NT X1A 2P9
 Contact: Rob Mellow / Ryan Marshall

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BE-T-L-CCMS-VA		Water						
Batch	R3466445							
WG2315676-2	LCS							
Beryllium (Be)-Total			102.9		%		80-120	27-MAY-16
WG2315676-1	MB							
Beryllium (Be)-Total			<0.000020		mg/L		0.00002	27-MAY-16
BTX,F1-ED		Water						
Batch	R3465590							
WG2314368-2	LCS							
Benzene			109.2		%		70-130	26-MAY-16
Toluene			111.5		%		70-130	26-MAY-16
Ethylbenzene			113.0		%		70-130	26-MAY-16
o-Xylene			112.1		%		70-130	26-MAY-16
m+p-Xylene			106.7		%		70-130	26-MAY-16
WG2314368-3	LCS							
F1(C6-C10)			87.1		%		70-130	26-MAY-16
WG2314368-6	LCS							
Benzene			112.6		%		70-130	26-MAY-16
Toluene			114.5		%		70-130	26-MAY-16
Ethylbenzene			108.2		%		70-130	26-MAY-16
o-Xylene			105.9		%		70-130	26-MAY-16
m+p-Xylene			107.5		%		70-130	26-MAY-16
WG2314368-7	LCS							
F1(C6-C10)			88.9		%		70-130	26-MAY-16
WG2314368-1	MB							
Benzene			<0.00050		mg/L		0.0005	26-MAY-16
Toluene			<0.00050		mg/L		0.0005	26-MAY-16
Ethylbenzene			<0.00050		mg/L		0.0005	26-MAY-16
o-Xylene			<0.00050		mg/L		0.0005	26-MAY-16
m+p-Xylene			<0.00050		mg/L		0.0005	26-MAY-16
F1(C6-C10)			<0.10		mg/L		0.1	26-MAY-16
Surrogate: 1,4-Difluorobenzene (SS)			97.0		%		70-130	26-MAY-16
Surrogate: 4-Bromofluorobenzene (SS)			93.0		%		70-130	26-MAY-16
Surrogate: 3,4-Dichlorotoluene (SS)			96.0		%		70-130	26-MAY-16
WG2314368-5	MB							
Benzene			<0.00050		mg/L		0.0005	26-MAY-16
Toluene			<0.00050		mg/L		0.0005	26-MAY-16
Ethylbenzene			<0.00050		mg/L		0.0005	26-MAY-16

Quality Control Report

Workorder: L1772442

Report Date: 30-MAY-16

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX,F1-ED		Water						
Batch	R3465590							
WG2314368-5	MB							
o-Xylene			<0.00050		mg/L		0.0005	26-MAY-16
m+p-Xylene			<0.00050		mg/L		0.0005	26-MAY-16
F1(C6-C10)			<0.10		mg/L		0.1	26-MAY-16
Surrogate: 1,4-Difluorobenzene (SS)			97.0		%		70-130	26-MAY-16
Surrogate: 4-Bromofluorobenzene (SS)			88.0		%		70-130	26-MAY-16
Surrogate: 3,4-Dichlorotoluene (SS)			98.0		%		70-130	26-MAY-16
CL-L-IC-N-VA		Water						
Batch	R3465657							
WG2315346-16	LCS							
Chloride (Cl)			103.2		%		90-110	26-MAY-16
WG2315346-2	LCS							
Chloride (Cl)			103.2		%		90-110	26-MAY-16
WG2315346-1	MB							
Chloride (Cl)			<0.10		mg/L		0.1	26-MAY-16
WG2315346-11	MB							
Chloride (Cl)			<0.10		mg/L		0.1	26-MAY-16
WG2315346-14	MB							
Chloride (Cl)			<0.10		mg/L		0.1	26-MAY-16
WG2315346-5	MB							
Chloride (Cl)			<0.10		mg/L		0.1	26-MAY-16
WG2315346-8	MB							
Chloride (Cl)			<0.10		mg/L		0.1	26-MAY-16
F-IC-N-VA		Water						
Batch	R3465657							
WG2315346-16	LCS							
Fluoride (F)			99.7		%		90-110	26-MAY-16
WG2315346-2	LCS							
Fluoride (F)			99.6		%		90-110	26-MAY-16
WG2315346-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAY-16
WG2315346-11	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAY-16
WG2315346-14	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAY-16
WG2315346-5	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAY-16
WG2315346-8	MB							

Quality Control Report

Workorder: L1772442

Report Date: 30-MAY-16

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-VA								
Water								
Batch R3465657								
WG2315346-8 MB								
Fluoride (F)			<0.020		mg/L		0.02	26-MAY-16
F2,F3,F4-ED								
Water								
Batch R3466405								
WG2314293-2 LCS								
F2 (>C10-C16)			124.2		%		70-130	25-MAY-16
F3 (C16-C34)			119.1		%		70-130	25-MAY-16
F4 (C34-C50)			119.6		%		70-130	25-MAY-16
WG2314293-1 MB								
F2 (>C10-C16)			<0.10		mg/L		0.1	25-MAY-16
F3 (C16-C34)			<0.25		mg/L		0.25	25-MAY-16
F4 (C34-C50)			<0.25		mg/L		0.25	25-MAY-16
Surrogate: 2-Bromobenzotrifluoride			86.0		%		60-140	25-MAY-16
FE-TOT-LOW-ICP-VA								
Water								
Batch R3466429								
WG2315676-2 LCS								
Iron (Fe)-Total			97.0		%		80-120	27-MAY-16
WG2315676-1 MB								
Iron (Fe)-Total			<0.010		mg/L		0.01	27-MAY-16
MET-T-CCMS-VA								
Water								
Batch R3466445								
WG2315676-2 LCS								
Aluminum (Al)-Total			102.2		%		80-120	27-MAY-16
Antimony (Sb)-Total			106.1		%		80-120	27-MAY-16
Barium (Ba)-Total			105.6		%		80-120	27-MAY-16
Bismuth (Bi)-Total			102.9		%		80-120	27-MAY-16
Boron (B)-Total			97.1		%		80-120	27-MAY-16
Cadmium (Cd)-Total			103.6		%		80-120	27-MAY-16
Calcium (Ca)-Total			99.9		%		80-120	27-MAY-16
Chromium (Cr)-Total			103.9		%		80-120	27-MAY-16
Cobalt (Co)-Total			101.2		%		80-120	27-MAY-16
Copper (Cu)-Total			99.4		%		80-120	27-MAY-16
Lead (Pb)-Total			102.5		%		80-120	27-MAY-16
Lithium (Li)-Total			102.2		%		80-120	27-MAY-16
Magnesium (Mg)-Total			101.2		%		80-120	27-MAY-16

Quality Control Report

Workorder: L1772442

Report Date: 30-MAY-16

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3466445							
WG2315676-2 LCS								
Manganese (Mn)-Total			102.1		%		80-120	27-MAY-16
Molybdenum (Mo)-Total			107.9		%		80-120	27-MAY-16
Potassium (K)-Total			104.2		%		80-120	27-MAY-16
Selenium (Se)-Total			103.2		%		80-120	27-MAY-16
Silver (Ag)-Total			103.2		%		80-120	27-MAY-16
Strontium (Sr)-Total			98.2		%		80-120	27-MAY-16
Thallium (Tl)-Total			102.1		%		80-120	27-MAY-16
Tin (Sn)-Total			103.6		%		80-120	27-MAY-16
Uranium (U)-Total			101.9		%		80-120	27-MAY-16
Zinc (Zn)-Total			97.8		%		80-120	27-MAY-16
WG2315676-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	27-MAY-16
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	27-MAY-16
Barium (Ba)-Total			<0.000050		mg/L		0.00005	27-MAY-16
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	27-MAY-16
Boron (B)-Total			<0.010		mg/L		0.01	27-MAY-16
Calcium (Ca)-Total			<0.050		mg/L		0.05	27-MAY-16
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	27-MAY-16
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	27-MAY-16
Copper (Cu)-Total			<0.00050		mg/L		0.0005	27-MAY-16
Lead (Pb)-Total			<0.000050		mg/L		0.00005	27-MAY-16
Lithium (Li)-Total			<0.0010		mg/L		0.001	27-MAY-16
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	27-MAY-16
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	27-MAY-16
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	27-MAY-16
Potassium (K)-Total			<0.050		mg/L		0.05	27-MAY-16
Selenium (Se)-Total			<0.000050		mg/L		0.00005	27-MAY-16
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	27-MAY-16
Tin (Sn)-Total			<0.00010		mg/L		0.0001	27-MAY-16
Uranium (U)-Total			<0.000010		mg/L		0.00001	27-MAY-16
Zinc (Zn)-Total			<0.0030		mg/L		0.003	27-MAY-16
Batch	R3466589							
WG2315676-1 MB								
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	27-MAY-16
Silver (Ag)-Total			<0.000010		mg/L		0.00001	27-MAY-16

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA								
Water								
Batch R3466589								
WG2315676-1 MB								
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	27-MAY-16
MET-TOT-ICP-VA								
Water								
Batch R3466429								
WG2315676-2 LCS								
Phosphorus (P)-Total			99.6		%		80-120	27-MAY-16
Silicon (Si)-Total			105.2		%		80-120	27-MAY-16
Titanium (Ti)-Total			101.5		%		80-120	27-MAY-16
WG2315676-1 MB								
Phosphorus (P)-Total			<0.30		mg/L		0.3	27-MAY-16
Silicon (Si)-Total			<0.050		mg/L		0.05	27-MAY-16
Titanium (Ti)-Total			<0.010		mg/L		0.01	27-MAY-16
MET-TOT-ULTRA-MS-VA								
Water								
Batch R3466445								
WG2315676-2 LCS								
Arsenic (As)-Total			102.3		%		80-120	27-MAY-16
Nickel (Ni)-Total			102.2		%		80-120	27-MAY-16
Sodium (Na)-Total			103.4		%		80-120	27-MAY-16
WG2315676-1 MB								
Arsenic (As)-Total			<0.000030		mg/L		0.00003	27-MAY-16
Nickel (Ni)-Total			<0.00010		mg/L		0.0001	27-MAY-16
Sodium (Na)-Total			<0.010		mg/L		0.01	27-MAY-16
NH3-CFA-ED								
Water								
Batch R3465440								
WG2315311-2 LCS								
Ammonia, Total (as N)		HI@0.8	101.0		%		85-115	26-MAY-16
WG2315311-9 LCS								
Ammonia, Total (as N)		HI@0.8	101.8		%		85-115	26-MAY-16
WG2315311-1 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	26-MAY-16
WG2315311-8 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	26-MAY-16
NO3-L-IC-N-VA								
Water								

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-L-IC-N-VA								
Water								
Batch	R3465657							
WG2315346-16	LCS							
Nitrate (as N)			103.5		%		90-110	26-MAY-16
WG2315346-2	LCS							
Nitrate (as N)			103.2		%		90-110	26-MAY-16
WG2315346-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAY-16
WG2315346-11	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAY-16
WG2315346-14	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAY-16
WG2315346-5	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAY-16
WG2315346-8	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAY-16
P-T-L-COL-ED								
Water								
Batch	R3465786							
WG2314891-5	DUP	L1772442-1						
Phosphorus (P)-Total		0.0869	0.0876		mg/L	0.8	20	26-MAY-16
WG2314891-2	LCS							
Phosphorus (P)-Total			103.2		%		80-120	26-MAY-16
WG2314891-8	LCS							
Phosphorus (P)-Total			109.4		%		80-120	26-MAY-16
WG2314891-1	MB							
Phosphorus (P)-Total			<0.0010		mg/L		0.001	26-MAY-16
WG2314891-7	MB							
Phosphorus (P)-Total			<0.0010		mg/L		0.001	26-MAY-16
WG2314891-6	MS	L1772442-1						
Phosphorus (P)-Total			86.9		%		70-130	26-MAY-16
SO4-L-IC-N-VA								
Water								
Batch	R3465657							
WG2315346-16	LCS							
Sulfate (SO4)			103.6		%		90-110	26-MAY-16
WG2315346-2	LCS							
Sulfate (SO4)			103.3		%		90-110	26-MAY-16
WG2315346-1	MB							
Sulfate (SO4)			<0.050		mg/L		0.05	26-MAY-16
WG2315346-11	MB							
Sulfate (SO4)			<0.050		mg/L		0.05	26-MAY-16

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-L-IC-N-VA								
	Water							
Batch	R3465657							
WG2315346-14	MB							
Sulfate (SO4)			<0.050		mg/L		0.05	26-MAY-16
WG2315346-5	MB							
Sulfate (SO4)			<0.050		mg/L		0.05	26-MAY-16
WG2315346-8	MB							
Sulfate (SO4)			<0.050		mg/L		0.05	26-MAY-16
TDS-VA								
	Water							
Batch	R3466005							
WG2315753-3	DUP	L1772442-1						
Total Dissolved Solids		59	60		mg/L	1.7	20	26-MAY-16
WG2315753-2	LCS							
Total Dissolved Solids			101.4		%		85-115	26-MAY-16
WG2315753-1	MB							
Total Dissolved Solids			<10		mg/L		10	26-MAY-16
TSS-LOW-VA								
	Water							
Batch	R3466065							
WG2315558-4	LCS							
Total Suspended Solids			93.8		%		85-115	26-MAY-16
WG2315558-3	MB							
Total Suspended Solids			<1.0		mg/L		1	26-MAY-16

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

