Certificate of Analysis

PUBLIC WORKS CANADA

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Report Date: 02-JUL-10 14:05 (MT)
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Lab Work Order #: L895495 **Date Received:** 09-JUN-10

Project P.O. #: NOT SUBMITTED
Job Reference:
Legal Site Desc: JERICHO MINE SITE
CofC Numbers: 08-000228

Other Information:

Comments:

Nicole Thibault
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L895495-1 WASTE TRANSER EAST CELL							
Sampled By: AC on 04-JUN-10							
Matrix: GRAB							
BTEX & F1-F4							
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Toluene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Ethylbenzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
o-Xylene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
m+p-Xylene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
F1(C6-C10)	<0.10		0.10	mg/L		11-JUN-10	R1274042
F1-BTEX	<0.10		0.10	mg/L		11-JUN-10	R1274042
Xylenes	<0.0010		0.0010	mg/L		11-JUN-10	R1274042
F2, F3, F4							
F2 (>C10-C16)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F3 (C16-C34)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
L895495-2 WASTE TRANSER WEST CELL							
Sampled By: AC on 04-JUN-10							
Matrix: GRAB							
BTEX & F1-F4							
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Toluene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Ethylbenzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
o-Xylene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
m+p-Xylene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
F1(C6-C10)	<0.10		0.10	mg/L		11-JUN-10	R1274042
F1-BTEX	<0.10		0.10	mg/L		11-JUN-10	R1274042
Xylenes	<0.0010		0.0010	mg/L		11-JUN-10	R1274042
F2, F3, F4							
F2 (>C10-C16)	0.60		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F3 (C16-C34)	0.74		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
L895495-3 MAIN TANK FARM							
Sampled By: AC on 04-JUN-10							
Matrix: GRAB							
BTEX & F1-F4							
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Toluene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Ethylbenzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
o-Xylene	0.00180		0.00050	mg/L		11-JUN-10	R1274042
m+p-Xylene	0.00218		0.00050	mg/L		11-JUN-10	R1274042
F1(C6-C10)	<0.10		0.10	mg/L		11-JUN-10	R1274042
F1-BTEX	<0.10		0.10	mg/L		11-JUN-10	R1274042
Xylenes	0.0040		0.0010	mg/L		11-JUN-10	R1274042
F2, F3, F4							
F2 (>C10-C16)	0.92		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F3 (C16-C34)	2.61		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L895495-4 POWER PLANT CONTAINMENT							
Sampled By: AC on 04-JUN-10							
Matrix: GRAB							
BTEX & F1-F4							
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Toluene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Ethylbenzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
o-Xylene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
m+p-Xylene	0.00069		0.00050	mg/L		11-JUN-10	R1274042
F1(C6-C10)	<0.10		0.10	mg/L		11-JUN-10	R1274042
F1-BTEX	<0.10		0.10	mg/L		11-JUN-10	R1274042
Xylenes	<0.0010		0.0010	mg/L		11-JUN-10	R1274042
F2, F3, F4							
F2 (>C10-C16)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F3 (C16-C34)	0.72		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
L895495-5 PKCA JER WQ2							
Sampled By: AC on 08-JUN-10 @ 10:00							
Matrix: GRAB							
Miscellaneous Parameters							
Daphnia Magna - Pass/Fail	See Attached				12-JUN-10	12-JUN-10	R1289023
Trout Bioassay - Pass/Fail	See Attached				12-JUN-10	12-JUN-10	R1289043
L895495-6 JER WQ2							
Sampled By: AC on 08-JUN-10 @ 10:00							
Matrix: GRAB							
BTEX & F1-F4							
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Toluene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
Ethylbenzene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
o-Xylene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
m+p-Xylene	<0.00050		0.00050	mg/L		11-JUN-10	R1274042
F1(C6-C10)	<0.10		0.10	mg/L		11-JUN-10	R1274042
F1-BTEX	<0.10		0.10	mg/L		11-JUN-10	R1274042
Xylenes	<0.0010		0.0010	mg/L		11-JUN-10	R1274042
F2, F3, F4							
F2 (>C10-C16)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F3 (C16-C34)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUN-10	15-JUN-10	R1277635
Total organic carbon by combustion							
Total Organic Carbon							
Total Organic Carbon	2.76		0.50	mg/L		28-JUN-10	R1299804
Miscellaneous Parameters							
Acidity (as CaCO3)	2060		1.0	mg/L		17-JUN-10	R1279633
Ammonia as N	0.0353		0.0050	mg/L		11-JUN-10	R1274691
Biochemical Oxygen Demand	14.3		5.0	mg/L		10-JUN-10	R1282242
Chloride (Cl)	3.27		0.50	mg/L		13-JUN-10	R1280243
Conductivity	107		2.0	uS/cm		15-JUN-10	R1277925
Mercury (Hg)-Dissolved	<0.000050		0.000050	mg/L		18-JUN-10	R1281096
Ortho Phosphate as P	<0.0010		0.0010	mg/L		15-JUN-10	R1277284
Fecal Coliforms	<1		1	CFU/100mL		09-JUN-10	R1274315
Hardness (as CaCO3)	35.4		0.81	mg/L		25-JUN-10	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L895495-6 JER WQ2							
Sampled By: AC on 08-JUN-10 @ 10:00							
Matrix: GRAB							
Nitrate (as N)	1.57		0.0050	mg/L		13-JUN-10	R1280243
Nitrite (as N)	0.0047		0.0010	mg/L		13-JUN-10	R1280243
Oil and Grease	<1.0		1.0	mg/L		22-JUN-10	R1284303
Sulfate (SO4)	10.1		0.50	mg/L		13-JUN-10	R1280243
Total Dissolved Phosphate As P	0.0041		0.0020	mg/L		12-JUN-10	R1274786
Total Dissolved Solids	58		10	mg/L		11-JUN-10	R1280607
Total Inorganic Carbon	4.4		1.0	mg/L		30-JUN-10	R1315283
Mercury (Hg)-Total	<0.000050		0.000050	mg/L		17-JUN-10	R1279121
Total Phosphate as P	0.0135		0.0020	mg/L		12-JUN-10	R1274786
Total Suspended Solids	<3.0		3.0	mg/L		11-JUN-10	R1274817
Turbidity	2.26		0.10	NTU		12-JUN-10	R1274856
pH	7.04		0.10	pH		15-JUN-10	R1277925
Alkalinity by Auto. Titration							
Alkalinity, Total (as CaCO3)	35.2		1.0	mg/L		15-JUN-10	R1277925
Alkalinity, Bicarbonate (as CaCO3)	35.2		1.0	mg/L		15-JUN-10	R1277925
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		15-JUN-10	R1277925
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		15-JUN-10	R1277925
ICPOES & ICPMS in Water (Diss. Metals)							
Dissolved Metals in Water by ICPMS(Low)							
Aluminum (Al)-Dissolved	0.0176		0.0010	mg/L		24-JUN-10	R1291364
Antimony (Sb)-Dissolved	0.00010		0.00010	mg/L		24-JUN-10	R1291364
Arsenic (As)-Dissolved	0.00025		0.00010	mg/L		24-JUN-10	R1291364
Barium (Ba)-Dissolved	0.0206		0.000050	mg/L		24-JUN-10	R1291364
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		24-JUN-10	R1291364
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L		24-JUN-10	R1291364
Boron (B)-Dissolved	0.016		0.010	mg/L		24-JUN-10	R1291364
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L		24-JUN-10	R1291364
Calcium (Ca)-Dissolved	7.44		0.050	mg/L		24-JUN-10	R1291364
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L		24-JUN-10	R1291364
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L		24-JUN-10	R1291364
Copper (Cu)-Dissolved	0.00174		0.00010	mg/L		24-JUN-10	R1291364
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L		24-JUN-10	R1291364
Lithium (Li)-Dissolved	<0.0050		0.0050	mg/L		24-JUN-10	R1291364
Magnesium (Mg)-Dissolved	4.07		0.050	mg/L		24-JUN-10	R1291364
Manganese (Mn)-Dissolved	0.00305		0.000050	mg/L		24-JUN-10	R1291364
Molybdenum (Mo)-Dissolved	0.00210		0.000050	mg/L		24-JUN-10	R1291364
Nickel (Ni)-Dissolved	0.00191		0.00050	mg/L		24-JUN-10	R1291364
Potassium (K)-Dissolved	3.28		0.50	mg/L		24-JUN-10	R1291364
Selenium (Se)-Dissolved	<0.0010		0.0010	mg/L		24-JUN-10	R1291364
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L		24-JUN-10	R1291364
Sodium (Na)-Dissolved	4.10		0.50	mg/L		24-JUN-10	R1291364
Strontium (Sr)-Dissolved	0.142		0.00010	mg/L		24-JUN-10	R1291364
Thallium (Tl)-Dissolved	<0.00010		0.00010	mg/L		24-JUN-10	R1291364
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L		24-JUN-10	R1291364
Uranium (U)-Dissolved	0.00285		0.000010	mg/L		24-JUN-10	R1291364
Vanadium (V)-Dissolved	<0.0010		0.0010	mg/L		24-JUN-10	R1291364
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L		24-JUN-10	R1291364
Dissolved Metals in Water by ICPOES							
Iron (Fe)-Dissolved	<0.030		0.030	mg/L		23-JUN-10	R1283924
Silicon (Si)-Dissolved	0.771		0.050	mg/L		23-JUN-10	R1283924
Titanium (Ti)-Dissolved	<0.010		0.010	mg/L		23-JUN-10	R1283924
ICPOES & ICPMS in Water (Total Metals)							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L895495-6 JER WQ2							
Sampled By: AC on 08-JUN-10 @ 10:00							
Matrix: GRAB							
Total Metals in Water by ICPMS(Low)							
Aluminum (Al)-Total	0.0905		0.0010	mg/L		24-JUN-10	R1291364
Antimony (Sb)-Total	0.00011		0.00010	mg/L		24-JUN-10	R1291364
Arsenic (As)-Total	0.00024		0.00010	mg/L		24-JUN-10	R1291364
Barium (Ba)-Total	0.0223		0.000050	mg/L		24-JUN-10	R1291364
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		24-JUN-10	R1291364
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		24-JUN-10	R1291364
Boron (B)-Total	0.015		0.010	mg/L		24-JUN-10	R1291364
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		24-JUN-10	R1291364
Calcium (Ca)-Total	8.19		0.050	mg/L		24-JUN-10	R1291364
Chromium (Cr)-Total	0.00056		0.00050	mg/L		24-JUN-10	R1291364
Cobalt (Co)-Total	0.00016		0.00010	mg/L		24-JUN-10	R1291364
Copper (Cu)-Total	0.00179		0.00010	mg/L		24-JUN-10	R1291364
Lead (Pb)-Total	0.000117		0.000050	mg/L		24-JUN-10	R1291364
Lithium (Li)-Total	<0.0050		0.0050	mg/L		24-JUN-10	R1291364
Magnesium (Mg)-Total	4.54		0.050	mg/L		24-JUN-10	R1291364
Manganese (Mn)-Total	0.0282		0.000050	mg/L		24-JUN-10	R1291364
Molybdenum (Mo)-Total	0.00219		0.000050	mg/L		24-JUN-10	R1291364
Nickel (Ni)-Total	0.00286		0.00050	mg/L		24-JUN-10	R1291364
Potassium (K)-Total	3.57		0.50	mg/L		24-JUN-10	R1291364
Selenium (Se)-Total	<0.0010		0.0010	mg/L		24-JUN-10	R1291364
Silver (Ag)-Total	<0.000010		0.000010	mg/L		24-JUN-10	R1291364
Sodium (Na)-Total	4.54		0.50	mg/L		24-JUN-10	R1291364
Strontium (Sr)-Total	0.148		0.00010	mg/L		24-JUN-10	R1291364
Thallium (Tl)-Total	<0.00010		0.00010	mg/L		24-JUN-10	R1291364
Tin (Sn)-Total	<0.00010		0.00010	mg/L		24-JUN-10	R1291364
Uranium (U)-Total	0.00330		0.000010	mg/L		24-JUN-10	R1291364
Vanadium (V)-Total	<0.0010		0.0010	mg/L		24-JUN-10	R1291364
Zinc (Zn)-Total	<0.0010		0.0010	mg/L		24-JUN-10	R1291364
Total Metals in Water by ICPOES							
Iron (Fe)-Total	0.102		0.030	mg/L		23-JUN-10	R1283924
Silicon (Si)-Total	0.943		0.050	mg/L		23-JUN-10	R1283924
Titanium (Ti)-Total	<0.010		0.010	mg/L		23-JUN-10	R1283924

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Aluminum (Al)-Total	MB-LOR	L895495-6

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.			
ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
BOD5-YL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 A& B
Samples are incubated at 20oC +1oC for 5 days. Comparison of DO content at the beginning and end of the incubation period provides a measure of the biochemical oxygen demand.			
BTX,F1-ED	Water	BTEX and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
C-TOT-INORG-CL	Water	Total Inorganic Carbon	APHA 5310 C-Instrumental
C-TOT-ORG-LOW-CL	Water	Total Organic Carbon	APHA 5310 C-Instrumental
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
F2,F3,F4-ED	Water	F2, F3, F4	EPA 3510/CCME PHC CWS-GC-FID
FC-MF-YL	Water	Fecal Coliform	APHA 9222D
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.			
HG-DIS-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS	EPA SW-846 3005A & EPA 245.7
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 filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-TOT-CVAFS-VA	Water	Total Mercury in Water by CVAFS	EPA 245.7

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 procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

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 procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA	Water	Dissolved Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A

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 involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

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).

MET-TOT-LOW-MS-VA	Water	Total Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A

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).

NH3-COL-VA	Water	Ammonia by Colour	APHA 4500-NH3 "Nitrogen (Ammonia)"

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NH3-COL-VA	Water	Ammonia by Colour	APHA 4500-NH3 Nitrogen (Ammonia)

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

OGG-LL-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE GRAVIMETRIC

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3510 & 9071, published by the United States Environmental Protection Agency (EPA), "Standard Methods for the Examination of Water and Wastewater", 20th ed., Method 5520, published by the American Public Health Association, and "BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials," 5th ed., published by the B.C. Ministry of Environment, Lands & Parks, 1994. The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. ALS Environmental's routine detection limit, or Limit of Reporting (LOR), for this method is 2 mg/L for a 1L sample volume. By request, a LOR of 1 mg/L is sometimes applied for this method. The 1 mg/L LOR is equal to the 99% confidence limit Method Detection Limit as defined by the US EPA. A higher degree of variability is expected at levels below 2 mg/L.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-TD-COL-VA	Water	Total Dissolved Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-TD-COL-VA	Water	Total Dissolved Phosphate by Colour	APHA 4500-P " Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

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.

TROUT-P/F-WP	Water	Trout Bioassay Pass/Fail	EPS/1/RM/9+13

Certified, disease-free Rainbow Trout (Oncorhynchus mykiss) have been used for two decades in Canada for testing effluents under a series of regulation and guidelines. This organism inhabits waters of all Canadian Provinces and is widely introduced around the world. It thrives in cool, fresh water, runs to sea on both Atlantic and Pacific coasts, and is commonly reared in hatcheries and commercial aquaculture. It has become the world's standard for freshwater toxicity tests.

The Rainbow Trout are introduced into a single 100% concentration of a sample in order to obtain an Pass/Fail indication of toxicity. A Fail occurs when greater than 50% of the organisms die.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

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.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** 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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ED		ALS LABORATORY GROUP - EDMONTON, ALBERTA, CANADA	
WP		ALS LABORATORY GROUP - WINNIPEG, MANITOBA, CANADA	
VA		ALS LABORATORY GROUP - VANCOUVER, BC, CANADA	
CL		ALS LABORATORY GROUP - CALGARY, ALBERTA, CANADA	
YL		ALS LABORATORY GROUP - YELLOWKNIFE, NW, CANADA	

Chain of Custody Numbers:

08-000228

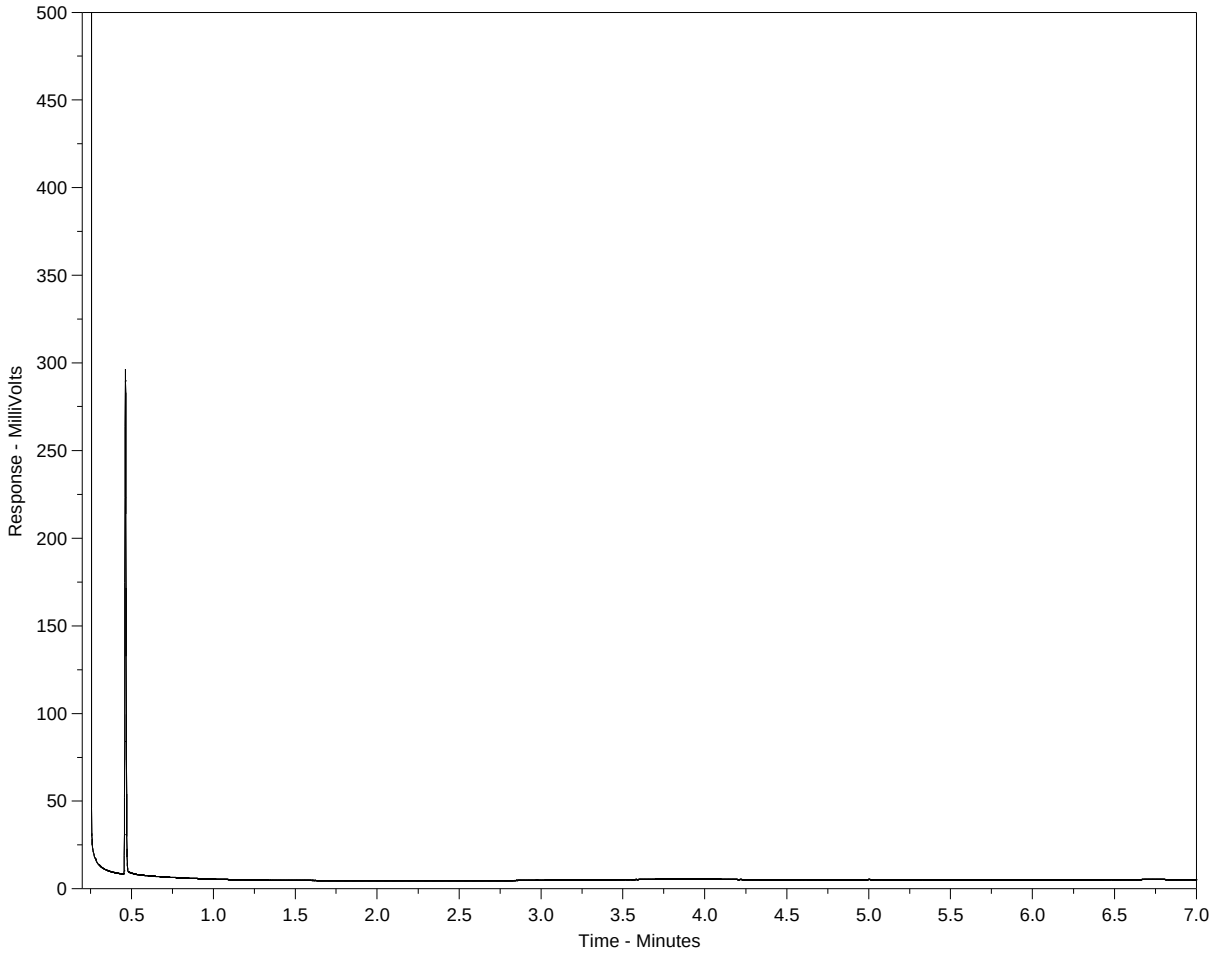
GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
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
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
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.

Hydrocarbon Distribution Report

ALS Sample ID: **L895495-1**
Client ID: **WASTE TRANSER EAST CELL**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

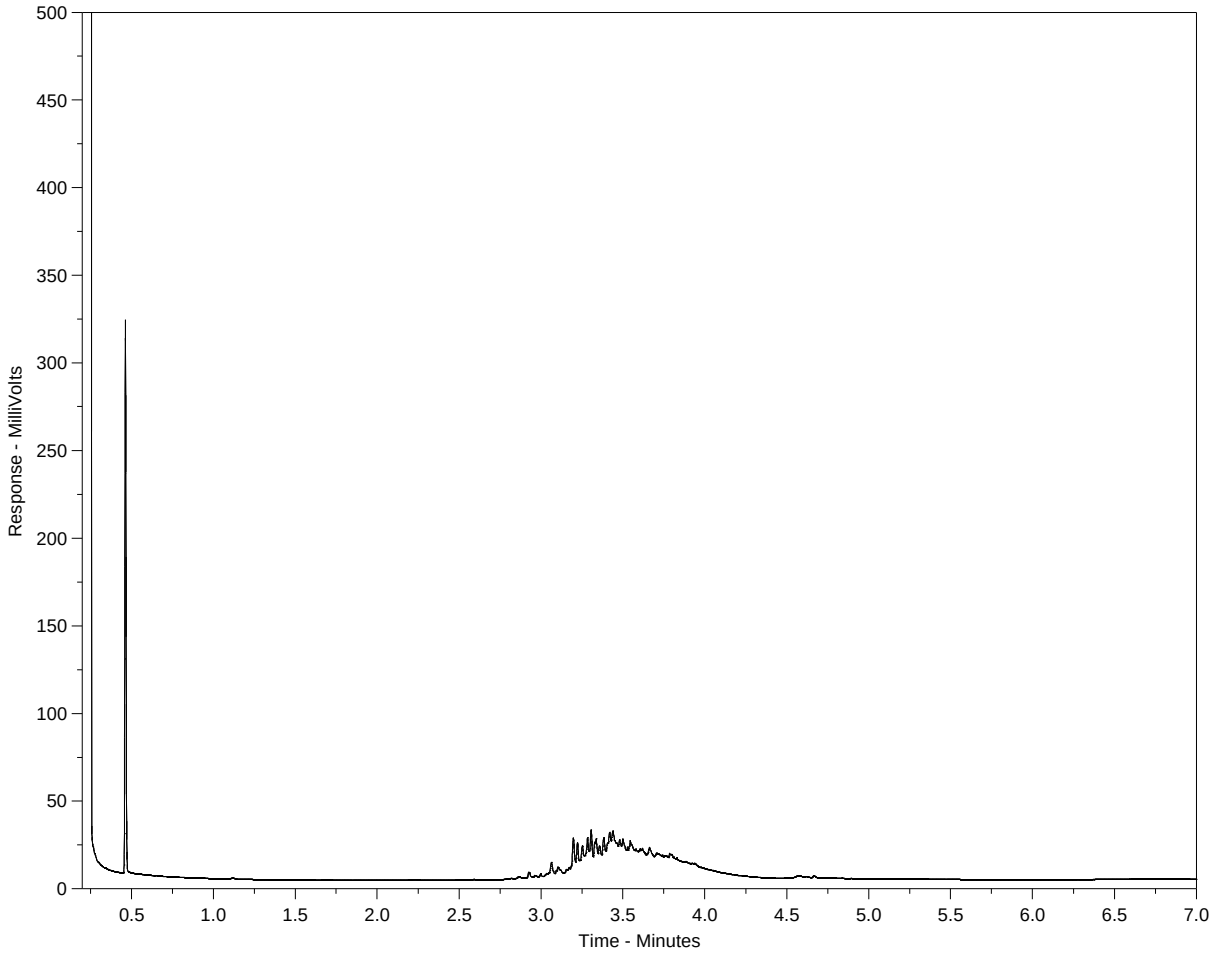
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L895495-2**
Client ID: **WASTE TRANSER WEST CELL**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

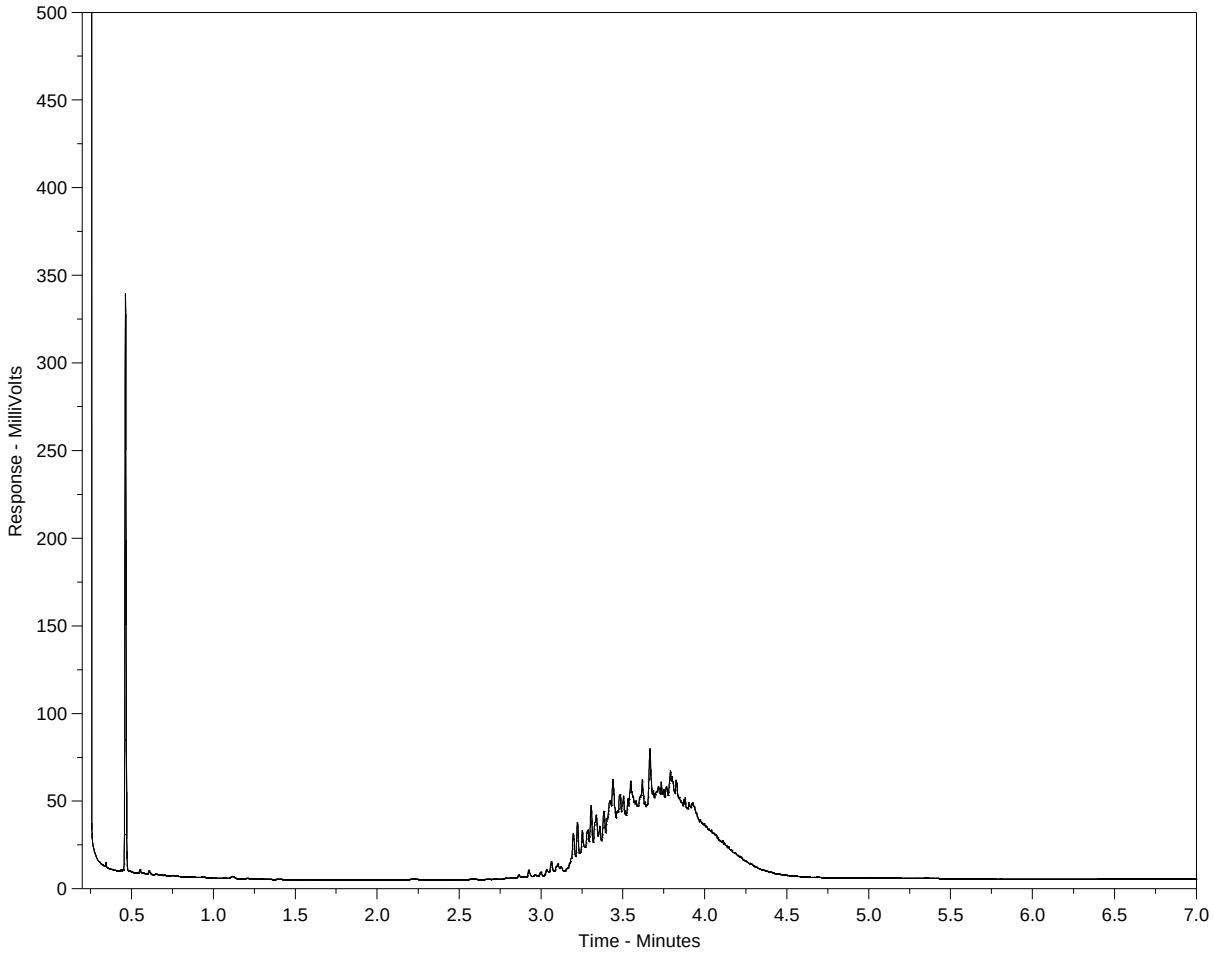
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L895495-3**
Client ID: **MAIN TANK FARM**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

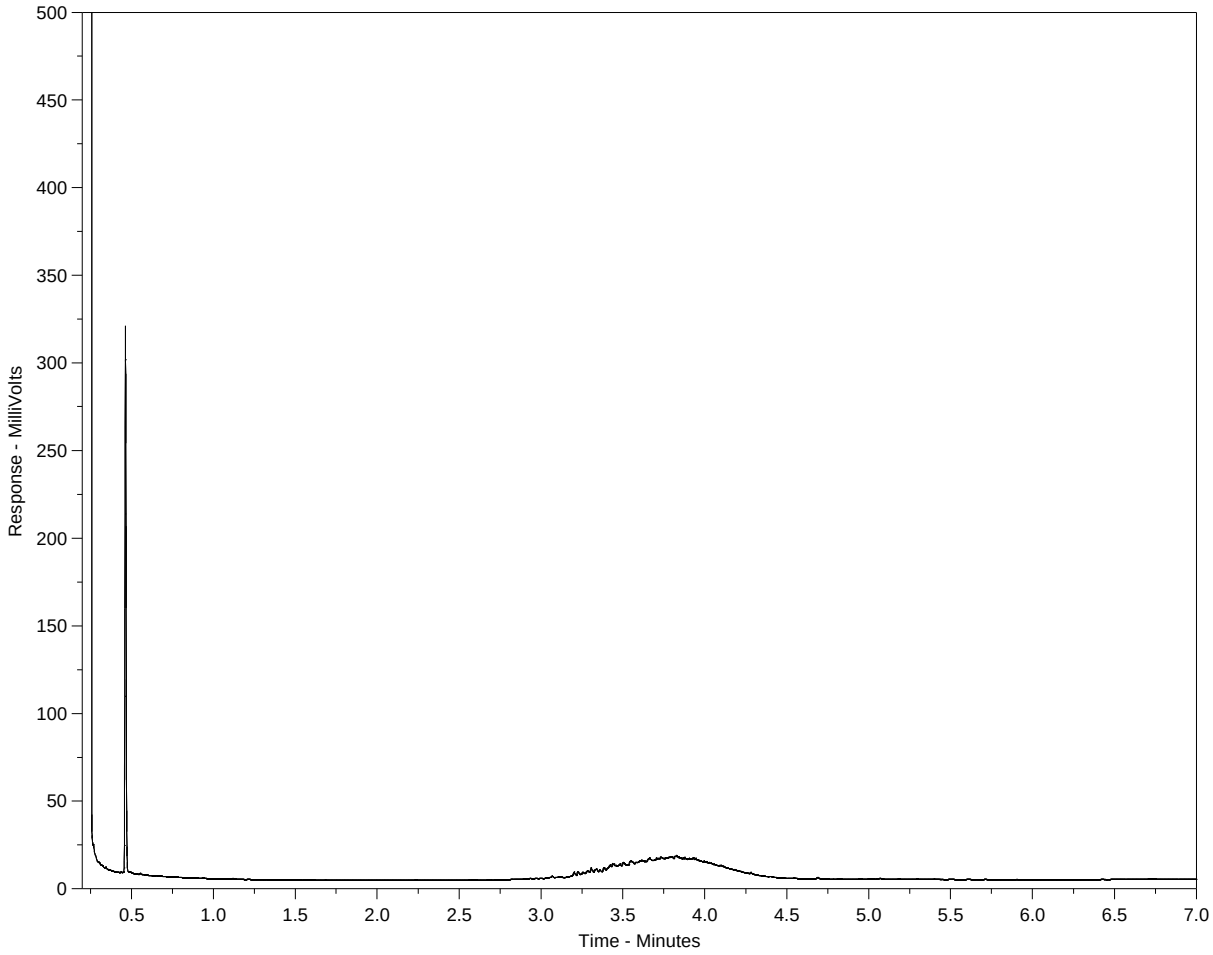
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L895495-4**
Client ID: **POWER PLANT CONTAINMENT**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

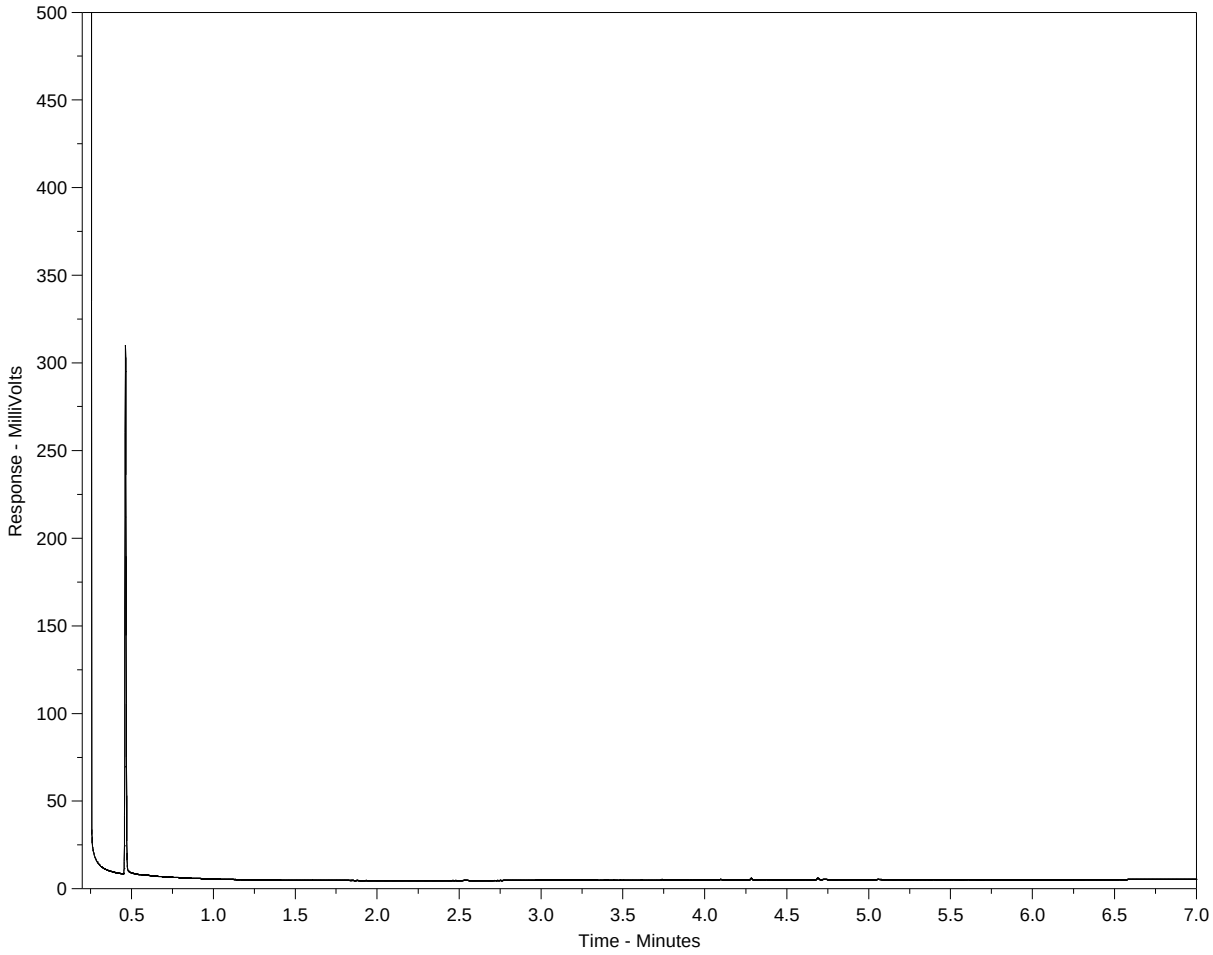
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L895495-6**
Client ID: **JER WQ2**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Rainbow Trout Bioassay Test Report – Pass/Fail

Sample Number: L895495-5

Summary Results

96-hour Pass/Fail:	PASS

Sample Information

Sample Origin:	Public Works Canada
Sample Description:	PKCA JER WQ2
Sampling Date and Time:	08-Jun-10
Sampling Method:	Grab
Sampled By:	Andrew Coster
Container(s) Description:	1 x 20 L Polyethylene Pail Without Liner
Sample Volume:	20 L
Date and Time Received:	12-Jun-10 12:15
Transit Irregularities:	None
Storage Temperature (°C):	N/A

Test Information

Test Organism:	Oncorhynchus mykiss
Test Description:	Acute, 96-hour, Static, LC50
Reference Method:	EPS1/RM/13, 2nd Ed. Dec. 2000, Environment Canada
Performed By:	DP
Starting Date & Time:	12-Jun-10 13:00
Deviations from Reference Method:	None

ALS Environmental
1329 Niakwa Road East
Winnipeg, MB R2J 3T4
(204) 255-9720

Initial Parameters

Observations:

Colour:	Light Yellow
Odour:	Mild
Turbidity:	None
Solids:	None
Hardness (mg/L):	2.1 mL titration solution/ 50 mL sample x 1000 = 42
Alkalinity (mg/L):	1.6 mL titration solution/ 50 mL sample x 1000 = 32
Temperature (ºC):	15
Dissolved Oxygen (mg/L):	9.37
Conductivity at 25ºC (umhos/cm):	103.3
pH(6.0-8.5):	7.10
pH adjustment:	Not Adjusted
pH adjustment procedure:	N/A

Pre-Aeration

Aeration Rate (5.5-7.5 mL/min/L):	6.40 $\pm$ 0.6	
Aeration time (min):	30	
Sample Test Concentration (v/v):	100%	0%
Before Pre-Aeration Dissolved Oxygen (%):	96.1	92.5
After Pre-Aeration Dissolved Oxygen (70-100%):	97.2	91.3

Test Organism Data

Lot Number:	07-May-10 T4
Weekly Mortality Preceding Test (%):	1.0
Sample Size:	10

Conditions Common to all Concentrations During Test

Source of Holding/Dilution Water:	Dechlorinated UV treated city of Winnipeg tap water
Container Description:	20 L Polyethylene pail with liner
Aeration Method:	Compressed air bubbled through silica-glass air diffuser
Aeration Rate (5.5-7.5 mL/min/L):	6.40 ± 0.6
Test Solution Volume (L):	20
Test Solution Depth (cm):	34
Number of Test Organisms/Container:	10
Loading Density (g/L):	0.25

Conditions During Test

Concentration (% v/v)	Temperature (°C) (15ºC ± 1ºC)					Dissolved Oxygen (mg/L)					pH				
	0h	**24h**	**48h**	**72h**	**96h**	**0h**	**24h**	**48h**	**72h**	**96h**	**0h**	**24h**	**48h**	**72h**	**96h**
0	15	N/A	N/A	N/A	15	9.01	N/A	N/A	N/A	9.47	7.31	N/A	N/A	N/A	7.53
100	15	N/A	N/A	N/A	15	9.61	N/A	N/A	N/A	9.50	7.09	N/A	N/A	N/A	7.26

Concentration (% v/v)	Conductivity (umhos/cm)	Number of fish Dead				Number of fish Stressed			
	0h	**24h**	**48h**	**72h**	**96h**	**24h**	**48h**	**72h**	**96h**
0	275	N/A	N/A	N/A	0	N/A	N/A	N/A	0
100	104.4	N/A	N/A	N/A	0	N/A	N/A	N/A	0

Control Fish Information at End of Test

Mean Fork Length (mm):	37
Lower Range Fork Length (mm):	32
Upper Range Fork Length (mm):	41
Mean Wet Weight (g):	0.50

Mortality and Stressed Behaviour Information

Concentration (% v/v)	Mean Number of fish at end of Test		Mean Rate of fish at end of Test (%)	
	Dead	**Stressed**	**Dead**	**Stressed**
0	0	0	0	0
100	0	0	0	0

ALS Environmental
1329 Niakwa Road East
Winnipeg, MB R2J 3T4
(204) 255-9720

Reference Toxicant

Toxicant:	Zinc Sulphate
Test Starting Date:	25-May-10
96-hour LC50 (mg/L Zinc):	0.35
95% Lower Confidence Interval (mg/L Zinc):	0.24
95% Upper Confidence Interval (mg/L Zinc):	0.48
Historic Geometric Mean LC50 (mg/L Zinc):	0.66
95% Lower Confidence Interval (mg/L Zinc):	0.24
95% Upper Confidence Interval (mg/L Zinc):	1.77
Method of Calculation:	Stephan LC50 Program, Probit
Confirmed by Graph:	Yes

Sublethal Biological Effects

No sublethal biological effects observed.

Observations/Comments

No toxicity observed.

ALS Environmental
1329 Niakwa Road East
Winnipeg, MB R2J 3T4
(204) 255-9720

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 08-000228
Page ____ of ____

Report to:	Report Format / Distribution	Service Requested: (rush - subject to availability)
Company: Public Works Gov. Services Canada	Standard: ____ Other: ____	Regular (Default) ✓
Contact: Michael Bernardin	Select: PDF ____ Excel ____ Digital ____	Priority (2-3 Business Days) - 50% Surcharge
Address:	Email 1: michael.bernardin@pwgsc.gc.ca	Emergency (1 Business Day) - 100% Surcharge
	Email 2: jerichoenvironment@gmail.com	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: 780 497 3853 Fax:		
Invoice To: Same as Report ? (Yes) No ?	**Client / Project Information:**	**Analysis Request**
Company:	Job #:	(Indicate Filtered or Preserved, F/P)
Contact:	PO / AFE:	
Address:	Legal Site Description:	
	Jericho Mine Site	
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only): L895495	ALS Contact: Sean Whittaker	Sampler: Andrea Coster

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	TPH	Trout/Daphnia Routine	Nutrients	Total Metals & Dissolved Metals	TOC	Oil & Grease	BOD	Fecal Coliforms			Number of Containers
	Waste Transfer East Cell	June 9/10		Grab	X										
	Waste Transfer West Cell	↓		↓	X										
	Main Tank Farm				X										
	Power Plant Containment				X										
	PKCA JER WQ2	June 8/10	1000	Grab 20L		X									
	JER WQ2	June 8/10		Grab	X		X	X	X	X	X	X	X	X	

Special Instructions / Regulations / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by: Andrew	Date & Time: June 9/10	Received by:	Date: 9-Jun-10	Time: 930 AM	Temperature: 5.8°C	Verified by:	Date & Time:	Observations: Yes / No ? If Yes attach SIF

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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GENF 18.00 Front