



Project #4435  
Doc #1942704

2060 W. Littleton Boulevard ★ Littleton, Colorado 80120 ★ 303-795-2500 ★ Fax 303-795-7746

Mr. Rick Eggleston  
Petro-Canada Resources (USA), Inc.  
999 18th Street, Suite 600  
Denver, Colorado 80202

**SPILL CLEANUP AND CLOSURE REQUEST REPORT  
PETRO-CANADA RESOURCES (USA), INC - LOUSTALET #15-1 BATTERY SITE  
TOWNSHIP 5 NORTH, RANGE 64 WEST, SECTION 15  
WELD COUNTY, COLORADO**

Western Project #09110

February 26, 2009

Dear Mr. Eggleston:

Western Environmental Technologies, Inc. (Western) managed and documented the cleanup of an accidental petroleum release at the subject site. The site area includes producing oil and gas wells, gathering lines, separator equipment and tank batteries. The site is located approximately one mile east of the town of Kersey, Colorado. The site is operated by Petro-Canada Resources (USA), Inc. (PCR). Noble Energy also operates the Frenzel #B-15 tank battery and separator equipment, located to the east of the spill area, along a common gravel access road. The well location is situated on farm land.

When field crews were removing a buried concrete water pit in January, 2009, they discovered what may have been a leak of produced water from the bottom of a buried concrete water pit vessel. A corroded steel flow line was visible in the floor of the concrete tank vessel. Produced water may have leaked into soil directly under the removed tank. PCR personnel immediately shut in all wells and flow lines to prevent further spills. A release of an unknown volume of produced water was then confirmed by further soil excavation in the tank area.

**SOIL CLEANUP**

The aboveground oil storage tank and buried flow lines in the area were removed to allow access to the spill area for a soil cleanup project. All subsurface lines and utilities were first located at the location and surrounding area. PCR mobilized heavy equipment and personnel to the site to remove and dispose of petroleum contaminated soil near the leak area. Western personnel also mobilized to the spill site to direct and manage the site remediation. Western personnel performed field testing for volatile hydrocarbon gasses in soil during the cleanup. A calibrated Photoionization detector was used to screen subsurface soil for petroleum compounds, using the head space test method.

Produced water had leaked into subsurface soil on the west end of the site location. Western personnel directed the expansion of the soil removal excavation. Head space soil testing indicated which soil zones contained spilled petroleum. Soil was removed from the cleanup excavation using a large capacity backhoe.

The soil was excavated from the spill area and temporarily stored in stockpiles on top of thick sheet plastic. The soil was then loaded for transport and proper disposal. The petroleum contaminated soil was classified as an EPA - Exploration and Production (E&P) operations derived waste. It has been profiled for non-hazardous waste disposal at the Buffalo Ridge landfill, located in Keenesburg, Colorado. A waste shipping manifest was provided for all shipments of the petroleum contaminated soil. Devoe Construction provided end dump trucks to haul the stockpiled petroleum soil for proper disposal.

A total of 630 cubic yards of petroleum contaminated soil was removed from the cleanup area. The waste soil was transported from the site beginning on January 22, 2009. Transport of the removed petroleum contaminated soil continued through January 30, 2009. Clean soil was imported to the location for use as backfill. After the final closure soil sample results were received, all repairs and upgrades to the site were completed.

### **SOIL SAMPLING AND TESTING**

Western personnel performed two soil sampling events during the site cleanup. After removing 410 cubic yards of soil from the site, Western obtained excavation soil samples to determine the progress of the cleanup. Soil from the cleanup excavation was sampled first on January 26, 2009. A total of four soil samples were obtained. Each soil sample was tested for TRPH compounds. The soil samples were submitted to Technology Laboratory, Inc. located in Fort Collins, Colorado. All samples were acquired using laboratory chain-of-custody documentation.

Soil removed from the cleanup excavation was examined by an experienced professional geologist. The subsurface soil underlying and adjacent to the leak area consisted of coarse sand with small cobble lenses. Ground water filled the soil cleanup excavation to within 4 feet of the surface grade of the location.

All samples were analyzed within allowable holding times. There were no data quality issues noted by the testing laboratory. Each soil sample was analyzed for Total Recoverable Petroleum Hydrocarbons (TRPH). EPA method #418.1 was used to prepare and analyze the samples. A total of 4 samples were initially obtained from the cleanup excavation. The soil cleanup goals for the area were achieved with soil removals on the east, south and north sides of the excavation.

However, additional removals of petroleum contaminated soil were necessary on the southwest corner of the excavation. After excavating more soil from the area, two additional closure soil samples were obtained on January 30, 2009. Laboratory testing of the two final soil samples (RENW2 and RESW2) obtained by Western documented that the cleanup had restored the site to within Colorado Oil & Gas Conservation Commission (COGCC) soil quality standards for a Sensitive Area site.

PCR site personnel also obtained the last closure soil sample from the cleanup excavation on February 3, 2009. Sample (L-2 Clean) was also well within permissible limits for a Sensitive Area site. The soil was tested to contain 56.2 mg/Kg (ppm) TRPH compounds.

### **GROUND WATER REMOVAL AND TESTING**

A visible sheen from the spilled produced water was first observed on ground water within the soil cleanup excavation. Testing of site ground water (GW1 and GW2) documented that ground water quality was not impacted above Sensitive Area site limits. However, PCR wished to prevent further impact to site ground water, and to restore the site environment as soon as practical. Action Oilfield Services provided a vacuum truck and operator at the site. The large capacity vacuum truck removed ground water from the excavation. A total of 12,580 barrels of ground water were removed from the site and properly disposed.

Sampling of ground water at the site was performed during two events. The first ground water sample was obtained at the location on January 26, 2009. The water tested to contain some BTEX compounds, but was within ground water quality limits of the COGCC. A second ground water sample from the cleanup excavation was acquired on January, 30, 2009, after disposing of significant quantities of ground water. The removal of the ground water reduced Benzene concentrations in ground water from 3 to 1  $\mu\text{g/L}$  (ppb). The second ground water sample also contained trace amounts of BTEX compounds, but was within COGCC Sensitive Area ground water quality standards. Therefore, ground water did not appear to be impacted significantly by the spill.

### **PROJECT SUMMARY**

A leak of produced water from a buried concrete tank was discovered on the location. All wells and flow lines were immediately shut in. A volume of 630 cubic yards of soil was removed from the location and transported for proper disposal. A total of 12,580 barrels of ground water were also removed from the cleanup area and properly disposed. Testing documents that the remedial actions at the site leak area have restored both soil and ground water quality of the site to COGCC Sensitive Area standards.

The removal area has now been backfilled to grade with clean soil. All upgrades and repairs have been made to prevent future releases from the systems. PCR does not plan any further remediation or monitoring of this site. PCR is requesting closure for this accidental spill event. Please contact us with any questions which you may have.

Sincerely,



Mark H. Bailey, CHMM, REP, PG - Senior Environmental Scientist  
Western Environmental Technologies, Inc.

xc: Mr. John Axelson - Colorado Oil & Gas Conservation Commission

Attachments: Site Location And Area Topographic Map	(1 page)
Site Features Map	(1 page)
Sample Location Map	(1 page)
Soil and Ground Water Test Results Summary Tables	(1 page)
Project Photographs 1 - 4	(2 pages)
Analytical Laboratory Data Reports	(9 pages)

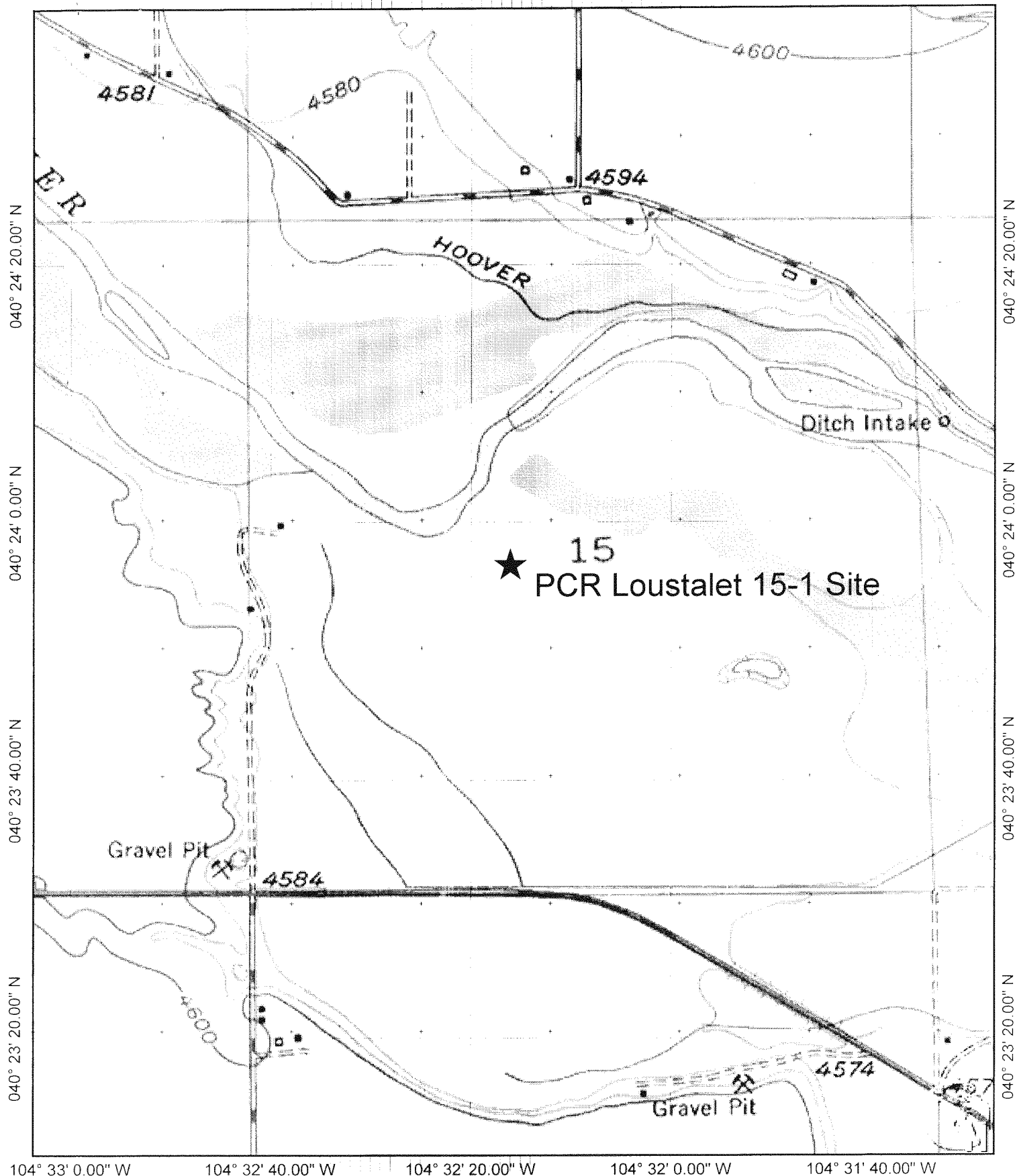
104° 33' 0.00" W

104° 32' 40.00" W

104° 32' 20.00" W

104° 32' 0.00" W

104° 31' 40.00" W



&lt;Default&gt; - 2 Markers, Length = 1 mile, 4469 f

Jurgens 8-1 Spill Site - 040° 24' 34.6" N, 10

PCR Loustalet 15-1 Site - 040° 23' 56.3" N,

Name: KERSEY

Location: 040° 23' 55.4" N 104° 32' 15.7" W

Date: 1/27/109

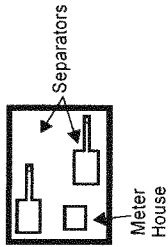
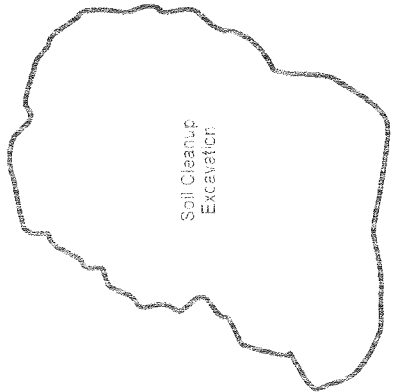
Scale: 1 inch equals 1000 feet

Farm Fields

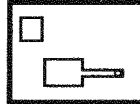
Access Road (Gravel)



Noble Energy  
Frenzel B15-5 & 6  
T5N, R64W, SW/NW Sec 15

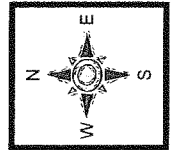


Farm Fields



Meter House

Map Scale  
1" = 20 ft.



### SITE FEATURES MAP

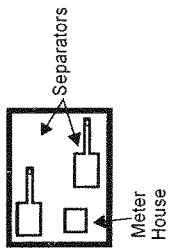
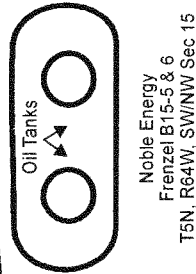
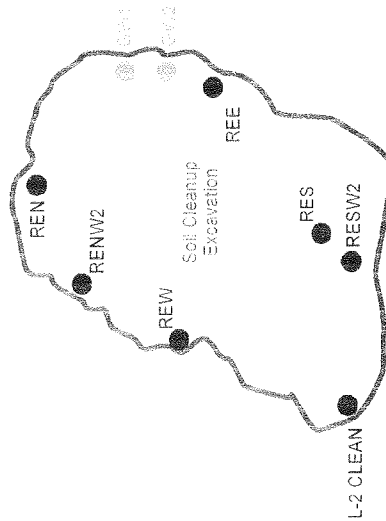
Petro Canada Resources (USA), Inc.  
Loustalet 15-1 Site  
T5N, R65W, Sec 15  
Weld County, Colorado

Project No. 09110	Prepared By CCC	WESTERN ENERGY SERVICES
Date 02/16/09	Reviewed By MHB	

015915itemap/PetroLoustalet1.cdr

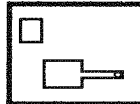
Farm Fields

Access Road (Gravel)



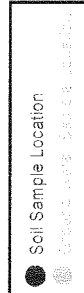
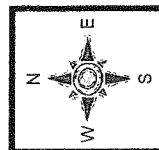
Farm Fields

Meter House



Separator

Map Scale  
1" = 20 ft.



<b>SAMPLE LOCATION MAP</b> Petro Canada Resources (USA), Inc. Lounstalet 15-1 Site T5N, R65W, Sec 15 Weld County, Colorado			
Project No. 09110	Prepared By CCC	WESTERN SOUTHERN ENERGY SERVICES	
Date 02/24/09	Reviewed By MHB		

815n/Location/PetroLounstalet1.cdr

**TABLE ONE**  
**SOIL TEST RESULTS SUMMARY TABLE**  
**PETRO-CANADA RESOURCES (USA) - LOUSTALET #15-1 SITE**  
**TOWNSHIP 5 NORTH, RANGE 64 WEST, SECTION 15**  
**WELD COUNTY, COLORADO**

Sample Number	Sample Date	Sample Location	TRPH in mg/L
REE	1/26/09	East wall of removal excavation	21.7
REW	1/26/09	West floor of removal excavation	1,326
RES	1/26/09	South edge of removal excavation	508
REN	1/26/09	North wall of cleanup excavation	415
RENW2	1/30/09	Northwest edge of removal excavation	184
RESW2	1/30/09	Southwest wall of cleanup excavation	1,213
L-2 Clean	2/3/09	Southwest wall of excavation after final removals	56.2

**TABLE TWO**  
**GROUND WATER TEST RESULTS SUMMARY TABLE**  
**PETRO-CANADA RESOURCES (USA) - LOUSTALET #15-1 SITE**  
**TOWNSHIP 5 NORTH, RANGE 64 WEST, SECTION 15**  
**WELD COUNTY, COLORADO**

Sample Number	Sample Date	Benzene in $\mu\text{g/L}$	Toluene in $\mu\text{g/L}$	Ethylbenzene in $\mu\text{g/L}$	Xylenes in $\mu\text{g/L}$
GW1	1/26/09	3	3	28	94
GW2	1/30/09	1	ND*	17	69

ND\* = Compound analyzed for in ground water sample, but not detected.





**Photo 1** - View of gravel access road to Loustalet #15-1 location facing to the east.



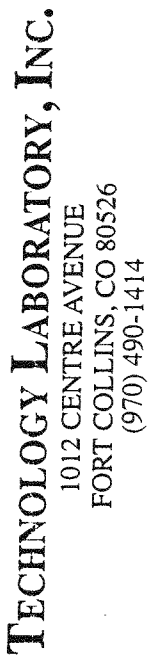
**Photo 2** - View of water tank leak location and soil cleanup excavation.



**Photo 3** - A vacuum tanker truck removes ground water from the cleanup excavation.



**Photo 4** - Stockpiles of petroleum soil removed from the Loustalet #15-1 cleanup area.



Western Environmental Technologies, Inc.  
PROJECT MANAGER

五

Mark Bailey

和

Petro-Canada Const Ltd 15-1, T5NR64W-Seed

Mark H. Gidycz

SAMPLE ID:

DATE/TIME SAMPLED

#	RC	F	N	F	
1	REE				1-26-09 0830 S Z X
2	REW				1-26-09 1010 S Z X
3	RES				1-26-09 1145 S Z X
4	REN				1-26-09 1210 S Z X
5	GWI				1-26-09 1310 W 3 X

☐ NORMAL (5-10 working days)  
☒ 24 hr (100% Surcharge)  
☐ 3 day (50% Surcharge)

COMPANY:

1800

D.C. #133



# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

Western Environmental Technologies, Inc.  
2060 West Littleton Blvd  
Littleton, CO 80120

Date Received: 01/27/09

Matrix: Soil

Project No.: 09110

<u>Lab ID</u>	<u>Sample ID</u>	<u>Date Sampled</u>	<u>Date Analyzed</u>	<u>TRPH mg/Kg</u>
7710-01	REE	01/26/09	01/27/09	21.7
7710-02	REW	01/26/09	01/27/09	1326
7710-03	RES	01/26/09	01/27/09	508
7710-04	REN	01/26/09	01/27/09	415

TRPH Method:

EPA-418.1

*Ben Emery*



# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

Western Environmental Technologies, Inc.  
2060 West Littleton Blvd  
Littleton, CO 80120

Sample ID: GWI  
Laboratory ID 7710-05

Sampled: 01/26/09

Received: 01/27/09

Project No.: 09110

Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	0.003	mg/L	EPA-8260B	01/27/09
108-88-3	Toluene	0.003	mg/L	EPA-8260B	01/27/09
100-41-4	Ethylbenzene	0.028	mg/L	EPA-8260B	01/27/09
1330-20-7	Total Xylenes	0.094	mg/L	EPA-8260B	01/27/09

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	105	68-120
Toluene-d8	97	81-128
Bromofluorobenzene	101	70-113

*Dee Emery*



# TECHNOLOGY LABORATORY, INC.

1012 CENTRE AVENUE  
FORT COLLINS, CO 80526  
Phone: (970) 490-1414 Fax: (970) 472 5488  
www.techlabusa.com sales@techlabusa.com

## W.O. NUMBER 7742 CHAIN-OF-CUSTODY REPORT

### COMPANY NAME

Western Environmental Technologies Inc

### PROJECT MANAGER

Mark Bailey

### PROJECT NUMBER

#04116

### PROJECT LOCATION OR NAME

Petro-Canada Loustalet 15-1, T5N-R64W - Sec 15

### SAMPLERS SIGNATURE

*[Signature]*

### LAB #

1

### SAMPLE ID

G-W2

### DATE/TIME SAMPLED

1-30-09 1315

2

RENW2

1-30-09 1440

3

RESW2

1-30-09 1420

SAMPLE MATRIX: SOIL (S) AIR (A)  
AQUEOUS (W) OTHER (O)

W

S

S

### NUMBER OF CONTAINERS

3

(BTEX) / MTBE / TVPH

TEPH (DRO)

(TRPH 418.1)

Oil & Grease 413.1 / 1664

VOC 624 / 8260 TOTAL / TCLP

SVOC 625 / 8270 / PAH

pH / TSS

RCRA 8 METALS (TOTAL / TCLP / DISSOLVED)

React. / Ignite. / Corr. / Paint Filter

TO-1 / TO-14 / TO-15 / TVPH

NITRATE / NITRITE / AMMONIA

BOD / COD

FIXED GASES (N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>)

PCBs

HOLD AFTER ANALYSIS

HOLD, DON'T ANALYZE

### ANALYSIS REQUESTED

### OTHER

PAGE 1 OF 1

### TURNAROUND TIME

- ☐ Normal (5-10 working days)  
☐ 3 day (1.5x Normal Rates)  
☒ 24 hr (2x Normal Rates)  
☐ Same day (4x Normal Rates)

### COMMENTS:

RELINQUISHED BY: Kelly Bailey

COMPANY: Western Environmental Technologies Inc

### RELINQUISHED BY:

### COMPANY:

LOGGED IN BY: (Signature)

DATE: 1/30/09

TIME: 16:25

### DATE:

### TIME:

SAMPLE PRESERVATIVE: ☒ 4°C ☐ None ☐ Other

☐ Acid

RECEIVED BY: (Signature)

COMPANY: (Signature)

RECEIVED BY:

COMPANY:



# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

Western Environmental Technologies, Inc.  
2060 West Littleton Blvd  
Littleton, CO 80120

Sample ID: GW2

Laboratory ID 7742-01

Sampled: 01/30/09

Received: 01/30/09

Project No.: 09110

Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	0.001	mg/L	EPA-8260B	02/02/09
108-88-3	Toluene	< 0.001	mg/L	EPA-8260B	02/02/09
100-41-4	Ethylbenzene	0.017	mg/L	EPA-8260B	02/02/09
1330-20-7	Total Xylenes	0.069	mg/L	EPA-8260B	02/02/09

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	104	68-120
Toluene-d8	97	81-128
Bromofluorobenzene	101	70-113

*Brian Emery*



# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

Western Environmental Technologies, Inc.  
2060 West Littleton Blvd  
Littleton, CO 80120

Date Received: 01/30/09

Matrix: Soil

Project No.: 09110

<u>Lab ID</u>	<u>Sample ID</u>	<u>Date Sampled</u>	<u>Date Analyzed</u>	<u>TRPH mg/Kg</u>
7742-02	RENW2	01/30/09	02/02/09	184
7742-03	RESW2	01/30/09	02/02/09	1213

TRPH Method:

EPA-418.1

*Brian Emery*





February 10, 2009

Petro Canada  
999 18<sup>th</sup> St. Suite 600  
Denver, CO 80202

Laboratory No. E9034-1

Date Sampled: 02/03/09  
Date Received: 02/03/09  
Method of Analysis: 418.1

Sample ID	TRPH (mg/kg)
-----------	--------------

L-2 Clean Loustalet 15-1	56.2
--------------------------	------

*SW CORNER*

\_\_\_\_\_  
Project Manager

\_\_\_\_\_  
Date