

# Test Result Analysis Report

*July 7, 2005*

## Sheep River sampling at Turner Valley June 18-22, 2005

### BACKGROUND

As with the earlier June 7<sup>th</sup> storm event, Alberta Environment conducted sampling on the Sheep River during the June 18<sup>th</sup> storm event in response to concerns that recent storm and flooding events introduced contamination from the Turner Valley Gas Plant into the water.

### SAMPLING

This second set of sampling events occurred on June 18<sup>th</sup>, 20<sup>th</sup> and 22<sup>nd</sup>.

Sampling on the 18<sup>th</sup>, 20<sup>th</sup> and 22<sup>nd</sup> resulted in collections upstream (100-200 meters above the gas plant) and downstream (directly below the gas plant). Between six to eight samples were taken at each collection point.

### RESULTS ANALYSIS

The focus of the testing was hydrocarbons, mercury, chromium and other metals.

Analysis of the June 18<sup>th</sup> samples indicated no detectable hydrocarbon contamination above or below the gas plant site. A number of metals were at the level expected during a significant storm event. Mercury levels were not detectable and hexavalent chromium was also not detectable. There were low levels of polycyclic aromatic hydrocarbons (usual sources are deposition of airborne PAHs, wastewater discharge, storm water runoff).

Analysis of the June 20<sup>th</sup> and 22<sup>nd</sup> samples again indicated no hydrocarbon contamination either above or below the gas plant site. The results for metals dropped dramatically, likely because the water flow had decreased. Mercury and hexavalent chromium were again not detectable. Polycyclic aromatic hydrocarbons were at very low levels both above and below the gas plant.

Appendix A contains the complete test results.

### NEXT STEPS

Further water sampling may be facilitated around the Turner Valley Gas Plant site as further significant storm and flooding events warrant. Additional sampling will be scheduled based on future results and activities.

# Appendix A

## Test Results Data

### Alberta Environment Sampling of Turner Valley Gas Plant

#### June 18th Storm Event

Sample Date	Sample Location	ETL Tests Requested	Result	Comments
June 18th	1-200 meters upstream of TV gas plant	BTEX, F1 & F2	none detected	no F2 (>C10-C16), Benzene, Toluene, EthylBenzene, Xylenes, F1(C6-C10), F1(BTEX)
		Chromium, Hexavalent	none detected	
		Mercury (total / dissolved)	none detected	
		Metals (Total / Dissolved)	no concerns	monitor trends i.e. total Al (54.2) & total Pb (0.035)
		Alberta Tier 1 & Carc PAHs	17 of 21 parameters were not detected, the remainder were at acceptably low levels	For example 0.00006 Naphthalene; 0.00002 Flourene; 0.00009 Phenanthrene; non-detect on Pyrene
June 18th	directly downstream of TV gas plant	BTEX, F1 & F2	none detected	no F2 (>C10-C16), Benzene, Toluene, EthylBenzene, Xylenes, F1(C6-C10), F1(BTEX)
		Chromium, Hexavalent	none detected	
		Mercury (total / dissolved)	none detected	
		Metals (Total / Dissolved)	no concerns	monitor trends i.e. total Al (52.8) & total Pb (0.035)
		Alberta Tier 1 & Carc PAHs	15 of 21 parameters were not detected, the remainder were at acceptably low levels	For example 0.00009 Naphthalene; 0.00003 Flourene; 0.00020 Phenanthrene; 0.00002 Pyrene
June 20th	1-200 meters upstream of TV gas plant	BTEX, F1 & F2	none detected	no F2 (>C10-C16), Benzene, Toluene, EthylBenzene, Xylenes, F1(C6-C10), F1(BTEX)
		Chromium, Hexavalent	none detected	
		Mercury (total / dissolved)	none detected	
		Metals (Total / Dissolved)	no concerns	monitor trends i.e. total Al (4.29) & total Pb (not detected)
		Alberta Tier 1 & Carc PAHs	15 of 21 parameters were not detected, the remainder were at acceptably low levels	For example 0.00007 Naphthalene; 0.00003 Flourene; 0.00012 Phenanthrene; 0.00002 Pyrene
June 20th	directly downstream of TV gas plant	BTEX, F1 & F2	none detected	no F2 (>C10-C16), Benzene, Toluene, EthylBenzene, Xylenes, F1(C6-C10), F1(BTEX)
		Chromium, Hexavalent	none detected	
		Mercury (total / dissolved)	none detected	
		Metals (Total / Dissolved)	no concerns	monitor trends i.e. total Al (0.02) & total Pb (not detected)
		Alberta Tier 1 & Carc PAHs	17 of 21 parameters were not detected, the remainder were at acceptably low levels	For example 0.00008 Naphthalene; 0.00002 Flourene; 0.00014 Phenanthrene; non-detect on Pyrene
June 22nd	1-200 meters upstream of TV gas plant	BTEX, F1 & F2	none detected	no F2 (>C10-C16), Benzene, Toluene, EthylBenzene, Xylenes, F1(C6-C10), F1(BTEX)
		Chromium, Hexavalent	none detected	
		Mercury (total / dissolved)	none detected	
		Metals (Total / Dissolved)	no concerns	monitor trends i.e. total Al (8.21) & total Pb (not detected)
		Alberta Tier 1 & Carc PAHs	18 of 21 parameters were not detected, the remainder were at acceptably low levels	For example 0.00003 Naphthalene; 0.00001 Flourene; 0.00006 Phenanthrene; non-detect on Pyrene
June 22nd	directly downstream of TV gas plant	BTEX, F1 & F2	none detected	no F2 (>C10-C16), Benzene, Toluene, EthylBenzene, Xylenes, F1(C6-C10), F1(BTEX)
		Chromium, Hexavalent	none detected	
		Mercury (total / dissolved)	none detected	
		Metals (Total / Dissolved)	no concerns	monitor trends i.e. total Al (10.4) & total Pb (not detected)
		Alberta Tier 1 & Carc PAHs	19 of 21 parameters were not detected, the remainder were at acceptably low levels	For example 0.00003 Naphthalene; non-detect on Flourene; 0.00005 Phenanthrene; non-detect on Pyrene

**PRELIMINARY RESULTS**

ALBERTA ENVIRONMENT

**DATE:** 22-JUN-05 04:41 PM

**ATTN:** KEVIN PILGER

2 FL DEERFOOT SQ 2938 11 ST NE

CALGARY AB T2E 7L7

**Lab Work Order #:** L278911

**Sampled By:** NOT PROVIDED

**Date Received:** 20-JUN-05

**Project P.O. #:** NA

**Project Reference:** TV UPSTREAM

**Comments:**

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RON MINKS  
Director of Operations, Calgary

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KELLY JONES  
Client Service Specialist

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

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## ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L278911-1 TVVS - 050618 1300								
Sample Date: 18-JUN-05 13:00								
Matrix: WATER								
<b>BTEX, F1 (C6-C10) and F2 (&gt;C10-C16)</b>								
F2 (>C10-C16)	<0.05		0.05	mg/L	20-JUN-05	20-JUN-05	RLB	R295387
<b>BTEX and F1 (C6-C10)</b>								
Benzene	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
Toluene	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
EthylBenzene	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
Xylenes	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
F1(C6-C10)	<0.1		0.1	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
F1-BTEX	<0.1		0.1	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		21-JUN-05	CLL	R295824
Aluminum (Al)	54.2		0.01	mg/L		21-JUN-05	CLL	R295824
Boron (B)	0.09		0.05	mg/L		21-JUN-05	CLL	R295824
Barium (Ba)	1.22		0.003	mg/L		21-JUN-05	CLL	R295824
Beryllium (Be)	0.002		0.002	mg/L		21-JUN-05	CLL	R295824
Cadmium (Cd)	<0.001		0.001	mg/L		21-JUN-05	CLL	R295824
Cobalt (Co)	0.021		0.002	mg/L		21-JUN-05	CLL	R295824
Chromium (Cr)	0.077		0.005	mg/L		21-JUN-05	CLL	R295824
Copper (Cu)	0.059		0.001	mg/L		21-JUN-05	CLL	R295824
Molybdenum (Mo)	0.005		0.005	mg/L		21-JUN-05	CLL	R295824
Nickel (Ni)	0.074		0.002	mg/L		21-JUN-05	CLL	R295824
Lead (Pb)	0.035		0.005	mg/L		21-JUN-05	CLL	R295824
Tin (Sn)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Strontium (Sr)	0.301		0.002	mg/L		21-JUN-05	CLL	R295824
Titanium (Ti)	0.137		0.001	mg/L		21-JUN-05	CLL	R295824
Thallium (Tl)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Vanadium (V)	0.156		0.001	mg/L		21-JUN-05	CLL	R295824
Zinc (Zn)	0.233		0.001	mg/L		21-JUN-05	CLL	R295824
<b>Total Major Metals</b>								
Calcium (Ca)	140		0.5	mg/L		21-JUN-05	HAS	R295823
Potassium (K)	19.0		0.1	mg/L		21-JUN-05	HAS	R295823
Magnesium (Mg)	32.5		0.1	mg/L		21-JUN-05	HAS	R295823
Sodium (Na)	3		1	mg/L		21-JUN-05	HAS	R295823
Iron (Fe)	64.1		0.005	mg/L		21-JUN-05	HAS	R295823
Manganese (Mn)	0.627	RAMB	0.001	mg/L		21-JUN-05	HAS	R295823
Chromium, Hexavalent	<0.001		0.001	mg/L		20-JUN-05	CVE	R295465
Mercury (Hg)-Dissolved	<0.0002		0.0002	mg/L		20-JUN-05	MX	R295594
Mercury (Hg)-Total	<0.0002		0.0002	mg/L		21-JUN-05	CLL	R295824
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
Naphthalene	0.00006		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Acenaphthylene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Acenaphthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Fluorene	0.00002		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Phenanthrene	0.00009		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Anthracene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Fluoranthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Pyrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(c)phenanthrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(a)anthracene	0.00002		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Chrysene	<0.00001	RAMB	0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521

## ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L278911-1 TVVS - 050618 1300								
Sample Date: 18-JUN-05 13:00								
Matrix: WATER								
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
7,12-Dimethylbenz(a)anthracene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(b)fluoranthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(j)fluoranthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(k)fluoranthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(a)pyrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
3-Methylcholanthrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Indeno(1,2,3-cd)pyrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h)anthracene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(g,h,i)perylene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h/a,i,a,l)pyrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Surr: Nitrobenzene d5	41	H	42-107	%	20-JUN-05	22-JUN-05	JME	R295521
Surr: 2-Fluorobiphenyl	44	H	48-104	%	20-JUN-05	22-JUN-05	JME	R295521
Surr: p-Terphenyl d14	53	H	63-132	%	20-JUN-05	22-JUN-05	JME	R295521
Equivalent B(a)P Concentration	<0.00003		0.00003	mg/L	20-JUN-05	22-JUN-05	JME	R295521
<b>Major Ions &amp; Dissolved Metals</b>								
Iron (Fe)-Dissolved	0.122		0.005	mg/L		20-JUN-05	HAS	R295371
Manganese (Mn)-Dissolved	0.003		0.001	mg/L		20-JUN-05	HAS	R295371
Chloride (Cl)	1.6		0.1	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Nitrate+Nitrite-N	0.16		0.05	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Nitrate-N	0.16		0.05	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Nitrite-N	<0.05		0.05	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Sulphate (SO4)	26.2		0.5	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
<b>pH, Conductivity and Total Alkalinity</b>								
pH	7.5		0.1	pH		20-JUN-05	LHH	R295296
Conductivity (EC)	224		3	uS/cm		20-JUN-05	LHH	R295296
Bicarbonate (HCO3)	116		5	mg/L		21-JUN-05	LHH	R295634
Carbonate (CO3)	<5		5	mg/L		20-JUN-05	LHH	R295296
Hydroxide (OH)	<5		5	mg/L		20-JUN-05	LHH	R295296
Alkalinity, Total (as CaCO3)	95		5	mg/L		21-JUN-05	LHH	R295634
<b>Ion Balance Calculation</b>								
Ion Balance	102			%		21-JUN-05		
TDS (Calculated)	132			mg/L		21-JUN-05		
Hardness (as CaCO3)	122			mg/L		21-JUN-05		
<b>ICP metals for routine water</b>								
Calcium (Ca)	35.8		0.5	mg/L		20-JUN-05	KG	R295486
Potassium (K)	1.3		0.1	mg/L		20-JUN-05	KG	R295486
Magnesium (Mg)	7.8		0.1	mg/L		20-JUN-05	KG	R295486
Sodium (Na)	2		1	mg/L		20-JUN-05	KG	R295486
<b>Dissolved Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		20-JUN-05	MX	R295594
Aluminum (Al)	0.06		0.01	mg/L		20-JUN-05	MX	R295594
Boron (B)	<0.05		0.05	mg/L		20-JUN-05	MX	R295594
Barium (Ba)	0.060		0.003	mg/L		20-JUN-05	MX	R295594
Beryllium (Be)	<0.001		0.001	mg/L		20-JUN-05	MX	R295594
Cadmium (Cd)	<0.001		0.001	mg/L		20-JUN-05	MX	R295594
Cobalt (Co)	<0.002		0.002	mg/L		20-JUN-05	MX	R295594
Chromium (Cr)	<0.005		0.005	mg/L		20-JUN-05	MX	R295594
Copper (Cu)	0.002		0.001	mg/L		20-JUN-05	MX	R295594
Molybdenum (Mo)	<0.005		0.005	mg/L		20-JUN-05	MX	R295594
Nickel (Ni)	<0.002		0.002	mg/L		20-JUN-05	MX	R295594

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L278911-1 TVVS - 050618 1300								
Sample Date: 18-JUN-05 13:00								
Matrix: WATER								
<b>Major Ions &amp; Dissolved Metals</b>								
<b>Dissolved Trace Metals</b>								
Lead (Pb)	<0.005		0.005	mg/L		20-JUN-05	MX	R295594
Tin (Sn)	<0.05		0.05	mg/L		20-JUN-05	MX	R295594
Strontium (Sr)	0.139		0.005	mg/L		20-JUN-05	MX	R295594
Titanium (Ti)	0.005		0.001	mg/L		20-JUN-05	MX	R295594
Thallium (Tl)	<0.05		0.05	mg/L		20-JUN-05	MX	R295594
Vanadium (V)	<0.001		0.001	mg/L		20-JUN-05	MX	R295594
Zinc (Zn)	0.004		0.001	mg/L		20-JUN-05	MX	R295594
Refer to Referenced Information for Qualifiers (if any) and Methodology.								

## Reference Information

**Sample Parameter Qualifier key listed:**

Qualifier	Description
H	Result falls within the 99% Confidence Interval (Laboratory Control Limits)
RAMB	Result Adjusted For Method Blank

**Methods Listed (if applicable):**

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX,F1-CL	Water	BTEX and F1 (C6-C10)	EPA 5030B	EPA 5030/8015& 8260-P&T GC-MS/FID
CL-CL	Water	Chloride (Cl)		APHA 4110 B-Ion Chromatography
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)		APHA 3500-Cr C (Ion Chromatography)
ETL-ROUTINE-ICP-CL	Water	ICP metals for routine water		APHA 3120 B-ICP-OES
F2-CL	Water	F2 (>C10-C16)	EPA 3550B	EPA 3510/8000-GC-FID
FE-DIS-ED	Water	Iron (Fe)-Dissolved		EPA 200.7
HG-DIS-HYD-ED	Water	Mercury (Hg)-Dissolved (CVAA)		EPA 6020
HG-TOT-HYD-ED	Water	Mercury (Hg)-Total (CVAA)	EPA3015	EPA 6020
IONBALANCE-CL	Water	Ion Balance Calculation		APHA 1030E
MET1-DIS-ED	Water	Dissolved Trace Metals		EPA 6020
MET1-TOT-ED	Water	Total Trace Metals	EPA3015	EPA 6020
MET2-TOT-ED	Water	Total Major Metals	EPA3015	EPA 200.7
MN-DIS-ED	Water	Manganese (Mn)-Dissolved		EPA 200.7
N2N3-CL	Water	Nitrate+Nitrite-N		APHA 4110 B-Ion Chromatography
NO2-CL	Water	Nitrite-N		APHA 4110 B-Ion Chromatography
NO3-IC-CL	Water	Nitrate-N		APHA 4110 B-Ion Chromatography
PAH-ABT1,CARCINO-ED	Water	AB Tier1 & Carcinogenic PAHs	EPA 3510	EPA 3510/8270-GC/MS
PH/EC/ALK-CL	Water	pH, Conductivity and Total Alkalinity		APHA 4500H,2510,2320
SO4-CL	Water	Sulfate (SO4)		APHA 4110 B-Ion Chromatography

\*\* Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

*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	Laboratory Definition Code	Laboratory Location
CL	Enviro-Test Laboratories - Calgary, Alberta, Canada	ED	Enviro-Test Laboratories - Edmonton, Alberta, Canada

## Reference Information

### GLOSSARY OF REPORT TERMS

*Surr* - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading D.L.

*mg/kg (units)* - unit of concentration based on mass, parts per million

*mg/L (units)* - unit of concentration based on volume, parts per million

*<* - Less than

*D.L.* - Detection 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.*

*UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.*

*Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.*

*Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.*



**PRELIMINARY RESULTS**

ALBERTA ENVIRONMENT

DATE: 22-JUN-05 04:41 PM

ATTN: KEVIN PILGER

2 FL DEERFOOT SQ 2938 11 ST NE

CALGARY AB T2E 7L7

Lab Work Order #: L278919

Sampled By: KP

Date Received: 20-JUN-05

Project P.O. #: NA

Project Reference: NA

Comments:

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RON MINKS  
Director of Operations, Calgary

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KELLY JONES  
Client Service Specialist

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ANY REMAINING SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU  
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

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## ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L278919-1 0506181330								
Sample Date: 18-JUN-05 13:00								
Matrix: WATER								
<b>BTEX, F1 (C6-C10) and F2 (&gt;C10-C16)</b>								
F2 (>C10-C16)	<0.05		0.05	mg/L	20-JUN-05	20-JUN-05	RLB	R295387
<b>BTEX and F1 (C6-C10)</b>								
Benzene	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
Toluene	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
EthylBenzene	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
Xylenes	<0.0005		0.0005	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
F1(C6-C10)	<0.1		0.1	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
F1-BTEX	<0.1		0.1	mg/L	18-JUN-05	20-JUN-05	SBH	R295367
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		21-JUN-05	CLL	R295824
Aluminum (Al)	52.8		0.01	mg/L		21-JUN-05	CLL	R295824
Boron (B)	0.09		0.05	mg/L		21-JUN-05	CLL	R295824
Barium (Ba)	1.23		0.003	mg/L		21-JUN-05	CLL	R295824
Beryllium (Be)	0.002		0.002	mg/L		21-JUN-05	CLL	R295824
Cadmium (Cd)	<0.001		0.001	mg/L		21-JUN-05	CLL	R295824
Cobalt (Co)	0.021		0.002	mg/L		21-JUN-05	CLL	R295824
Chromium (Cr)	0.073		0.005	mg/L		21-JUN-05	CLL	R295824
Copper (Cu)	0.059		0.001	mg/L		21-JUN-05	CLL	R295824
Molybdenum (Mo)	0.006		0.005	mg/L		21-JUN-05	CLL	R295824
Nickel (Ni)	0.074		0.002	mg/L		21-JUN-05	CLL	R295824
Lead (Pb)	0.035		0.005	mg/L		21-JUN-05	CLL	R295824
Tin (Sn)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Strontium (Sr)	0.303		0.002	mg/L		21-JUN-05	CLL	R295824
Titanium (Ti)	0.131		0.001	mg/L		21-JUN-05	CLL	R295824
Thallium (Tl)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Vanadium (V)	0.153		0.001	mg/L		21-JUN-05	CLL	R295824
Zinc (Zn)	0.236		0.001	mg/L		21-JUN-05	CLL	R295824
<b>Total Major Metals</b>								
Calcium (Ca)	136		0.5	mg/L		21-JUN-05	HAS	R295823
Potassium (K)	18.9		0.1	mg/L		21-JUN-05	HAS	R295823
Magnesium (Mg)	31.2		0.1	mg/L		21-JUN-05	HAS	R295823
Sodium (Na)	3		1	mg/L		21-JUN-05	HAS	R295823
Iron (Fe)	62.2		0.005	mg/L		21-JUN-05	HAS	R295823
Manganese (Mn)	0.598	RAMB	0.001	mg/L		21-JUN-05	HAS	R295823
Chromium, Hexavalent	<0.001		0.001	mg/L		20-JUN-05	CVE	R295465
Mercury (Hg)-Dissolved	<0.0002		0.0002	mg/L		20-JUN-05	MX	R295594
Mercury (Hg)-Total	<0.0002		0.0002	mg/L		21-JUN-05	CLL	R295824
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
Naphthalene	0.00009		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Acenaphthylene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Acenaphthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Fluorene	0.00003		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Phenanthrene	0.00020		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Anthracene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Fluoranthene	<0.00001	RAMB	0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Pyrene	0.00002		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(c)phenanthrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(a)anthracene	0.00004		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Chrysene	0.00002		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L278919-1 0506181330								
Sample Date: 18-JUN-05 13:00								
Matrix: WATER								
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
7,12-Dimethylbenz(a)anthracene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(b)fluoranthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(j)fluoranthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(k)fluoranthene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(a)pyrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
3-Methylcholanthrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Indeno(1,2,3-cd)pyrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h)anthracene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Benzo(g,h,i)perylene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h/a,i/a,l)pyrene	<0.00001		0.00001	mg/L	20-JUN-05	22-JUN-05	JME	R295521
Surr: Nitrobenzene d5	75		42-107	%	20-JUN-05	22-JUN-05	JME	R295521
Surr: 2-Fluorobiphenyl	84		48-104	%	20-JUN-05	22-JUN-05	JME	R295521
Surr: p-Terphenyl d14	102		63-132	%	20-JUN-05	22-JUN-05	JME	R295521
Equivalent B(a)P Concentration	<0.00003		0.00003	mg/L	20-JUN-05	22-JUN-05	JME	R295521
<b>Major Ions &amp; Dissolved Metals</b>								
Iron (Fe)-Dissolved	0.114		0.005	mg/L		20-JUN-05	HAS	R295371
Manganese (Mn)-Dissolved	0.003		0.001	mg/L		20-JUN-05	HAS	R295371
Chloride (Cl)	1.2		0.1	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Nitrate+Nitrite-N	0.15		0.05	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Nitrate-N	0.15		0.05	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Nitrite-N	<0.05		0.05	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
Sulphate (SO4)	26.2		0.5	mg/L	20-JUN-05	20-JUN-05	WJR	R295156
<b>pH, Conductivity and Total Alkalinity</b>								
pH	7.6		0.1	pH		20-JUN-05	LHH	R295296
Conductivity (EC)	223		3	uS/cm		20-JUN-05	LHH	R295296
Bicarbonate (HCO3)	134		5	mg/L		20-JUN-05	LHH	R295296
Carbonate (CO3)	<5		5	mg/L		20-JUN-05	LHH	R295296
Hydroxide (OH)	<5		5	mg/L		20-JUN-05	LHH	R295296
Alkalinity, Total (as CaCO3)	110		5	mg/L		20-JUN-05	LHH	R295296
<b>Ion Balance Calculation</b>								
Ion Balance	92.7			%		21-JUN-05		
TDS (Calculated)	142			mg/L		21-JUN-05		
Hardness (as CaCO3)	123			mg/L		21-JUN-05		
<b>ICP metals for routine water</b>								
Calcium (Ca)	36.3		0.5	mg/L		20-JUN-05	KG	R295486
Potassium (K)	1.3		0.1	mg/L		20-JUN-05	KG	R295486
Magnesium (Mg)	7.9		0.1	mg/L		20-JUN-05	KG	R295486
Sodium (Na)	2		1	mg/L		20-JUN-05	KG	R295486
<b>Dissolved Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		20-JUN-05	MX	R295594
Aluminum (Al)	0.07		0.01	mg/L		20-JUN-05	MX	R295594
Boron (B)	<0.05		0.05	mg/L		20-JUN-05	MX	R295594
Barium (Ba)	0.062		0.003	mg/L		20-JUN-05	MX	R295594
Beryllium (Be)	<0.001		0.001	mg/L		20-JUN-05	MX	R295594
Cadmium (Cd)	<0.001		0.001	mg/L		20-JUN-05	MX	R295594
Cobalt (Co)	<0.002		0.002	mg/L		20-JUN-05	MX	R295594
Chromium (Cr)	0.006		0.005	mg/L		20-JUN-05	MX	R295594
Copper (Cu)	0.002		0.001	mg/L		20-JUN-05	MX	R295594
Molybdenum (Mo)	<0.005		0.005	mg/L		20-JUN-05	MX	R295594
Nickel (Ni)	<0.002		0.002	mg/L		20-JUN-05	MX	R295594

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L278919-1      0506181330 Sample Date: 18-JUN-05 13:00 Matrix: WATER								
<b>Major Ions &amp; Dissolved Metals</b>								
<b>Dissolved Trace Metals</b>								
Lead (Pb)	<0.005		0.005	mg/L		20-JUN-05	MX	R295594
Tin (Sn)	<0.05		0.05	mg/L		20-JUN-05	MX	R295594
Strontium (Sr)	0.140		0.005	mg/L		20-JUN-05	MX	R295594
Titanium (Ti)	0.004		0.001	mg/L		20-JUN-05	MX	R295594
Thallium (Tl)	<0.05		0.05	mg/L		20-JUN-05	MX	R295594
Vanadium (V)	<0.001		0.001	mg/L		20-JUN-05	MX	R295594
Zinc (Zn)	0.002		0.001	mg/L		20-JUN-05	MX	R295594
Refer to Referenced Information for Qualifiers (if any) and Methodology.								

## Reference Information

**Sample Parameter Qualifier key listed:**

Qualifier	Description
RAMB	Result Adjusted For Method Blank

**Methods Listed (if applicable):**

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX,F1-CL	Water	BTEX and F1 (C6-C10)	EPA 5030B	EPA 5030/8015& 8260-P&T GC-MS/FID
CL-CL	Water	Chloride (Cl)		APHA 4110 B-Ion Chromatography
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)		APHA 3500-Cr C (Ion Chromatography)
ETL-ROUTINE-ICP-CL	Water	ICP metals for routine water		APHA 3120 B-ICP-OES
F2-CL	Water	F2 (>C10-C16)	EPA 3550B	EPA 3510/8000-GC-FID
FE-DIS-ED	Water	Iron (Fe)-Dissolved		EPA 200.7
HG-DIS-HYD-ED	Water	Mercury (Hg)-Dissolved (CVAA)		EPA 6020
HG-TOT-HYD-ED	Water	Mercury (Hg)-Total (CVAA)	EPA3015	EPA 6020
IONBALANCE-CL	Water	Ion Balance Calculation		APHA 1030E
MET1-DIS-ED	Water	Dissolved Trace Metals		EPA 6020
MET1-TOT-ED	Water	Total Trace Metals	EPA3015	EPA 6020
MET2-TOT-ED	Water	Total Major Metals	EPA3015	EPA 200.7
MN-DIS-ED	Water	Manganese (Mn)-Dissolved		EPA 200.7
N2N3-CL	Water	Nitrate+Nitrite-N		APHA 4110 B-Ion Chromatography
NO2-CL	Water	Nitrite-N		APHA 4110 B-Ion Chromatography
NO3-IC-CL	Water	Nitrate-N		APHA 4110 B-Ion Chromatography
PAH-ABT1,CARCINO-ED	Water	AB Tier1 & Carcinogenic PAHs	EPA 3510	EPA 3510/8270-GC/MS
PH/EC/ALK-CL	Water	pH, Conductivity and Total Alkalinity		APHA 4500H,2510,2320
SO4-CL	Water	Sulfate (SO4)		APHA 4110 B-Ion Chromatography

\*\* Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

*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	Laboratory Definition Code	Laboratory Location
CL	Enviro-Test Laboratories - Calgary, Alberta, Canada	ED	Enviro-Test Laboratories - Edmonton, Alberta, Canada

## Reference Information

### GLOSSARY OF REPORT TERMS

*Surr* - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading D.L.

*mg/kg (units)* - unit of concentration based on mass, parts per million

*mg/L (units)* - unit of concentration based on volume, parts per million

*<* - Less than

*D.L.* - Detection 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.*

*UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.*

*Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.*

*Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.*

**PRELIMINARY RESULTS**

ALBERTA ENVIRONMENT

DATE: 22-JUN-05 06:06 PM

ATTN: SCOTT NORRIS

2 FL DEERFOOT SQ 2938 11 ST NE

CALGARY AB T2E 7L7

Lab Work Order #: L279163

Sampled By: SN

Date Received: 20-JUN-05

Project P.O. #: NA

Project Reference: NA

Comments:

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RON MINKS  
Director of Operations, Calgary

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KELLY JONES  
Client Service Specialist

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

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# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L279163-1 TVUP								
Sample Date: 20-JUN-05 11:40								
Matrix: WATER								
<b>BTEX, F1 (C6-C10) and F2 (&gt;C10-C16)</b>								
F2 (>C10-C16)	<0.05		0.05	mg/L	21-JUN-05	21-JUN-05	RLB	R295387
<b>BTEX and F1 (C6-C10)</b>								
Benzene	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
Toluene	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
EthylBenzene	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
Xylenes	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
F1(C6-C10)	<0.1		0.1	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
F1-BTEX	<0.1		0.1	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
<b>Dissolved Metals</b>								
<b>Dissolved Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		21-JUN-05	MX	R296181
Aluminum (Al)	4.29		0.01	mg/L		21-JUN-05	MX	R296181
Boron (B)	<0.05		0.05	mg/L		21-JUN-05	MX	R296181
Barium (Ba)	0.138		0.003	mg/L		21-JUN-05	MX	R296181
Beryllium (Be)	<0.001		0.001	mg/L		21-JUN-05	MX	R296181
Cadmium (Cd)	<0.001		0.001	mg/L		21-JUN-05	MX	R296181
Cobalt (Co)	<0.002		0.002	mg/L		21-JUN-05	MX	R296181
Chromium (Cr)	0.007		0.005	mg/L		21-JUN-05	MX	R296181
Copper (Cu)	0.003		0.001	mg/L		21-JUN-05	MX	R296181
Molybdenum (Mo)	<0.005		0.005	mg/L		21-JUN-05	MX	R296181
Nickel (Ni)	0.004		0.002	mg/L		21-JUN-05	MX	R296181
Lead (Pb)	<0.005		0.005	mg/L		21-JUN-05	MX	R296181
Tin (Sn)	<0.05		0.05	mg/L		21-JUN-05	MX	R296181
Strontium (Sr)	0.156		0.005	mg/L		21-JUN-05	MX	R296181
Titanium (Ti)	0.148		0.001	mg/L		21-JUN-05	MX	R296181
Thallium (Tl)	<0.05		0.05	mg/L		21-JUN-05	MX	R296181
Vanadium (V)	0.015		0.001	mg/L		21-JUN-05	MX	R296181
Zinc (Zn)	0.042		0.001	mg/L		21-JUN-05	MX	R296181
<b>Dissolved Major Metals</b>								
Calcium (Ca)	44.7		0.5	mg/L		21-JUN-05	HAS	R295821
Potassium (K)	1.6		0.1	mg/L		21-JUN-05	HAS	R295821
Magnesium (Mg)	10.1		0.01	mg/L		21-JUN-05	HAS	R295821
Sodium (Na)	3.2		0.5	mg/L		21-JUN-05	HAS	R295821
Iron (Fe)	0.663		0.005	mg/L		21-JUN-05	HAS	R295821
Manganese (Mn)	0.014		0.001	mg/L		21-JUN-05	HAS	R295821
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		21-JUN-05	CLL	R295824
Aluminum (Al)	17.4		0.01	mg/L		21-JUN-05	CLL	R295824
Boron (B)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Barium (Ba)	0.372		0.003	mg/L		21-JUN-05	CLL	R295824
Beryllium (Be)	<0.002		0.002	mg/L		21-JUN-05	CLL	R295824
Cadmium (Cd)	<0.001		0.001	mg/L		21-JUN-05	CLL	R295824
Cobalt (Co)	0.006		0.002	mg/L		21-JUN-05	CLL	R295824
Chromium (Cr)	0.024		0.005	mg/L		21-JUN-05	CLL	R295824
Copper (Cu)	0.016		0.001	mg/L		21-JUN-05	CLL	R295824
Molybdenum (Mo)	<0.005		0.005	mg/L		21-JUN-05	CLL	R295824
Nickel (Ni)	0.020		0.002	mg/L		21-JUN-05	CLL	R295824
Lead (Pb)	0.009		0.005	mg/L		21-JUN-05	CLL	R295824
Tin (Sn)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Strontium (Sr)	0.210		0.002	mg/L		21-JUN-05	CLL	R295824



# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L279163-1 TVUP								
Sample Date: 20-JUN-05 11:40								
Matrix: WATER								
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Titanium (Ti)	0.078		0.001	mg/L		21-JUN-05	CLL	R295824
Thallium (Tl)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Vanadium (V)	0.054		0.001	mg/L		21-JUN-05	CLL	R295824
Zinc (Zn)	0.114		0.001	mg/L		21-JUN-05	CLL	R295824
<b>Total Major Metals</b>								
Calcium (Ca)	72.6		0.5	mg/L		22-JUN-05	HAS	R296231
Potassium (K)	6.2		0.1	mg/L		22-JUN-05	HAS	R296231
Magnesium (Mg)	15.7		0.1	mg/L		22-JUN-05	HAS	R296231
Sodium (Na)	3		1	mg/L		22-JUN-05	HAS	R296231
Iron (Fe)	15.2	RAMB	0.005	mg/L		22-JUN-05	HAS	R296231
Manganese (Mn)	0.142	RAMB	0.001	mg/L		22-JUN-05	HAS	R296231
Chromium, Hexavalent	<0.001		0.001	mg/L		21-JUN-05	CVE	R295806
Mercury (Hg)-Dissolved	<0.0002		0.0002	mg/L		21-JUN-05	MX	R296181
Mercury (Hg)-Total	<0.0002		0.0002	mg/L		21-JUN-05	CLL	R295824
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
Naphthalene	0.00007		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Acenaphthylene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Acenaphthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Fluorene	0.00003		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Phenanthrene	0.00012		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Anthracene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Fluoranthene	<0.00001	RAMB	0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Pyrene	0.00002		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(c)phenanthrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(a)anthracene	0.00002		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Chrysene	0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
7,12-Dimethylbenz(a)anthracene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(b)fluoranthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(j)fluoranthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(k)fluoranthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(a)pyrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
3-Methylcholanthrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Indeno(1,2,3-cd)pyrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h)anthracene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(g,h,i)perylene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h/a,i/a,l)pyrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Surr: Nitrobenzene d5	77		42-107	%	21-JUN-05	22-JUN-05	JME	R295521
Surr: 2-Fluorobiphenyl	92		48-104	%	21-JUN-05	22-JUN-05	JME	R295521
Surr: p-Terphenyl d14	94		63-132	%	21-JUN-05	22-JUN-05	JME	R295521
Equivalent B(a)P Concentration	<0.00003		0.00003	mg/L	21-JUN-05	22-JUN-05	JME	R295521
<b>Routine Water Analysis</b>								
Chloride (Cl)	1.0		0.1	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Nitrate+Nitrite-N	0.14		0.05	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Nitrate-N	0.14		0.05	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Nitrite-N	<0.05		0.05	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Sulphate (SO4)	20.4		0.5	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
<b>pH, Conductivity and Total Alkalinity</b>								
pH	7.8		0.1	pH		21-JUN-05	LHH	R295634
Conductivity (EC)	259		3	uS/cm		21-JUN-05	LHH	R295634

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L279163-1 TVUP Sample Date: 20-JUN-05 11:40 Matrix: WATER								
<b>Routine Water Analysis</b>								
<b>pH, Conductivity and Total Alkalinity</b>								
Bicarbonate (HCO <sub>3</sub> )	155		5	mg/L		21-JUN-05	LHH	R295634
Carbonate (CO <sub>3</sub> )	<5		5	mg/L		21-JUN-05	LHH	R295634
Hydroxide (OH)	<5		5	mg/L		21-JUN-05	LHH	R295634
Alkalinity, Total (as CaCO <sub>3</sub> )	127		5	mg/L		21-JUN-05	LHH	R295634
<b>Ion Balance Calculation</b>								
Ion Balance	100			%		21-JUN-05		
TDS (Calculated)	153			mg/L		21-JUN-05		
Hardness (as CaCO <sub>3</sub> )	145			mg/L		21-JUN-05		
<b>ICP metals for routine water</b>								
Calcium (Ca)	41.8		0.5	mg/L		21-JUN-05	KG	R295622
Potassium (K)	0.9		0.1	mg/L		21-JUN-05	KG	R295622
Magnesium (Mg)	9.8		0.1	mg/L		21-JUN-05	KG	R295622
Sodium (Na)	2		1	mg/L		21-JUN-05	KG	R295622
Refer to Referenced Information for Qualifiers (if any) and Methodology.								

## Reference Information

**Qualifiers for Sample Submission Listed:**

Qualifier	Description
SRU	ALL SAMPLES REC'D UNPRESERVED - Sample Received Unpreserved
SFP	FILTERED AND PRESERVED FOR METALS ACCORDINGLY - Sample Filtered, Then Preserved On Receipt

**Sample Parameter Qualifier key listed:**

Qualifier	Description
RAMB	Result Adjusted For Method Blank

**Methods Listed (if applicable):**

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX,F1-CL	Water	BTEX and F1 (C6-C10)	EPA 5030B	EPA 5030/8015& 8260-P&T GC-MS/FID
CL-CL	Water	Chloride (Cl)		APHA 4110 B-Ion Chromatography
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)		APHA 3500-Cr C (Ion Chromatography)
ETL-ROUTINE-ICP-CL	Water	ICP metals for routine water		APHA 3120 B-ICP-OES
F2-CL	Water	F2 (>C10-C16)	EPA 3550B	EPA 3510/8000-GC-FID
HG-DIS-HYD-ED	Water	Mercury (Hg)-Dissolved (CVAA)		EPA 6020
HG-TOT-HYD-ED	Water	Mercury (Hg)-Total (CVAA)	EPA3015	EPA 6020
IONBALANCE-CL	Water	Ion Balance Calculation		APHA 1030E
MET1-DIS-ED	Water	Dissolved Trace Metals		EPA 6020
MET1-TOT-ED	Water	Total Trace Metals	EPA3015	EPA 6020
MET2-DIS-ED	Water	Dissolved Major Metals		EPA 200.7
MET2-TOT-ED	Water	Total Major Metals	EPA3015	EPA 200.7
N2N3-CL	Water	Nitrate+Nitrite-N		APHA 4110 B-Ion Chromatography
NO2-CL	Water	Nitrite-N		APHA 4110 B-Ion Chromatography
NO3-IC-CL	Water	Nitrate-N		APHA 4110 B-Ion Chromatography
PAH-ABT1,CARCINO-ED	Water	AB Tier1 & Carcinogenic PAHs	EPA 3510	EPA 3510/8270-GC/MS
PH/EC/ALK-CL	Water	pH, Conductivity and Total Alkalinity		APHA 4500H,2510,2320
SO4-CL	Water	Sulfate (SO4)		APHA 4110 B-Ion Chromatography

\*\* Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

*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	Laboratory Definition Code	Laboratory Location
CL	Enviro-Test Laboratories - Calgary, Alberta, Canada	ED	Enviro-Test Laboratories - Edmonton, Alberta, Canada

## Reference Information

### GLOSSARY OF REPORT TERMS

*Surr* - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading *D.L.*

*mg/kg (units)* - unit of concentration based on mass, parts per million

*mg/L (units)* - unit of concentration based on volume, parts per million

*<* - Less than

*D.L.* - Detection 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.*

*UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.*

*Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.*

*Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.*

**PRELIMINARY RESULTS**

ALBERTA ENVIRONMENT

DATE: 22-JUN-05 06:06 PM

ATTN: SCOTT NORRIS

2 FL DEERFOOT SQ 2938 11 ST NE

CALGARY AB T2E 7L7

Lab Work Order #: L279164

Sampled By: NOT PROVIDED

Date Received: 20-JUN-05

Project P.O. #: NA

Project Reference: NA

Comments:

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RON MINKS  
Director of Operations, Calgary

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KELLY JONES  
Client Service Specialist

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

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## ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L279164-1 TVDS								
Sample Date: 20-JUN-05 11:10								
Matrix: WATER								
<b>BTEX, F1 (C6-C10) and F2 (&gt;C10-C16)</b>								
F2 (>C10-C16)	<0.05		0.05	mg/L	21-JUN-05	21-JUN-05	RLB	R295387
<b>BTEX and F1 (C6-C10)</b>								
Benzene	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
Toluene	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
EthylBenzene	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
Xylenes	<0.0005		0.0005	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
F1(C6-C10)	<0.1		0.1	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
F1-BTEX	<0.1		0.1	mg/L	20-JUN-05	21-JUN-05	NZL	R295507
<b>Dissolved Metals</b>								
<b>Dissolved Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		21-JUN-05	MX	R296181
Aluminum (Al)	0.02		0.01	mg/L		21-JUN-05	MX	R296181
Boron (B)	<0.05		0.05	mg/L		21-JUN-05	MX	R296181
Barium (Ba)	0.057		0.003	mg/L		21-JUN-05	MX	R296181
Beryllium (Be)	<0.001		0.001	mg/L		21-JUN-05	MX	R296181
Cadmium (Cd)	<0.001		0.001	mg/L		21-JUN-05	MX	R296181
Cobalt (Co)	<0.002		0.002	mg/L		21-JUN-05	MX	R296181
Chromium (Cr)	<0.005		0.005	mg/L		21-JUN-05	MX	R296181
Copper (Cu)	<0.001		0.001	mg/L		21-JUN-05	MX	R296181
Molybdenum (Mo)	<0.005		0.005	mg/L		21-JUN-05	MX	R296181
Nickel (Ni)	<0.002		0.002	mg/L		21-JUN-05	MX	R296181
Lead (Pb)	<0.005		0.005	mg/L		21-JUN-05	MX	R296181
Tin (Sn)	<0.05		0.05	mg/L		21-JUN-05	MX	R296181
Strontium (Sr)	0.137		0.005	mg/L		21-JUN-05	MX	R296181
Titanium (Ti)	0.001		0.001	mg/L		21-JUN-05	MX	R296181
Thallium (Tl)	<0.05		0.05	mg/L		21-JUN-05	MX	R296181
Vanadium (V)	<0.001		0.001	mg/L		21-JUN-05	MX	R296181
Zinc (Zn)	0.006		0.001	mg/L		21-JUN-05	MX	R296181
<b>Dissolved Major Metals</b>								
Calcium (Ca)	41.4		0.5	mg/L		21-JUN-05	HAS	R295821
Potassium (K)	1.0		0.1	mg/L		21-JUN-05	HAS	R295821
Magnesium (Mg)	9.67		0.01	mg/L		21-JUN-05	HAS	R295821
Sodium (Na)	2.5		0.5	mg/L		21-JUN-05	HAS	R295821
Iron (Fe)	0.025		0.005	mg/L		21-JUN-05	HAS	R295821
Manganese (Mn)	0.005		0.001	mg/L		21-JUN-05	HAS	R295821
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		21-JUN-05	CLL	R295824
Aluminum (Al)	17.7		0.01	mg/L		21-JUN-05	CLL	R295824
Boron (B)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Barium (Ba)	0.375		0.003	mg/L		21-JUN-05	CLL	R295824
Beryllium (Be)	<0.002		0.002	mg/L		21-JUN-05	CLL	R295824
Cadmium (Cd)	<0.001		0.001	mg/L		21-JUN-05	CLL	R295824
Cobalt (Co)	0.006		0.002	mg/L		21-JUN-05	CLL	R295824
Chromium (Cr)	0.025		0.005	mg/L		21-JUN-05	CLL	R295824
Copper (Cu)	0.021		0.001	mg/L		21-JUN-05	CLL	R295824
Molybdenum (Mo)	<0.005		0.005	mg/L		21-JUN-05	CLL	R295824
Nickel (Ni)	0.021		0.002	mg/L		21-JUN-05	CLL	R295824
Lead (Pb)	0.009		0.005	mg/L		21-JUN-05	CLL	R295824
Tin (Sn)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Strontium (Sr)	0.212		0.002	mg/L		21-JUN-05	CLL	R295824

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L279164-1 TVDS								
Sample Date: 20-JUN-05 11:10								
Matrix: WATER								
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Titanium (Ti)	0.081		0.001	mg/L		21-JUN-05	CLL	R295824
Thallium (Tl)	<0.05		0.05	mg/L		21-JUN-05	CLL	R295824
Vanadium (V)	0.055		0.001	mg/L		21-JUN-05	CLL	R295824
Zinc (Zn)	0.098		0.001	mg/L		21-JUN-05	CLL	R295824
<b>Total Major Metals</b>								
Calcium (Ca)	71.4		0.5	mg/L		22-JUN-05	HAS	R296231
Potassium (K)	6.4		0.1	mg/L		22-JUN-05	HAS	R296231
Magnesium (Mg)	15.6		0.1	mg/L		22-JUN-05	HAS	R296231
Sodium (Na)	3		1	mg/L		22-JUN-05	HAS	R296231
Iron (Fe)	15.6	RAMB	0.005	mg/L		22-JUN-05	HAS	R296231
Manganese (Mn)	0.146	RAMB	0.001	mg/L		22-JUN-05	HAS	R296231
Chromium, Hexavalent	<0.001		0.001	mg/L		21-JUN-05	CVE	R295806
Mercury (Hg)-Dissolved	<0.0002		0.0002	mg/L		21-JUN-05	MX	R296181
Mercury (Hg)-Total	<0.0002		0.0002	mg/L		21-JUN-05	CLL	R295824
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
Naphthalene	0.00008		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Acenaphthylene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Acenaphthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Fluorene	0.00002		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Phenanthrene	0.00014		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Anthracene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Fluoranthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Pyrene	<0.00001	RAMB	0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(c)phenanthrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(a)anthracene	0.00002		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Chrysene	0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
7,12-Dimethylbenz(a)anthracene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(b)fluoranthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(j)fluoranthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(k)fluoranthene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(a)pyrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
3-Methylcholanthrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Indeno(1,2,3-cd)pyrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h)anthracene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Benzo(g,h,i)perylene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Dibenzo(a,h/a,i/a,l)pyrene	<0.00001		0.00001	mg/L	21-JUN-05	22-JUN-05	JME	R295521
Surr: Nitrobenzene d5	81		42-107	%	21-JUN-05	22-JUN-05	JME	R295521
Surr: 2-Fluorobiphenyl	84		48-104	%	21-JUN-05	22-JUN-05	JME	R295521
Surr: p-Terphenyl d14	94		63-132	%	21-JUN-05	22-JUN-05	JME	R295521
Equivalent B(a)P Concentration	<0.00003		0.00003	mg/L	21-JUN-05	22-JUN-05	JME	R295521
<b>Routine Water Analysis</b>								
Chloride (Cl)	0.8		0.1	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Nitrate+Nitrite-N	0.18		0.05	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Nitrate-N	0.18		0.05	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Nitrite-N	<0.05		0.05	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
Sulphate (SO4)	22.0		0.5	mg/L	21-JUN-05	21-JUN-05	WJR	R295575
<b>pH, Conductivity and Total Alkalinity</b>								
pH	7.7		0.1	pH		21-JUN-05	LHH	R295634
Conductivity (EC)	261		3	uS/cm		21-JUN-05	LHH	R295634





## Reference Information

**Qualifiers for Sample Submission Listed:**

Qualifier	Description
SRU	ALL SAMPLES UNPRESERVED - Sample Received Unpreserved
SFP	F/P METALS ACCORDINGLY - Sample Filtered, Then Preserved On Receipt

**Sample Parameter Qualifier key listed:**

Qualifier	Description
RAMB	Result Adjusted For Method Blank

**Methods Listed (if applicable):**

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX,F1-CL	Water	BTEX and F1 (C6-C10)	EPA 5030B	EPA 5030/8015& 8260-P&T GC-MS/FID
CL-CL	Water	Chloride (Cl)		APHA 4110 B-Ion Chromatography
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)		APHA 3500-Cr C (Ion Chromatography)
ETL-ROUTINE-ICP-CL	Water	ICP metals for routine water		APHA 3120 B-ICP-OES
F2-CL	Water	F2 (>C10-C16)	EPA 3550B	EPA 3510/8000-GC-FID
HG-DIS-HYD-ED	Water	Mercury (Hg)-Dissolved (CVAA)		EPA 6020
HG-TOT-HYD-ED	Water	Mercury (Hg)-Total (CVAA)	EPA3015	EPA 6020
IONBALANCE-CL	Water	Ion Balance Calculation		APHA 1030E
MET1-DIS-ED	Water	Dissolved Trace Metals		EPA 6020
MET1-TOT-ED	Water	Total Trace Metals	EPA3015	EPA 6020
MET2-DIS-ED	Water	Dissolved Major Metals		EPA 200.7
MET2-TOT-ED	Water	Total Major Metals	EPA3015	EPA 200.7
N2N3-CL	Water	Nitrate+Nitrite-N		APHA 4110 B-Ion Chromatography
NO2-CL	Water	Nitrite-N		APHA 4110 B-Ion Chromatography
NO3-IC-CL	Water	Nitrate-N		APHA 4110 B-Ion Chromatography
PAH-ABT1,CARCINO-ED	Water	AB Tier1 & Carcinogenic PAHs	EPA 3510	EPA 3510/8270-GC/MS
PH/EC/ALK-CL	Water	pH, Conductivity and Total Alkalinity		APHA 4500H,2510,2320
SO4-CL	Water	Sulfate (SO4)		APHA 4110 B-Ion Chromatography

\*\* Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

181444

*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	Laboratory Definition Code	Laboratory Location
CL	Enviro-Test Laboratories - Calgary, Alberta, Canada	ED	Enviro-Test Laboratories - Edmonton, Alberta, Canada

## Reference Information

### GLOSSARY OF REPORT TERMS

*Surr* - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading *D.L.*

*mg/kg (units)* - unit of concentration based on mass, parts per million

*mg/L (units)* - unit of concentration based on volume, parts per million

*<* - Less than

*D.L.* - Detection 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.*

*UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.*

*Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.*

*Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.*

**PRELIMINARY RESULTS**

ALBERTA ENVIRONMENT

DATE: 25-JUN-05 06:04 PM

ATTN: SCOTT NORRIS

2 FL DEERFOOT SQ 2938 11 ST NE

CALGARY AB T2E 7L7

Lab Work Order #: L280226

Sampled By: CK

Date Received: 22-JUN-05

Project P.O. #: NA

Project Reference: NA

Comments:

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RON MINKS  
Director of Operations, Calgary

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KELLY JONES  
Client Service Specialist

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

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# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L280226-1 TVUP22								
Sample Date: 22-JUN-05 11:55								
Matrix: WATER								
<b>BTEX, F1 (C6-C10) and F2 (&gt;C10-C16)</b>								
F2 (>C10-C16)	<0.05		0.05	mg/L	23-JUN-05	23-JUN-05	GVZ	R296556
<b>BTEX and F1 (C6-C10)</b>								
Benzene	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
Toluene	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
EthylBenzene	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
Xylenes	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
F1(C6-C10)	<0.1		0.1	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
F1-BTEX	<0.1		0.1	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297072
Aluminum (Al)	8.21		0.01	mg/L		24-JUN-05	CLL	R297072
Boron (B)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297072
Barium (Ba)	0.242		0.003	mg/L		24-JUN-05	CLL	R297072
Beryllium (Be)	<0.002		0.002	mg/L		24-JUN-05	CLL	R297072
Cadmium (Cd)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297072
Cobalt (Co)	0.003		0.002	mg/L		24-JUN-05	CLL	R297072
Chromium (Cr)	0.013		0.005	mg/L		24-JUN-05	CLL	R297072
Copper (Cu)	0.006		0.001	mg/L		24-JUN-05	CLL	R297072
Molybdenum (Mo)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297072
Nickel (Ni)	0.010		0.002	mg/L		24-JUN-05	CLL	R297072
Lead (Pb)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297072
Tin (Sn)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297072
Strontium (Sr)	0.185		0.002	mg/L		24-JUN-05	CLL	R297072
Titanium (Ti)	0.046		0.001	mg/L		24-JUN-05	CLL	R297072
Thallium (Tl)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297072
Vanadium (V)	0.025		0.001	mg/L		24-JUN-05	CLL	R297072
Zinc (Zn)	0.065		0.001	mg/L		24-JUN-05	CLL	R297072
<b>Total Major Metals</b>								
Calcium (Ca)	60.4		0.5	mg/L		24-JUN-05	HAS/CV	R297155
Potassium (K)	4.6		0.1	mg/L		24-JUN-05	HAS/CV	R297155
Magnesium (Mg)	13.5		0.1	mg/L		24-JUN-05	HAS/CV	R297155
Sodium (Na)	3		1	mg/L		24-JUN-05	HAS/CV	R297155
Iron (Fe)	7.84		0.005	mg/L		24-JUN-05	HAS/CV	R297155
Manganese (Mn)	0.079		0.001	mg/L		24-JUN-05	HAS/CV	R297155
Chromium, Hexavalent	<0.001		0.001	mg/L		24-JUN-05	CVE	R296965
Mercury (Hg)-Dissolved	<0.0002		0.0002	mg/L		24-JUN-05	CLL	R297070
Mercury (Hg)-Total	<0.0002		0.0002	mg/L		24-JUN-05	CLL	R297072
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
Naphthalene	0.00003	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Acenaphthylene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Acenaphthene	<0.00001	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Fluorene	0.00001	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Phenanthrene	0.00006	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Pyrene	<0.00001	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(c)phenanthrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(a)anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Chrysene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L280226-1 TVUP22								
Sample Date: 22-JUN-05 11:55								
Matrix: WATER								
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
7,12-Dimethylbenz(a)anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(b)fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(j)fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(k)fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(a)pyrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
3-Methylcholanthrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Indeno(1,2,3-cd)pyrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Dibenzo(a,h)anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(g,h,i)perylene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Dibenzo(a,h/a,i/a,l)pyrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Surr: Nitrobenzene d5	78		42-107	%	24-JUN-05	24-JUN-05	JME	R296799
Surr: 2-Fluorobiphenyl	62		48-104	%	24-JUN-05	24-JUN-05	JME	R296799
Surr: p-Terphenyl d14	75		63-132	%	24-JUN-05	24-JUN-05	JME	R296799
Equivalent B(a)P Concentration	<0.00003		0.00003	mg/L	24-JUN-05	24-JUN-05	JME	R296799
<b>Major Ions &amp; Dissolved Metals</b>								
Iron (Fe)-Dissolved	0.017		0.005	mg/L		24-JUN-05	HAS/CV	R297154
Manganese (Mn)-Dissolved	0.003		0.001	mg/L		24-JUN-05	HAS/CV	R297154
Chloride (Cl)	0.8		0.1	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Nitrate+Nitrite-N	0.11		0.05	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Nitrate-N	0.11		0.05	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Nitrite-N	<0.05		0.05	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Sulphate (SO4)	21.5		0.5	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
<b>pH, Conductivity and Total Alkalinity</b>								
pH	7.6		0.1	pH		23-JUN-05	LHH	R296536
Conductivity (EC)	260		3	uS/cm		23-JUN-05	LHH	R296536
Bicarbonate (HCO3)	170		5	mg/L		23-JUN-05	LHH	R296536
Carbonate (CO3)	<5		5	mg/L		23-JUN-05	LHH	R296536
Hydroxide (OH)	<5		5	mg/L		23-JUN-05	LHH	R296536
Alkalinity, Total (as CaCO3)	139		5	mg/L		23-JUN-05	LHH	R296536
<b>Ion Balance Calculation</b>								
Ion Balance	97.0			%		23-JUN-05		
TDS (Calculated)	163			mg/L		23-JUN-05		
Hardness (as CaCO3)	153			mg/L		23-JUN-05		
<b>ICP metals for routine water</b>								
Calcium (Ca)	43.9		0.5	mg/L		23-JUN-05	KG	R296539
Potassium (K)	0.9		0.1	mg/L		23-JUN-05	KG	R296539
Magnesium (Mg)	10.5		0.1	mg/L		23-JUN-05	KG	R296539
Sodium (Na)	2		1	mg/L		23-JUN-05	KG	R296539
<b>Dissolved Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297070
Aluminum (Al)	0.02		0.01	mg/L		24-JUN-05	CLL	R297070
Boron (B)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297070
Barium (Ba)	0.060		0.003	mg/L		24-JUN-05	CLL	R297070
Beryllium (Be)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Cadmium (Cd)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Cobalt (Co)	<0.002		0.002	mg/L		24-JUN-05	CLL	R297070
Chromium (Cr)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297070
Copper (Cu)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Molybdenum (Mo)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297070
Nickel (Ni)	<0.002		0.002	mg/L		24-JUN-05	CLL	R297070



## Reference Information

**Sample Parameter Qualifier key listed:**

Qualifier	Description
RAMB	Result Adjusted For Method Blank

**Methods Listed (if applicable):**

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX,F1-CL	Water	BTEX and F1 (C6-C10)	EPA 5030B	EPA 5030/8015& 8260-P&T GC-MS/FID
CL-CL	Water	Chloride (Cl)		APHA 4110 B-Ion Chromatography
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)		APHA 3500-Cr C (Ion Chromatography)
ETL-ROUTINE-ICP-CL	Water	ICP metals for routine water		APHA 3120 B-ICP-OES
F2-CL	Water	F2 (>C10-C16)	EPA 3550B	EPA 3510/8000-GC-FID
FE-DIS-ED	Water	Iron (Fe)-Dissolved		EPA 200.7
HG-DIS-HYD-ED	Water	Mercury (Hg)-Dissolved (CVAA)		EPA 6020
HG-TOT-HYD-ED	Water	Mercury (Hg)-Total (CVAA)	EPA3015	EPA 6020
IONBALANCE-CL	Water	Ion Balance Calculation		APHA 1030E
MET1-DIS-ED	Water	Dissolved Trace Metals		EPA 6020
MET1-TOT-ED	Water	Total Trace Metals	EPA3015	EPA 6020
MET2-TOT-ED	Water	Total Major Metals	EPA3015	EPA 200.7
MN-DIS-ED	Water	Manganese (Mn)-Dissolved		EPA 200.7
N2N3-CL	Water	Nitrate+Nitrite-N		APHA 4110 B-Ion Chromatography
NO2-CL	Water	Nitrite-N		APHA 4110 B-Ion Chromatography
NO3-IC-CL	Water	Nitrate-N		APHA 4110 B-Ion Chromatography
PAH-ABT1,CARCINO-ED	Water	AB Tier1 & Carcinogenic PAHs	EPA 3510	EPA 3510/8270-GC/MS
PH/EC/ALK-CL	Water	pH, Conductivity and Total Alkalinity		APHA 4500H,2510,2320
SO4-CL	Water	Sulfate (SO4)		APHA 4110 B-Ion Chromatography

\*\* Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

*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	Laboratory Definition Code	Laboratory Location
CL	Enviro-Test Laboratories - Calgary, Alberta, Canada	ED	Enviro-Test Laboratories - Edmonton, Alberta, Canada

## Reference Information

### GLOSSARY OF REPORT TERMS

*Surr* - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading D.L.

*mg/kg (units)* - unit of concentration based on mass, parts per million

*mg/L (units)* - unit of concentration based on volume, parts per million

*<* - Less than

*D.L.* - Detection 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.*

*UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.*

*Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.*

*Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.*



**PRELIMINARY RESULTS**

ALBERTA ENVIRONMENT

DATE: 25-JUN-05 05:55 PM

ATTN: SCOTT NORRIS

2 FL DEERFOOT SQ 2938 11 ST NE

CALGARY AB T2E 7L7

Lab Work Order #: L280227

Sampled By: SN

Date Received: 22-JUN-05

Project P.O. #: NA

Project Reference: NA

Comments:

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RON MINKS  
Director of Operations, Calgary

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KELLY JONES  
Client Service Specialist

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REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

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# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L280227-1 TVDS22								
Sample Date: 22-JUN-05 11:30								
Matrix: WATER								
<b>BTEX, F1 (C6-C10) and F2 (&gt;C10-C16)</b>								
F2 (>C10-C16)	<0.05		0.05	mg/L	23-JUN-05	23-JUN-05	GVZ	R296556
<b>BTEX and F1 (C6-C10)</b>								
Benzene	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
Toluene	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
EthylBenzene	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
Xylenes	<0.0005		0.0005	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
F1(C6-C10)	<0.1		0.1	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
F1-BTEX	<0.1		0.1	mg/L	22-JUN-05	23-JUN-05	KEB	R296679
<b>Total Metals</b>								
<b>Total Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297072
Aluminum (Al)	10.4		0.01	mg/L		24-JUN-05	CLL	R297072
Boron (B)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297072
Barium (Ba)	0.278		0.003	mg/L		24-JUN-05	CLL	R297072
Beryllium (Be)	<0.002		0.002	mg/L		24-JUN-05	CLL	R297072
Cadmium (Cd)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297072
Cobalt (Co)	0.003		0.002	mg/L		24-JUN-05	CLL	R297072
Chromium (Cr)	0.015		0.005	mg/L		24-JUN-05	CLL	R297072
Copper (Cu)	0.007		0.001	mg/L		24-JUN-05	CLL	R297072
Molybdenum (Mo)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297072
Nickel (Ni)	0.010		0.002	mg/L		24-JUN-05	CLL	R297072
Lead (Pb)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297072
Tin (Sn)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297072
Strontium (Sr)	0.191		0.002	mg/L		24-JUN-05	CLL	R297072
Titanium (Ti)	0.058		0.001	mg/L		24-JUN-05	CLL	R297072
Thallium (Tl)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297072
Vanadium (V)	0.033		0.001	mg/L		24-JUN-05	CLL	R297072
Zinc (Zn)	0.054		0.001	mg/L		24-JUN-05	CLL	R297072
<b>Total Major Metals</b>								
Calcium (Ca)	61.4		0.5	mg/L		24-JUN-05	HAS/CV	R297155
Potassium (K)	5.1		0.1	mg/L		24-JUN-05	HAS/CV	R297155
Magnesium (Mg)	13.6		0.1	mg/L		24-JUN-05	HAS/CV	R297155
Sodium (Na)	3		1	mg/L		24-JUN-05	HAS/CV	R297155
Iron (Fe)	8.17		0.005	mg/L		24-JUN-05	HAS/CV	R297155
Manganese (Mn)	0.082		0.001	mg/L		24-JUN-05	HAS/CV	R297155
Chromium, Hexavalent	<0.001		0.001	mg/L		24-JUN-05	CVE	R296965
Mercury (Hg)-Dissolved	<0.0002		0.0002	mg/L		24-JUN-05	CLL	R297070
Mercury (Hg)-Total	<0.0002		0.0002	mg/L		24-JUN-05	CLL	R297072
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
Naphthalene	0.00003	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Acenaphthylene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Acenaphthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Fluorene	<0.00001	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Phenanthrene	0.00005	RAMB	0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Pyrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(c)phenanthrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(a)anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Chrysene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L280227-1 TVDS22								
Sample Date: 22-JUN-05 11:30								
Matrix: WATER								
<b>AB Tier1 &amp; Carcinogenic PAHs</b>								
7,12-Dimethylbenz(a)anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(b)fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(j)fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(k)fluoranthene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(a)pyrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
3-Methylcholanthrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Indeno(1,2,3-cd)pyrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Dibenzo(a,h)anthracene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Benzo(g,h,i)perylene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Dibenzo(a,h/a,i/a,l)pyrene	<0.00001		0.00001	mg/L	24-JUN-05	24-JUN-05	JME	R296799
Surr: Nitrobenzene d5	62		42-107	%	24-JUN-05	24-JUN-05	JME	R296799
Surr: 2-Fluorobiphenyl	53		48-104	%	24-JUN-05	24-JUN-05	JME	R296799
Surr: p-Terphenyl d14	68		63-132	%	24-JUN-05	24-JUN-05	JME	R296799
Equivalent B(a)P Concentration	<0.00003		0.00003	mg/L	24-JUN-05	24-JUN-05	JME	R296799
<b>Major Ions &amp; Dissolved Metals</b>								
Iron (Fe)-Dissolved	0.018		0.005	mg/L		24-JUN-05	HAS/CV	R297154
Manganese (Mn)-Dissolved	0.003		0.001	mg/L		24-JUN-05	HAS/CV	R297154
Chloride (Cl)	0.7		0.1	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Nitrate+Nitrite-N	0.12		0.05	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Nitrate-N	0.12		0.05	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Nitrite-N	<0.05		0.05	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
Sulphate (SO4)	22.0		0.5	mg/L	23-JUN-05	23-JUN-05	WJR	R296533
<b>pH, Conductivity and Total Alkalinity</b>								
pH	7.6		0.1	pH		23-JUN-05	LHH	R296536
Conductivity (EC)	257		3	uS/cm		23-JUN-05	LHH	R296536
Bicarbonate (HCO3)	168		5	mg/L		23-JUN-05	LHH	R296536
Carbonate (CO3)	<5		5	mg/L		23-JUN-05	LHH	R296536
Hydroxide (OH)	<5		5	mg/L		23-JUN-05	LHH	R296536
Alkalinity, Total (as CaCO3)	138		5	mg/L		23-JUN-05	LHH	R296536
<b>Ion Balance Calculation</b>								
Ion Balance	99.3			%		23-JUN-05		
TDS (Calculated)	164			mg/L		23-JUN-05		
Hardness (as CaCO3)	155			mg/L		23-JUN-05		
<b>ICP metals for routine water</b>								
Calcium (Ca)	44.6		0.5	mg/L		23-JUN-05	KG	R296539
Potassium (K)	0.9		0.1	mg/L		23-JUN-05	KG	R296539
Magnesium (Mg)	10.7		0.1	mg/L		23-JUN-05	KG	R296539
Sodium (Na)	2		1	mg/L		23-JUN-05	KG	R296539
<b>Dissolved Trace Metals</b>								
Silver (Ag)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297070
Aluminum (Al)	0.02		0.01	mg/L		24-JUN-05	CLL	R297070
Boron (B)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297070
Barium (Ba)	0.062		0.003	mg/L		24-JUN-05	CLL	R297070
Beryllium (Be)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Cadmium (Cd)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Cobalt (Co)	<0.002		0.002	mg/L		24-JUN-05	CLL	R297070
Chromium (Cr)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297070
Copper (Cu)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Molybdenum (Mo)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297070
Nickel (Ni)	<0.002		0.002	mg/L		24-JUN-05	CLL	R297070

# ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L280227-1 TVDS22 Sample Date: 22-JUN-05 11:30 Matrix: WATER								
<b>Major Ions &amp; Dissolved Metals</b>								
<b>Dissolved Trace Metals</b>								
Lead (Pb)	<0.005		0.005	mg/L		24-JUN-05	CLL	R297070
Tin (Sn)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297070
Strontium (Sr)	0.155		0.005	mg/L		24-JUN-05	CLL	R297070
Titanium (Ti)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Thallium (Tl)	<0.05		0.05	mg/L		24-JUN-05	CLL	R297070
Vanadium (V)	<0.001		0.001	mg/L		24-JUN-05	CLL	R297070
Zinc (Zn)	0.004		0.001	mg/L		24-JUN-05	CLL	R297070
Refer to Referenced Information for Qualifiers (if any) and Methodology.								

## Reference Information

**Sample Parameter Qualifier key listed:**

Qualifier	Description
RAMB	Result Adjusted For Method Blank

**Methods Listed (if applicable):**

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX,F1-CL	Water	BTEX and F1 (C6-C10)	EPA 5030B	EPA 5030/8015& 8260-P&T GC-MS/FID
CL-CL	Water	Chloride (Cl)		APHA 4110 B-Ion Chromatography
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)		APHA 3500-Cr C (Ion Chromatography)
ETL-ROUTINE-ICP-CL	Water	ICP metals for routine water		APHA 3120 B-ICP-OES
F2-CL	Water	F2 (>C10-C16)	EPA 3550B	EPA 3510/8000-GC-FID
FE-DIS-ED	Water	Iron (Fe)-Dissolved		EPA 200.7
HG-DIS-HYD-ED	Water	Mercury (Hg)-Dissolved (CVAA)		EPA 6020
HG-TOT-HYD-ED	Water	Mercury (Hg)-Total (CVAA)	EPA3015	EPA 6020
IONBALANCE-CL	Water	Ion Balance Calculation		APHA 1030E
MET1-DIS-ED	Water	Dissolved Trace Metals		EPA 6020
MET1-TOT-ED	Water	Total Trace Metals	EPA3015	EPA 6020
MET2-TOT-ED	Water	Total Major Metals	EPA3015	EPA 200.7
MN-DIS-ED	Water	Manganese (Mn)-Dissolved		EPA 200.7
N2N3-CL	Water	Nitrate+Nitrite-N		APHA 4110 B-Ion Chromatography
NO2-CL	Water	Nitrite-N		APHA 4110 B-Ion Chromatography
NO3-IC-CL	Water	Nitrate-N		APHA 4110 B-Ion Chromatography
PAH-ABT1,CARCINO-ED	Water	AB Tier1 & Carcinogenic PAHs	EPA 3510	EPA 3510/8270-GC/MS
PH/EC/ALK-CL	Water	pH, Conductivity and Total Alkalinity		APHA 4500H,2510,2320
SO4-CL	Water	Sulfate (SO4)		APHA 4110 B-Ion Chromatography

\*\* Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

179312

*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	Laboratory Definition Code	Laboratory Location
CL	Enviro-Test Laboratories - Calgary, Alberta, Canada	ED	Enviro-Test Laboratories - Edmonton, Alberta, Canada

## Reference Information

### GLOSSARY OF REPORT TERMS

*Surr* - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading *D.L.*

*mg/kg (units)* - unit of concentration based on mass, parts per million

*mg/L (units)* - unit of concentration based on volume, parts per million

*<* - Less than

*D.L.* - Detection 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.*

*UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.*

*Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.*

*Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.*