



Analytical Report

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
Control Number: E 94775
Date Received: Sep 13, 2004
Date Reported: Oct 15, 2004
Report Number: 609481

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		NWL Number	332098-4	332098-5	332098-7		
		Sample Date	Sep 09, 2004	Sep 09, 2004	Sep 09, 2004		
		Sample Description	1067	USGW1	WL-SW-02		
		Matrix	Water - General	Water - General	Water - General		
Analyte		Units	Results	Results	Results	Detection Limit	
Routine Water - Continued							
Magnesium	Dissolved	mg/L	0.6	0.5	0.7	0.1	
Sodium	Dissolved	mg/L	1.5	1.7	2.5	0.4	
Potassium	Dissolved	mg/L	1.5	1.2	0.7	0.4	
Iron	Dissolved	mg/L	0.04	<0.01	0.05	0.01	
Manganese	Dissolved	mg/L	0.005	<0.005	0.044	0.005	
Chloride	Dissolved	mg/L	1.8	1.4	3.7	0.5	
Nitrate - N		mg/L	1.1	<0.1	<0.1	0.01	
Nitrite - N		mg/L	<0.05	<0.05	<0.05	0.005	
Nitrate and Nitrite - N		mg/L	1.1	<0.2	<0.2	0.02	
Sulphate (SO4)	Dissolved	mg/L	12.6	7.6	9.3	0.2	
Hydroxide		mg/L	<5	<5	<5	5	
Carbonate		mg/L	9	<6	6	6	
Bicarbonate		mg/L	<5	15	<5	5	
P-Alkalinity	as CaCO3	mg/L	<5	<5	<5	5	
T-Alkalinity	as CaCO3	mg/L	8	12	5	5	
Total dissolved solids	Calculated	mg/L	28	25	23	1	
Hardness	Dissolved as CaCO3	mg/L	15.6	15.1	9.6		
Ionic Balance	Dissolved	%	59	90	64		



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		NWL Number	332098-7	332098-8	332098-9
		Sample Date	Sep 09, 2004	Sep 09, 2004	Sep 09, 2004
		Sample Description	WL-SW-02	BAT-East Tank	US AST
		Matrix	Water - General	Water - General	Water - General
Analyte	Units	Results	Results	Results	Detection Limit
Mono-Aromatic Hydrocarbons - Water					
Benzene	mg/L	<0.001	<0.001	<0.001	0.001
Toluene	mg/L	<0.001	<0.001	<0.001	0.001
Ethylbenzene	mg/L	<0.001	<0.001	<0.001	0.001
Total Xylenes (m,p,o)	mg/L	0.001	0.001	0.002	0.001
Volatile Petroleum Hydrocarbons - Water					
F1 C6-C10	mg/L	0.06	0.08	0.07	0.01
F1 -BTEX	mg/L	0.06	0.08	0.07	0.01
Refractable Petroleum Hydrocarbons - Water					
F2 C10-C16	mg/L	<0.1	3.5	0.5	0.1
F3 C16-C34	mg/L	<0.1	4.6	0.3	0.1
F3+ C34+	mg/L	<0.1	<0.1	<0.1	0.1



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NWL Number 332098-8
Sample Date Sep 09, 2004
Sample Description BAT-East Tank
Matrix Water - General

Analyte		Units	Results	Results	Detection Limit
Metals Total					
Iron	Total	mg/L	37.6		0.1
Manganese	Total	mg/L	6.45		0.005
Silicon	Total	mg/L	0.31		0.05
Sulphur	Total	mg/L	43.7		0.05
Mercury	Total	mg/L	<0.0002		0.0002
Aluminum	Total	mg/L	0.106		0.005
Antimony	Total	mg/L	0.0003		0.0002
Aspic	Total	mg/L	0.0039		0.0002
Barium	Total	mg/L	0.045		0.001
Beryllium	Total	mg/L	<0.0001		0.0001
Bismuth	Total	mg/L	<0.0005		0.0005
Boron	Total	mg/L	0.018		0.002
Cadmium	Total	mg/L	0.00739		0.00001
Chromium	Total	mg/L	0.0024		0.0005
Cobalt	Total	mg/L	0.0142		0.0001
Copper	Total	mg/L	0.048		0.001
Lead	Total	mg/L	0.0092		0.0001
Lithium	Total	mg/L	0.004		0.001
Molybdenum	Total	mg/L	<0.001		0.001
Nickel	Total	mg/L	0.117		0.0005
Selenium	Total	mg/L	<0.0002		0.0002
Silver	Total	mg/L	<0.0001		0.0001
Strontium	Total	mg/L	0.118		0.001
Thallium	Total	mg/L	<0.00005		0.00005
Tin	Total	mg/L	<0.001		0.001
Titanium	Total	mg/L	0.0109		0.0005
Uranium	Total	mg/L	<0.0005		0.0005
Vanadium	Total	mg/L	<0.0001		0.0001
Zinc	Total	mg/L	0.078		0.001
Physical and Aggregate Properties					
Temp. of observed pH and EC		°C	21.5		
Routine Water					
pH			4.50		
Electrical Conductivity		µS/cm at 25 C	1920		1
Calcium	Dissolved	mg/L	13.6		0.2

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NWL Number 332098-8
Sample Date Sep 09, 2004
Sample Description BAT-East Tank
Matrix Water - General

Analyte		Units	Results	Results	Results	Detection Limit
Routine Water - Continued						
Magnesium	Dissolved	mg/L	33.6			0.1
Sodium	Dissolved	mg/L	299			0.4
Potassium	Dissolved	mg/L	11.4			0.4
Iron	Dissolved	mg/L	27.2			0.01
Manganese	Dissolved	mg/L	6.30			0.005
Chloride	Dissolved	mg/L	535			0.5
Nitrate - N		mg/L	<0.1			0.01
Nitrite - N		mg/L	<0.05			0.005
Nitrate and Nitrite - N		mg/L	<0.2			0.02
Sulphate (SO4)	Dissolved	mg/L	131			0.1
Hydroxide		mg/L	<5			5
Carbonate		mg/L	<6			6
Bicarbonate		mg/L	<5			5
P-Alkalinity	as CaCO3	mg/L	<5			5
T-Alkalinity	as CaCO3	mg/L	<5			5
Total dissolved solids	Calculated	mg/L	1020			1
Hardness	Dissolved as CaCO3	mg/L	172			
Ionic Balance	Dissolved	%	104			

Approved by:



Darren Crichton, BSc, PChem
Operations Chemist



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Metals Dissolved

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Silicon	mg/L	<0.05	0.00	-0.05	0.05	✓
Sulphur	mg/L	<0.05	0.08	-2.22	2.39	✓
Aluminum	ug/L	<5	-2	-8	4	✓
Antimony	ug/L	<0.2	0.0	-0.1	0.2	✓
Arsenic	ug/L	<0.2	0.0	0.0	0.0	✓
Barium	ug/L	<1	0	0	0	✓
Beryllium	ug/L	<0.1	0.0	0.0	0.0	✓
Bismuth	ug/L	<0.5	0.0	-0.1	0.1	✓
Boron	ug/L	<2	0	-2	2	✓
Cadmium	ug/L	<0.01	0.00	-0.01	0.01	✓
Chromium	ug/L	<0.5	-0.1	-0.4	0.2	✓
Cobalt	ug/L	<0.1	0.0	0.0	0.0	✓
Copper	ug/L	<1	0	-1	1	✓
Lead	ug/L	<0.1	0.0	0.0	0.0	✓
Lithium	ug/L	<1	0	0	0	✓
Molybdenum	ug/L	<1	0	0	0	✓
Nickel	ug/L	<0.5	0.0	-0.3	0.3	✓
Selenium	ug/L	<0.2	-0.1	-0.3	0.1	✓
Silver	ug/L	<0.1	0.0	0.0	0.0	✓
Strontium	ug/L	<1	0	0	0	✓
Thallium	ug/L	<0.05	0.00	0.00	0.01	✓
Tin	ug/L	<1	0	0	0	✓
Titanium	ug/L	<0.5	0.0	-0.2	0.1	✓
Uranium	ug/L	<0.5	0.0	0.0	0.0	✓
Vanadium	ug/L	<0.1	0.0	-0.1	0.0	✓
Zinc	ug/L	<1	0	-1	1	✓

Material Used: Edmonton Method Blank
Date Acquired: Oct 14, 2004
Acquired By: Jesse Dane



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Metals Dissolved (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	ug/L	<5	<5	10	11	/
Antimony	ug/L	0.3	0.2	10.0	0.4	/
Arsenic	ug/L	<0.2	<0.2	10.0	0.4	/
Barium	ug/L	2	2	10	2	/
Beryllium	ug/L	<0.1	<0.1	10.0	0.2	/
Bismuth	ug/L	<0.5	<0.5	10.0	1.1	/
Boron	ug/L	7	6	10	4	/
Cadmium	ug/L	0.02	0.02	9.99	0.02	/
Chromium	ug/L	<0.5	<0.5	10.0	1.1	/
Cobalt	ug/L	<0.1	<0.1	10.0	0.2	/
Copper	ug/L	3	3	10	2	/
Lead	ug/L	0.3	0.3	10.0	0.2	/
Lithium	ug/L	<1	<1	10	2	/
Molybdenum	ug/L	<1	<1	10	2	/
Nickel	ug/L	<0.5	<0.5	10.0	1.1	/
Selenium	ug/L	<0.2	<0.2	10.0	0.4	/
Silver	ug/L	<0.1	<0.1	10.0	0.2	/
Strontium	ug/L	9	9	10	2	/
Thallium	ug/L	<0.05	<0.05	9.99	0.11	/
Tin	ug/L	<1	<1	10	2	/
Titanium	ug/L	<0.5	<0.5	10.0	1.1	/
Uranium	ug/L	<0.5	<0.5	10.0	1.1	/
Vanadium	ug/L	<0.1	<0.1	10.0	0.2	/
Zinc	ug/L	2	2	10	2	/

Material Used: Edmonton Duplicate
Date Acquired: Oct 14, 2004
Acquired By: Jesse Dang



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Metals Dissolved (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Silicon	mcg/L	24.1	25.0	22.5	27.5	✓
Sulphur	mcg/L	47.0	49.8	44.6	55.0	✓
Material Used:	Metals High					
Date Acquired:	Sep 14, 2004					
Acquired By:	Linda Li					
Silicon	mg/L	0.48	0.50	0.45	0.55	✓
Sulphur	mg/L	0.88	1.02	0.81	1.23	✓
Aluminum	ug/L	927	1000	850	1150	✓
Antimony	ug/L	39.8	40.0	34.0	46.0	✓
Arsenic	ug/L	40.7	40.0	34.0	46.0	✓
Barium	ug/L	192	200	170	230	✓
Beryllium	ug/L	19.6	20.0	17.0	23.0	✓
Bismuth	ug/L	99.6	100	85	115	✓
Boron	ug/L	400	400	340	460	✓
Cadmium	ug/L	2.08	2.00	1.70	2.30	✓
Chromium	ug/L	94.5	100	85	115	✓
Cobalt	ug/L	19.8	20.0	17.0	23.0	✓
Copper	ug/L	194	200	170	230	✓
Lead	ug/L	20.0	20.0	17.0	23.0	✓
Lithium	ug/L	189	200	170	230	✓
Molybdenum	ug/L	190	200	170	230	✓
Nickel	ug/L	101	100	85	115	✓
Selenium	ug/L	39.4	40.0	34.0	46.0	✓
Silver	ug/L	19.5	20.0	17.0	23.0	✓
Strontium	ug/L	199	200	170	230	✓
Thallium	ug/L	10.1	10.0	8.5	11.5	✓
Tin	ug/L	185	200	170	230	✓
Titanium	ug/L	101	100	85	115	✓
Uranium	ug/L	98.4	100	85	115	✓
Vanadium	ug/L	18.9	20.0	17.0	23.0	✓
Zinc	ug/L	195	200	170	230	✓
Material Used:	Metals Low					
Date Acquired:	Oct 14, 2004					
Acquired By:	Jesse Dang					



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Metals Dissolved (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/L	50	50	43	58	✓
Antimony	ug/L	2.2	2.0	1.7	2.3	✓
Arsenic	ug/L	2.1	2.0	1.7	2.3	✓
Barium	ug/L	10	10	9	12	✓
Beryllium	ug/L	1.0	1.0	0.9	1.2	✓
Bismuth	ug/L	5.1	5.0	4.3	5.8	✓
Boron	ug/L	20	20	17	23	✓
Cadmium	ug/L	0.09	0.10	0.09	0.12	✓
Chromium	ug/L	4.8	5.0	4.3	5.8	✓
Cobalt	ug/L	1.0	1.0	0.9	1.2	✓
Copper	ug/L	10	10	9	12	✓
Lead	ug/L	1.0	1.0	0.9	1.2	✓
Thium	ug/L	10	10	9	12	✓
Molybdenum	ug/L	9	10	9	12	✓
Nickel	ug/L	5.0	5.0	4.3	5.8	✓
Selenium	ug/L	1.8	2.0	1.7	2.3	✓
Silver	ug/L	1.0	1.0	0.9	1.2	✓
Strontium	ug/L	10	10	9	12	✓
Thallium	ug/L	0.49	0.50	0.43	0.58	✓
Tin	ug/L	10	10	9	12	✓
Titanium	ug/L	5.3	5.0	4.3	5.8	✓
Uranium	ug/L	5.1	5.0	4.3	5.8	✓
Vanadium	ug/L	1.0	1.0	0.9	1.2	✓
Zinc	ug/L	10	10	9	12	✓

Material Used: Metals Trace
Date Acquired: Oct 14, 2004
Acquired By: Jesse Dang



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Metals Total

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Iron	mg/L	<0.1	0.0	0.0	0.0	✓
Manganese	mg/L	<0.005	0.000	-0.001	0.001	✓
Silicon	mg/L	<0.05	0.02	-0.04	0.09	✓
Sulphur	mg/L	<0.05	0.01	-0.03	0.04	✓
Mercury	mg/L	0.0002	0.0000	0.0000	0.0000	✓
Aluminum	ug/L	<5	0	-5	5	✓
Antimony	ug/L	<0.2	0.0	-0.2	0.2	✓
Arsenic	ug/L	<0.2	0.0	-0.2	0.2	✓
Barium	ug/L	<1	0	-1	1	✓
Beryllium	ug/L	<0.1	0.0	-0.1	0.1	✓
Bismuth	ug/L	<0.5	0.0	-0.5	0.5	✓
Boron	ug/L	<2	0	-2	2	✓
Cadmium	ug/L	<0.01	0.00	-0.01	0.01	✓
Chromium	ug/L	<0.5	0.0	-0.5	0.5	✓
Cobalt	ug/L	<0.1	0.0	-0.1	0.1	✓
Copper	ug/L	<1	0	-1	1	✓
Lead	ug/L	<0.1	0.0	-0.1	0.1	✓
Lithium	ug/L	<1	0	-1	1	✓
Molybdenum	ug/L	<1	0	-1	1	✓
Nickel	ug/L	<0.5	0.0	-0.5	0.5	✓
Selenium	ug/L	<0.2	0.0	-0.2	0.2	✓
Silver	ug/L	<0.1	0.0	-0.1	0.1	✓
Strontium	ug/L	<1	0	-1	1	✓
Thallium	ug/L	<0.05	0.00	-0.05	0.05	✓
Tin	ug/L	<1	0	-1	1	✓
Titanium	ug/L	<0.5	0.0	-0.5	0.5	✓
Uranium	ug/L	<0.5	0.0	-0.5	0.5	✓
Vanadium	ug/L	<0.1	0.0	-0.1	0.1	✓
Zinc	ug/L	<1	0	-1	1	✓

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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Iron	mg/L	1.1	1.1	10.0	0.0	✓
Manganese	mg/L	1.50	1.12	9.990	0.001	✓
Silicon	mg/L	3.97	3.83	9.99	0.01	✓
Sulphur	mg/L	797	783	9.99	0.03	✓
Mercury	mg/L	<0.0002	<0.0002	9.9900	0.0003	✓
Aluminum	ug/L	1660000	1690000	10	11	✓
Antimony	ug/L	<8	8	10.0	0.4	✓
Arsenic	ug/L	232	231	10.0	0.4	✓
Barium	ug/L	8760	8980	10	2	✓
Beryllium	ug/L	85.8	85.0	10.0	0.2	✓
Bismuth	ug/L	22	22	10.0	1.1	✓
Boron	ug/L	140	140	10	4	✓
Cadmium	ug/L	11.9	12.5	9.99	0.02	✓
Chromium	ug/L	4720	4830	10.0	1.1	✓
Cobalt	ug/L	876	878	10.0	0.2	✓
Copper	ug/L	3780	3780	10	2	✓
Lead	ug/L	1720	1730	10.0	0.2	✓
Lithium	ug/L	2320	2300	10	2	✓
Molybdenum	ug/L	140	150	10	2	✓
Nickel	ug/L	2640	2690	10.0	1.1	✓
Selenium	ug/L	<8.0	<8.0	10.0	0.4	✓
Silver	ug/L	10	10	10.0	0.2	✓
Strontium	ug/L	290	290	10	2	✓
Thallium	ug/L	48.8	49.0	9.99	0.11	✓
Tin	ug/L	41	43	10	2	✓
Titanium	ug/L	158000	158000	10.0	1.1	✓
Uranium	ug/L	305	307	10.0	1.1	✓
Vanadium	ug/L	4260	4320	10.0	0.2	✓
Zinc	ug/L	8730	8700	10	2	✓

Material Used: Edmonton Duplicate
Date Acquired: Sep 14, 2004
Acquired By:



Quality Control

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
Control Number: E 94775
Date Received: Sep 13, 2004
Date Reported: Oct 15, 2004
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Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Iron	mq/L	2.0	2.0	1.8	2.2	✓
Manganese	mq/L	0.492	0.479	0.451	0.507	✓
Silicon	mq/L	4.73	5.00	4.50	5.50	✓
Sulphur	mq/L	9.57	9.68	8.74	10.62	✓
Mercury	mq/L	0.0008	0.0008	0.0006	0.0010	✓
Aluminum	uq/L	332	322	273	371	✓
Antimony	uq/L	11.0	11.5	10.2	12.8	✓
Arsenic	uq/L	11.0	11.5	10.3	12.7	✓
Barium	uq/L	67	61	52	69	✓
Beryllium	uq/L	5.5	5.9	4.9	7.0	✓
Bismuth	uq/L	29.3	30.2	26.0	34.4	✓
Boron	uq/L	121	125	102	148	✓
Cadmium	uq/L	0.62	0.63	0.47	0.78	✓
Chromium	uq/L	32.4	31.8	27.5	36.2	✓
Cobalt	uq/L	6.4	6.4	5.4	7.5	✓
Copper	uq/L	61	63	55	70	✓
Lead	uq/L	6.0	6.2	5.4	7.0	✓
Lithium	uq/L	74	65	53	76	✓
Molybdenum	uq/L	62	61	53	69	✓
Nickel	uq/L	30.5	31.4	27.0	35.8	✓
Selenium	uq/L	10.6	11.0	9.7	12.3	✓
Silver	uq/L	5.9	6.2	5.5	7.0	✓
Strontium	uq/L	65	64	55	72	✓
Thallium	uq/L	3.02	3.14	2.56	3.72	✓
Tin	uq/L	62	59	52	66	✓
Titanium	uq/L	32.2	31.5	27.0	36.0	✓
Uranium	uq/L	30.2	30.8	26.9	34.7	✓
Vanadium	uq/L	6.2	6.5	5.4	7.6	✓
Zinc	uq/L	60	59	49	69	✓

Material Used: Edmonton Digestion Check

Date Acquired: Sep 14, 2004

Acquired By: Jesse Dane

Iron	mg/L	9.7	9.7	9.1	10.3	✓
Manganese	mg/L	2.38	2.45	2.27	2.63	✓
Silicon	mg/L	24.1	25.0	22.5	27.5	✓
Sulphur	mg/L	49.4	50.0	46.3	53.7	✓
Mercury	mg/L	0.0030	0.0030	0.0025	0.0034	✓

Material Used: Metals High

Date Acquired: Sep 20, 2004

Acquired By: Fernando Maglalang



Quality Control

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
Control Number: E 94775
Date Received: Sep 13, 2004
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Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Iron	mg/L	0.2	0.2	0.2	0.2	✓
Manganese	mg/L	0.049	0.048	0.043	0.052	✓
Silicon	mg/L	0.48	0.50	0.45	0.55	✓
Sulphur	mg/L	0.91	0.98	0.82	1.13	✓
Mercury	mg/L	0.0008	0.0008	-0.0016	0.0032	✓
Aluminum	ug/L	992	1000	850	1150	✓
Antimony	ug/L	40.4	40.0	34.0	46.0	✓
Arsenic	ug/L	38.8	40.0	34.0	46.0	✓
Barium	ug/L	200	200	170	230	✓
Beryllium	ug/L	20.4	20.0	17.0	23.0	✓
Bismuth	ug/L	99.2	100	85	115	✓
Boron	ug/L	405	400	340	460	✓
Cadmium	ug/L	2.03	2.00	1.70	2.30	✓
Chromium	ug/L	95.7	100	85	115	✓
Cobalt	ug/L	19.6	20.0	17.0	23.0	✓
Copper	ug/L	189	200	170	230	✓
Lead	ug/L	19.6	20.0	17.0	23.0	✓
Lithium	ug/L	200	200	170	230	✓
Molybdenum	ug/L	198	200	170	230	✓
Nickel	ug/L	96.4	100	85	115	✓
Selenium	ug/L	39.1	40.0	34.0	46.0	✓
Silver	ug/L	20.1	20.0	17.0	23.0	✓
Strontium	ug/L	197	200	170	230	
Thallium	ug/L	9.97	10.0	8.5	11.5	
Tin	ug/L	194	200	170	230	
Titanium	ug/L	96.8	100	85	115	✓
Uranium	ug/L	99.3	100	85	115	✓
Vanadium	ug/L	18.4	20.0	17.0	23.0	✓
Zinc	ug/L	199	200	170	230	

Material Used: Metals Low
Date Acquired: Sep 14, 2004
Acquired By: Jesse Dang



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Quality Control

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: **332098**
Control Number: E 94775
Date Received: Sep 13, 2004
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Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/L	54	50	43	58	✓
Antimony	ug/L	1.9	2.0	1.7	2.3	✓
Arsenic	ug/L	2.0	2.0	1.7	2.3	✓
Barium	ug/L	10	10	9	12	✓
Beryllium	ug/L	1.1	1.0	0.9	1.2	✓
Bismuth	ug/L	5.1	5.0	4.3	5.8	✓
Boron	ug/L	20	20	17	23	✓
Cadmium	ug/L	0.09	0.10	0.09	0.12	✓
Chromium	ug/L	5.1	5.0	4.3	5.8	✓
Cobalt	ug/L	1.0	1.0	0.9	1.2	✓
Copper	ug/L	10	10	9	12	✓
Lead	ug/L	1.0	1.0	0.9	1.2	✓
Mercury	ug/L	11	10	9	12	✓
Molybdenum	ug/L	10	10	9	12	✓
Nickel	ug/L	4.8	5.0	4.3	5.8	✓
Selenium	ug/L	1.9	2.0	1.7	2.3	✓
Silver	ug/L	1.1	1.0	0.9	1.2	✓
Strontium	ug/L	10	10	9	12	✓
Thallium	ug/L	0.51	0.50	0.43	0.58	✓
Tin	ug/L	10	10	9	12	✓
Titanium	ug/L	5.1	5.0	4.3	5.8	✓
Uranium	ug/L	5.1	5.0	4.3	5.8	✓
Vanadium	ug/L	1.0	1.0	0.9	1.2	✓
Zinc	ug/L	10	10	9	12	✓

Material Used: Metals Trace
Date Acquired: Sep 14, 2004
Acquired By: Jesse Dane



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7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
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Routine Water

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mq/L	<0.2	0.0	-0.2	0.2	✓
Magnesium	mq/L	<0.1	0.0	-0.1	0.1	✓
Sodium	mq/L	<0.4	0.0	-0.4	0.4	✓
Potassium	mq/L	<0.4	0.0	-0.4	0.4	✓
Iron	mq/L	<0.01	0.00	-0.01	0.01	✓
Manganese	mq/L	<0.005	0.000	-0.005	0.005	✓
Chloride	mq/L	<0.5	0.0	-0.5	0.5	✓
Nitrate - N	mq/L	<0.1	0.00	-0.10	0.10	✓
Nitrite - N	mq/L	<0.05	0.000	-0.050	0.050	✓

Material Used: Edmonton Method Blank

Date Acquired: Sep 14, 2004

Acquired By: Jodi Johnston

Duplicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.31	7.29	9.99	0.10	✓
Electrical Conductivity	ds/m at 25 C	1.92	1.92	9.990	0.002	✓
Chloride	mq/L	2840	2980	10.0	0.5	✓
Nitrate - N	mg/L	0.3	0.2	9.99	0.01	✓
Nitrite - N	mq/L	<0.05	<0.05	9.990	0.010	✓
Hydroxide	mg/L	<5	<5	10		✓
Carbonate	mq/L	<6	<6	10		✓
Bicarbonate	mq/L	<5	<5	10		✓
P-Alkalinity	mq/L	<5	<5	10	5	✓
T-Alkalinity	mq/L	<5	<5	10	5	✓

Material Used: Edmonton Duplicate

Date Acquired: Sep 14, 2004

Acquired By: Amanda Mitchell



Quality Control

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

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Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
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LSD:
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Acct. Code:

NWL Lot ID: 332098
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Routine Water (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Chloride	mq/L	2020	2087	1875	2299	✓
Material Used:	Chloride High					
Date Acquired:	Sep 14, 2004					
Acquired By:						
Calcium	mg/L	246	251	237	265	✓
Magnesium	mg/L	97.6	102	95	109	✓
Sodium	mg/L	252	250	236	264	✓
Potassium	mg/L	252	251	234	268	✓
Iron	mg/L	9.54	9.73	9.26	10.20	✓
Manganese	mg/L	2.42	2.42	2.32	2.53	✓
Material Used:	Metals High					
Date Acquired:	Sep 14, 2004					
Acquired By:	Linda Li					
Calcium	mq/L	4.9	4.8	4.3	5.3	✓
Magnesium	mq/L	1.9	2.0	1.7	2.2	✓
Sodium	mq/L	4.9	5.2	4.3	6.1	✓
Potassium	mq/L	4.7	5.0	4.5	5.4	✓
Iron	mq/L	0.20	0.20	0.15	0.24	✓
Manganese	mq/L	0.049	0.049	0.044	0.054	✓
Material Used:	Metals Low					
Date Acquired:	Sep 14, 2004					
Acquired By:	Linda Li					
pH		9.20	9.23	9.11	9.35	✓
Electrical Conductivity	dS/m at 25	2.77	2.73	2.61	2.85	✓
Chloride	mq/L	82.6	81.0	76.4	85.6	✓
Nitrate - N	mq/L	10.1	10.0	9.6	10.4	✓
Nitrite - N	mq/L	1.1	10.0	9.6	10.4	✓
P-Alkalinity	mq/L	500	520	473	567	✓
T-Alkalinity	mq/L	1000	1005	972	1038	✓
Material Used:	Water High					
Date Acquired:	Sep 14, 2004					
Acquired By:	Amanda Mitchell					

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Benzene	ng	48.7	50	97	78-123	✓
Toluene	ng	50.9	50	102	78-123	✓
Ethylbenzene	ng	53.3	50	107	78-123	✓
Total Xylenes (m,p,o)	ng	159.2	150	106	78-123	✓
Material Used:	Calibration Check - BTEX					
Date Acquired:	Sep 14, 2004					
Acquired By:						



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Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
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Mono-Aromatic Hydrocarbons - Water

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Benzene	mq/L	<0.001	0.000	-0.002	0.002	✓
Toluene	mq/L	<0.001	0.000	-0.002	0.002	✓
Ethylbenzene	mq/L	<0.001	0.000	-0.002	0.002	✓
Total Xylenes (m,p,o)	mq/L	<0.001	0.000	-0.002	0.002	✓

Material Used: Method Blank - VHC

Date Acquired: Sep 15, 2004

Acquired By:

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Benzene	nq	50.0	50	100	78-123	✓
Toluene	nq	52.4	50	105	78-123	✓
Ethylbenzene	nq	54.5	50	109	78-123	✓
Total Xylenes (m,p,o)	nq	171.0	150	114	78-123	✓

Material Used: Calibration Check - BTEX

Date Acquired: Sep 14, 2004

Acquired By:

Extractable Petroleum Hydrocarbons - Water

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
F2 C10-C16	mg/L	<0.1	0.0	-0.2	0.2	✓
F3 C16-C34	mg/L	<0.1	0.0	-0.2	0.2	✓

Material Used: Method Blank - XHC

Date Acquired: Sep 16, 2004

Acquired By:

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
F2 C10-C16	ug/mL	2449.7	2320	106	78-123	✓
F3 C16-C34	ug/mL	1271.4	1204	106	78-123	✓

Material Used: Calibration Check - XHC

Date Acquired: Sep 15, 2004

Acquired By: My Linh Nguyen



Quality Control

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

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Polynuclear Aromatic Hydrocarbons - Water

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Naphthalene	uq/L	<0.01	0.00	-0.15	0.15	✓
Acenaphthylene	uq/L	<0.01	0.00	-0.15	0.15	✓
Acenaphthene	uq/L	<0.01	0.00	-0.15	0.15	✓
Fluorene	uq/L	<0.01	0.00	-0.15	0.15	✓
Phenanthrene	uq/L	<0.01	0.00	-0.15	0.15	✓
Anthracene	uq/L	<0.01	0.00	-0.15	0.15	✓
Acridine	uq/L	<0.01	0.00	-0.08	0.08	✓
Fluoranthene	uq/L	<0.02	0.00	-0.15	0.15	✓
Pyrene	uq/L	<0.02	0.00	-0.03	0.03	✓
Benzo(a)anthracene	uq/L	<0.01	0.00	-0.02	0.02	✓
Chrysene	uq/L	<0.01	0.00	-0.15	0.15	✓
Benzo(b)fluoranthene	uq/L	<0.01	0.00	-0.02	0.02	✓
Benzo(k)fluoranthene	uq/L	<0.01	0.00	-0.02	0.02	✓
Benzo(a)pyrene	uq/L	<0.01	0.00	-0.02	0.02	✓
Indeno(1,2,3-c,d)pyrene	uq/L	<0.01	0.00	-0.15	0.15	
Dibenzo(a,h)anthracene	uq/L	<0.01	0.00	-0.02	0.02	
Benzo(g,h,i)perylene	uq/L	<0.01	0.00	-0.15	0.15	

Material Used: Method Blank - SV

Date Acquired: Sep 20, 2004

Acquired By:

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Naphthalene	ng/mL	0.5	500	0	70-130	✓
Acenaphthylene	ng/mL	0.6	500		70-130	✓
Acenaphthene	ng/mL	0.5	500	0	70-130	✓
Fluorene	ng/mL	0.5	500	0	70-130	✓
Phenanthrene	ng/mL	0.5	500	0	70-130	✓
Anthracene	ng/mL	0.5	500	0	70-130	✓
Acridine	ng/mL	0.4	500	0	70-130	✓
Fluoranthene	ng/mL	0.5	500	0	70-130	✓
Pyrene	ng/mL	0.5	500	0	70-130	✓
Benzo(a)anthracene	ng/mL	0.5	500	0	70-130	✓
Chrysene	ng/mL	0.5	500	0	70-130	✓
Benzo(b)fluoranthene	ng/mL	0.5	500	0	70-130	✓
Benzo(k)fluoranthene	ng/mL	0.5	500	0	70-130	✓
Benzo(a)pyrene	ng/mL	0.5	500	0	70-130	✓
Indeno(1,2,3-c,d)pyrene	ng/mL	0.5	500	0	70-130	✓
Dibenzo(a,h)anthracene	ng/mL	0.5	500	0	70-130	✓
Benzo(g,h,i)perylene	ng/mL	0.4	500		70-130	✓

Material Used: Standard - PAHs

Date Acquired: Sep 20, 2004

Acquired By:



Quality Control

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
Control Number: E 94775
Date Received: Sep 13, 2004
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PAH - Water - Surrogate Recovery

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Nitrobenzene-d5	%	67	100	-110	310	✓
2-Fluorobiphenyl	%	39	100	-110	310	✓
p-Terphenyl-d14	%	54	100	-110	310	✓
Material Used:	Method Blank - SV					
Date Acquired:	Sep 20, 2004					
Acquired By:						

Polychlorinated Biphenyls - Water

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aroclor 1016	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1221	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1232	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1242	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1248	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1254	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1260	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1262	ug/L	<0.1	0.0	-0.2	0.2	✓
Aroclor 1268	ug/L	<0.1	0.0	-0.2	0.2	✓
Material Used:	Method Blank - SV					
Date Acquired:	Sep 27, 2004					
Acquired By:						

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Aroclor 1260	ug/mL	1.1	1	110	70-130	✓
Material Used:	Calibration Check - PCBs					
Date Acquired:	Sep 27, 2004					
Acquired By:	Inna Kazakov					

Polychlorinated Biphenyls - Water - Surrogate

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Decachlorobiphenyl	%	75	100	10	190	✓
Material Used:	Method Blank - SV					
Date Acquired:	Sep 27, 2004					
Acquired By:						



Methodology and Notes

Norwest Labs
7217 Roper Road
Edmonton, AB. T6B 3J4
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
Control Number: E 94775
Date Received: Sep 13, 2004
Date Reported: Oct 15, 2004
Report Number: 609481

Page: 27 of 28

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Alkalinity, pH, and EC in water	APHA	* Conductivity - Laboratory Method, 2510 B	14-Sep-04	Norwest Labs Edmonton
Alkalinity, pH, and EC in water	APHA	* Electrometric Method, 4500-H+ B	14-Sep-04	Norwest Labs Edmonton
Alkalinity, pH, and EC in water	APHA	* Titration Method, 2320 B	14-Sep-04	Norwest Labs Edmonton
Anions (Routine) by Ion Chromatography	APHA	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	14-Sep-04	Norwest Labs Edmonton
BTEX-CCME - Water	US EPA	* US EPA method, 8021B/5035B	15-Sep-04	Norwest Labs Calgary
Chloride in Water	APHA	* Automated Ferricyanide Method, 4500-Cl- E	14-Sep-04	Norwest Labs Edmonton
Chloride in Water	APHA	* Automated Ferricyanide Method, 4500-Cl- E	14-Sep-04	Norwest Labs Edmonton
Mercury (Total) in water	MDMES	* Determination of Mercury in Water by Cold Vapor Atomic Absor, 245.1	15-Sep-04	Norwest Labs Edmonton
Mercury (Total) in water	MDMES	* Determination of Mercury in Water by Cold Vapor Atomic Absor, 245.1	21-Sep-04	Norwest Labs Edmonton
Metals ICP-MS (Dissolved) in water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	15-Oct-04	Norwest Labs Edmonton
Metals ICP-MS (Total) in water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	14-Sep-04	Norwest Labs Edmonton
Metals Trace (Dissolved) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	14-Sep-04	Norwest Labs Edmonton
Metals Trace (Total) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	14-Sep-04	Norwest Labs Edmonton
PAH - Water	US EPA	* US EPA method, 8270	21-Sep-04	Norwest Labs Calgary
PCB - Water	US EPA	* US EPA method, 8082	23-Sep-04	Norwest Labs Calgary
PCB - Water	US EPA	* US EPA method, 8082	27-Sep-04	Norwest Labs Calgary
PCB - Water	US EPA	* US EPA method, 8082	27-Sep-04	Norwest Labs Calgary
PCB - Water	US EPA	* US EPA method, 8082	29-Sep-04	Norwest Labs Calgary
TEH-CCME - Water	Alta. Env. Method	Hydrocarbon Soil and Water Quality Guidelines, C51260500	16-Sep-04	Norwest Labs Calgary
TEH-CCME - Water	Alta. Env. Method	Hydrocarbon Soil and Water Quality Guidelines, C51260500	17-Sep-04	Norwest Labs Calgary

* Norwest method(s) is based on reference method

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



Methodology and Notes

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T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID:
Name: Ekalugad
Location:
LSD:
P.O.: 131-1739
Acct. Code:

NWL Lot ID: 332098
Control Number: E 94775
Date Received: Sep 13, 2004
Date Reported: Oct 15, 2004
Report Number: 609481

Page: 28 of 28

References:

Alta. Env. Method	Alberta Environment Method
APHA	Standard Methods for the Examination of Water and Wastewater
MDMES	Mthds for the Determination of Metals in Enviromental Smpls
US EPA	US Environmental Protection Agency Test Methods

Comments:

NA-Not available. The extract from TEH was used to analyze sample #6 for PCB due to lack of the sample, therefore no surrogate was added. IK 04/09/27
Report 609481 is supplementary to report 594399 to include added TW21 - dissolved metals to samples 1 to 5 as per Matthew. Ilg 04/10/14
Some total metal results were less than dissolved metal results for Lot 332098. The results were checked and are within the method uncertainty.FM

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NORWEST LABS

332206

Control Number **E** 94778

Environmental Sample Information Sheet

NOTE: Proper completion of this form is required in order to proceed with analysis
See reverse for your nearest Norwest location and proper sampling protocol

Billing Address: Company: Earth Tech Canada Inc. Address: 17203 - 103 Avenue Edmonton, AB T5S 1J4 Attention: Environmental Group Phone: (780) 488-6800 Fax: (780) 488-2121 Cell: e-mail: gwoollett@earthtech.ca		Copy of Report To: Company: Address: Attention: Phone: Fax: Cell: e-mail:	Copy of invoice: Mail invoice to this address for approval ☐ Report Result: Fax ☐ Mail ☐ Courier ☐ e-mail ☐
QA/QC Report ☒		Report Result: Fax ☐ Mail ☐ Courier ☐ e-mail ☐	

Information to be included on Report and Invoice Project ID: 78850 Project Name: Ekalugad Fjord Project Location: Ekalugad Legal Location: PO#: 131-1739 Proj. Acct. Code: 78850 Agreement ID: 40857	RUSH Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis Required on: all analyses or as indicated ☐ or ☐ Date Required: _____ Signature: _____ Norwest Authorization: _____	Sample Custody (Please Print) Sampled by: MANI Date 09/09/04 Company ETC Signature M. M. Z. Relinquished by: 717-2655 Date Company Waybill number: Received by: Company Date
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Special Instructions / Comments ☐ Check here if Norwest is required to report results directly to a regulatory body (Please include contact information) As per Matt, client is requesting a fuel-type assessment with chromatogram - 2x Sept 13 Samples are various fuels.							Number of Containers PCB2 PCMS PAH2 Product ID ETC 60 052001									
Sample Identification	Location	Depth IN CM M	Date / Time Sampled	Matrix	Sampling Method	Enter tests above (✓ relevant samples below)										
1 MS Barrel #3		—				X										
2 2		—				X										
3 8		—				X										
4 1		—				X										
5 9		—				X										
6 3		—				X										
7 MS Barrel #2		—				X										
8 MS Barrel #1		—				X										
9 US - BS-01 =2		—			2	X										
10 BA - BDI-01		—			1	X										
11		—														
12		—														
13		—														
14		—														
15		—														

NOTE: All hazardous samples must be labelled according to WHMIS guidelines.
Accredited by the Standards Council of Canada for specific tests

Page ____ of ____
##



Analytical Report

Norwest Labs
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Fax: (780) 438-0396

Bill to: Earth Tech Canada Inc.
Report to: Earth Tech Canada Inc.
17203 - 103 Avenue
Edmonton, AB, Canada
T5S 1J4
Attn: Environmental Group
Sampled By: MAM
Company: ETC

Project
ID: 78850
Name: Ekalugad Fjord
Location: Ekalugad
LSD:
P.O.: 131-1739
Acct. Code: 78850

NWL Lot ID: 332206
Control Number: E 94778
Date Received: Sep 13, 2004
Date Reported: Sep 24, 2004
Report Number: 594547

Page: 1 of 3

NWL Number 332206-9
Sample Date Sep 09, 2004
Sample Description US-BS-01
Matrix Oily waste

Analyte	Units	Results	Results	Results	Detection Limit
Metals Strong Acid Extractable					
Aluminum	Strong Acid Extractable ug/g	35.8			1
Antimony	Strong Acid Extractable ug/g	<1			2
Arsenic	Strong Acid Extractable ug/g	<2			4
Barium	Strong Acid Extractable ug/g	0.839			0.05
Beryllium	Strong Acid Extractable ug/g	<0.02			0.05
Cadmium	Strong Acid Extractable ug/g	<0.02			0.05
Calcium	Strong Acid Extractable ug/g	20.0			1
Cobalt	Strong Acid Extractable ug/g	0.769			0.1
Copper	Strong Acid Extractable ug/g	<0.05			0.1
Iron	Strong Acid Extractable ug/g	2.32			0.1
Lead	Strong Acid Extractable ug/g	39.8			0.2
Lithium	Strong Acid Extractable ug/g	1.3			1
Magnesium	Strong Acid Extractable ug/g	1.7			0.6
Manganese	Strong Acid Extractable ug/g	<0.5			1
Molybdenum	Strong Acid Extractable ug/g	0.650			0.05
Nickel	Strong Acid Extractable ug/g	<0.5			1
Potassium	Strong Acid Extractable ug/g	4.30			0.2
Selenium	Strong Acid Extractable ug/g	<50			100
Sodium	Strong Acid Extractable ug/g	<5			10
Strontium	Strong Acid Extractable ug/g	42.0			5
Tin	Strong Acid Extractable ug/g	0.41			0.5
Titanium	Strong Acid Extractable ug/g	<0.5			1
Uranium	Strong Acid Extractable ug/g	0.75			0.4
Vanadium	Strong Acid Extractable ug/g	<3			6
Zinc	Strong Acid Extractable ug/g	0.084			0.1
Zirconium	Strong Acid Extractable ug/g	6.80			0.1
	Strong Acid Extractable ug/g	<0.2			0.5
Polychlorinated Biphenyls - Oil					
Aroclor 1016	mg/kg	<0.5			0.5
Aroclor 1221	mg/kg	<0.5			0.5
Aroclor 1232	mg/kg	<0.5			0.5
Aroclor 1242	mg/kg	<0.5			0.5
Aroclor 1248	mg/kg	<0.5			0.5
Aroclor 1254	mg/kg	<0.5			0.5
Aroclor 1260	mg/kg	<0.5			0.5



Analytical Report

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Company: ETC

Project
ID: 78850
Name: Ekalugad Fjord
Location: Ekalugad
LSD:
P.O.: 131-1739
Acct. Code: 78850

NWL Lot ID: 332206
Control Number: E 94778
Date Received: Sep 13, 2004
Date Reported: Sep 24, 2004
Report Number: 594547

Page: 2 of 3

NWL Number 332206-9
Sample Date Sep 09, 2004
Sample Description US-BS-01
Matrix Oily waste

Analyte	Units	Results	Results	Results	Detection Limit
Polychlorinated Biphenyls - Oil - Continued					
Aroclor 1262	mg/kg	<0.5			0.5
Aroclor 1268	mg/kg	<0.5			0.5
Total PCBs	mg/kg	<0.5			0.5
Polychlorinated Biphenyls - Oil - Surrogate					
Decachlorobiphenyl Surrogate	%	56			50-150

Approved by:

Darren Crichton, BSc, PChem
Operations Chemist