

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



DE	ET	OE	ES
Document Number: 400774942			
Date Received: 01/27/15			
REM 7250			

SUNDRY NOTICE

Submit a signed original. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full in Comments or provide as an attachment. Identify Well by API Number; identify Oil and Gas Location by Location ID Number; identify other Facility by Facility ID Number.

OGCC Operator Number: 100185 Contact Name Chris Hines
Name of Operator: ENCANA OIL & GAS (USA) INC Phone: (970) 285-2653
Address: 370 17TH ST STE 1700 Fax: ()
City: DENVER State: CO Zip: 80202-5632 Email: chris.hines@encana.com

Complete the Attachment
Checklist

OP OGCC

API Number : 05- 00 OGCC Facility ID Number: 425760
Well/Facility Name: PI Well/Facility Number: 20
Location QtrQtr: NESE Section: 20 Township: 7S Range: 95W Meridian: 6
County: Field Name:
Federal, Indian or State Lease Number:

Survey Plat		
Directional Survey		
Srvc Eqpmt Diagram		
Technical Info Page		
Other		

CHANGE OF LOCATION OR AS BUILT GPS REPORT

☐ Change of Location * ☐ As-Built GPS Location Report ☐ As-Built GPS Location Report with Survey

* Well location change requires new plat. A substantive surface location change may require new Form 2A.

SURFACE LOCATION GPS DATA Data must be provided for Change of Surface Location and As Built Reports.

Latitude PDOP Reading Date of Measurement
Longitude GPS Instrument Operator's Name

LOCATION CHANGE (all measurements in Feet)

Well will be: (Vertical, Directional, Horizontal)

Change of **Surface** Footage **From** Exterior Section Lines:

Change of **Surface** Footage **To** Exterior Section Lines:

Current **Surface** Location **From** QtrQtr NESE Sec 20

New **Surface** Location **To** QtrQtr Sec

Change of **Top of Productive Zone** Footage **From** Exterior Section Lines:

Change of **Top of Productive Zone** Footage **To** Exterior Section Lines:

Current **Top of Productive Zone** Location **From** Sec

New **Top of Productive Zone** Location **To** Sec

Change of **Bottomhole** Footage **From** Exterior Section Lines:

Change of **Bottomhole** Footage **To** Exterior Section Lines:

Current **Bottomhole** Location Sec Twp

New **Bottomhole** Location Sec Twp

Is location in High Density Area?

Distance, in feet, to nearest building , public road: , above ground utility: , railroad: ,

property line: , lease line: , well in same formation:

Ground Elevation feet Surface owner consultation date

FNL/FSL		FEL/FWL	
<u></u>	<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u></u>	<u></u>
Twp <u>7S</u>	Range <u>95W</u>	Meridian <u>6</u>	
Twp <u></u>	Range <u></u>	Meridian <u></u>	
<u></u>	<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u></u>	<u></u>
Twp <u></u>	Range <u></u>		
Twp <u></u>	Range <u></u>		
<u></u>	<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u></u>	<u></u>

**

**

** attach deviated drilling plan

OTHER CHANGES

☐ **REMOVE FROM SURFACE BOND** Signed surface use agreement is a required attachment

☐ **CHANGE OF WELL, FACILITY OR OIL & GAS LOCATION NAME OR NUMBER**

From: Name PI _____ Number 20 _____ Effective Date: _____

To: Name _____ Number _____

☐ **ABANDON PERMIT: Permit can only be abandoned if the permitted operation has NOT been conducted. Field inspection will be conducted to verify site status.**

☐ WELL: Abandon Application for Permit-to-Drill (Form2) – Well API Number _____ has not been drilled.

☐ PIT: Abandon Earthen Pit Permit (Form 15) – COGCC Pit Facility ID Number _____ has not been constructed (Permitted and constructed pit requires closure per Rule 905)

☐ CENTRALIZED E&P WASTE MANAGEMENT FACILITY: Abandon Centralized E&P Waste Management Facility Permit (Form 28) – Facility ID Number _____ has not been constructed (Constructed facility requires closure per Rule 908)

OIL & GAS LOCATION ID Number: _____

☐ Abandon Oil & Gas Location Assessment (Form 2A) – Location has not been constructed and site will not be used in the future.

☐ Keep Oil & Gas Location Assessment (Form 2A) active until expiration date. This site will be used in the future.

Surface disturbance from Oil and Gas Operations must be reclaimed per Rule 1003 and Rule 1004.

☐ **REQUEST FOR CONFIDENTIAL STATUS**

☐ **DIGITAL WELL LOG UPLOAD**

☐ **DOCUMENTS SUBMITTED** Purpose of Submission: _____

RECLAMATION

INTERIM RECLAMATION

☐ Interim Reclamation will commence approximately _____

Per Rule 1003.e.(3) operator shall submit Sundry Notice reporting interim reclamation is complete and site is ready for inspection when vegetation reaches 80% coverage.

☐ Interim reclamation complete, site ready for inspection.

Per Rule 1003.e(3) describe interim reclamation procedure in Comments below or provide as an attachment and attach required location photographs.

Field inspection will be conducted to document Rule 1003.e. compliance

FINAL RECLAMATION

☐ Final Reclamation will commence approximately _____

Per Rule 1004.c.(4) operator shall submit Sundry Notice reporting final reclamation is complete and site is ready for inspection when vegetation reaches 80% coverage.

☐ Final reclamation complete, site ready for inspection. Per Rule 1004.c(4) describe final reclamation procedure in Comments below or provide as an attachment.

Field inspection will be conducted to document Rule 1004.c. compliance

Comments:

ENGINEERING AND ENVIRONMENTAL WORK

☐ NOTICE OF CONTINUED TEMPORARILY ABANDONED STATUS

Indicate why the well is temporarily abandoned and describe future plans for utilization in the COMMENTS box below or provide as an attachment, as required by Rule 319.b.(3).

Date well temporarily abandoned _____ Has Production Equipment been removed from site? _____

Mechanical Integrity Test (MIT) required if shut in longer than 2 years. Date of last MIT _____

☐ SPUD DATE: _____

TECHNICAL ENGINEERING AND ENVIRONMENTAL WORK

Details of work must be described in full in the COMMENTS below or provided as an attachment.

☐ NOTICE OF INTENT Approximate Start Date _____

☒ REPORT OF WORK DONE Date Work Completed 06/28/2010

- | | | |
|---|---|--|
| <input type="checkbox"/> Intent to Recomplete (Form 2 also required) | <input type="checkbox"/> Request to Vent or Flare | <input type="checkbox"/> E&P Waste Mangement Plan |
| <input type="checkbox"/> Change Drilling Plan | <input type="checkbox"/> Repair Well | <input type="checkbox"/> Beneficial Reuse of E&P Waste |
| <input type="checkbox"/> Gross Interval Change | <input type="checkbox"/> Rule 502 variance requested. Must provide detailed info regarding request. | |
| <input checked="" type="checkbox"/> Other <u>Notice of Completion</u> | <input type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases | |

COMMENTS:

This form is being submitted to document closure of a lined earthen pit (Facility ID: 425760) and associated remediation project (Rem: 7250). See attached documentation for project description and supporting information.

H2S REPORTING

Data Fields in this section are intended to document Sample and Location Data associated with the collection of a Gas Sample that is submitted for Laboratory Analysis.

Gas Analysis Report must be attached.

H2S Concentration: _____ in ppm (parts per million) Date of Measurement or Sample Collection _____

Description of Sample Point:

Absolute Open Flow Potential _____ in CFPD (cubic feet per day)

Description of Release Potential and Duration (If flow is not open to the atmosphere, identify the duration in which the container or pipeline would likely be opened for servicing operations.):

Distance to nearest occupied residence, school, church, park, school bus stop, place of business, or other areas where the public could reasonably be expected to frequent: _____

Distance to nearest Federal, State, County, or municipal road or highway owned and principally maintained for public use: _____

COMMENTS:

--

Best Management Practices

No BMP/COA Type

Description

--	--

Operator Comments:

Attention Carlos Lujan.

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: _____ Print Name: Chris Hines

Title: Environmental Specialist Email: chris.hines@encana.com Date: _____

Based on the information provided herein, this Sundry Notice (Form 4) complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: _____ Date: _____

CONDITIONS OF APPROVAL, IF ANY:

General Comments

User Group

Comment

Comment Date

--	--	--

Total: 0 comment(s)

Attachment Check List

Att Doc Num

Name

400774964	FORM 4 SUBMITTED
400774967	TOPO MAP
400774968	OTHER

Total Attach: 3 Files



PI20 (Location: 334996)
Pit (Facility: 425762)
Encana Oil & Gas (USA) Inc. (Operator: 100185)

REPORT OF WORK COMPLETED

- Form 27 (Doc: 2230245) (Rem: 7250)

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 (Report of Work Completed and Notification of Completion) to document closure of a lined earthen pit on the PI20 well pad in the South Parachute area of operation in Garfield County.

Pit closure activities were carried out in June, 2010. The pit was drained, and the liner and above liner solids were removed for offsite disposal. A composite sample was collected from the soil below the liner. See the attached summary table and lab reports for analytical results.

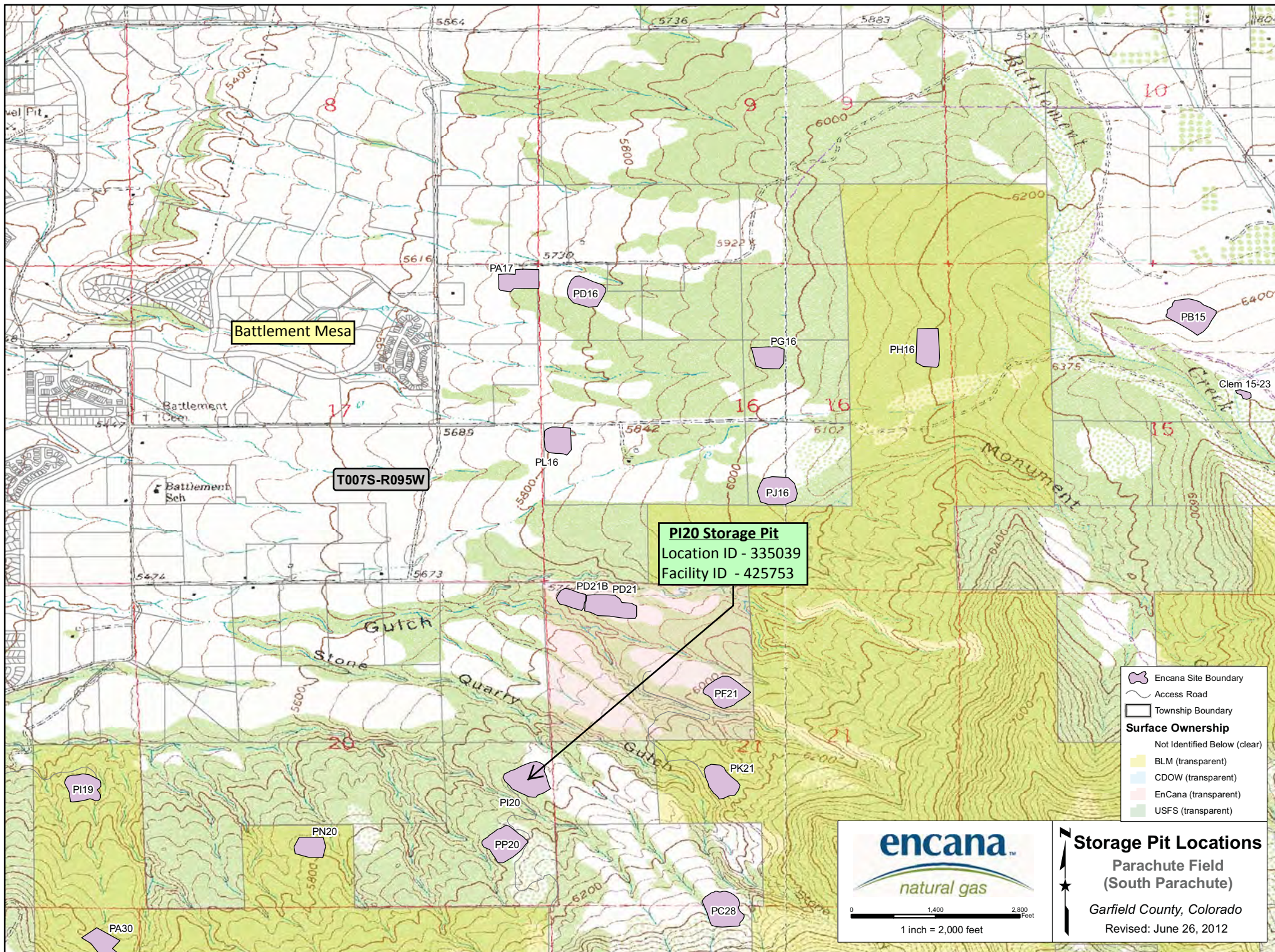
NOTIFICATION OF COMPLETION

Sample results for organic constituents of concern (TPH, BTEX, PAH) are below allowable concentrations identified in Table 910-1. The arsenic concentration is above the allowable concentration in Table 910-1, but is within the range of background values for this area. Based on these results and Footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic values as the allowable concentration for this constituent. With regards to the inorganic constituents (SAR, EC, pH), the soils represented by these samples are within the former pit footprint, below the current working surface, and future agronomic zone, and will have no effect on revegetation efforts during final reclamation of the location.

If the information provided here is satisfactory, please close the associated remediation project, and pit facility, and provide documentation of these record closures.

ATTACHMENTS

1. Topographic Location Map
2. Laboratory Results Summary Table
3. Laboratory Reports





Laboratory Results Summary Table

01/19/2015

Analytes (BDL = Below Detection Limit; ND = Non Detect)

Allowable Concentration →				Organic Compounds in Soil (mg/kg [ppm])																	Inorganics in Soil		Metals in Soil (mg/kg [ppm])															
Location	Sample Date:	Sample Matrix	Matrix Notes	500	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	0.17	85	100	175	1000	1000	0.22	0.22	2.2	0.022	22	0.022	1000	1000	0.22	23	1000	<12	(6-9)	0.39	15000	70	120000	23	3100	400	23	1600	390	390	23000	
				TPH (total volatile and extractable petroleum hydrocarbons)			Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,C,D)pyrene	Naphthalene	Pyrene	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc
PI20	06/07/10	Pit	pit bottom	15	BDL	15	BDL	BDL	BDL	0.0077	0.014	0.02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.081	BDL	0.022	BDL	1.8	29	9.3	6.5	170	0.52	14	BDL	12	10	0.032	11	3.8	BDL	40



12065 Lebanon Rd.
Mt. Juliet, TN 37122
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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Chris Hines
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

Report Summary

Friday June 11, 2010

Report Number: L463030

Samples Received: 06/08/10

Client Project:

Description: PI20 Pit Closure

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

REPORT OF ANALYSIS

Chris Hines
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

June 11, 2010

Date Received : June 08, 2010
Description : PI20 Pit Closure
Sample ID : PI20-PIT-060710 6 IN
Collected By : Chris Hines
Collection Date : 06/07/10 13:30

ESC Sample # : L463030-01

Site ID : PI20

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	06/09/10	1
Chromium, Trivalent	14.	0.50	mg/kg	Calc.	06/09/10	1
ORP	-77.		mV	2580	06/10/10	1
pH	9.3		su	9045D	06/08/10	1
Sodium Adsorption Ratio	29.			Calc.	06/10/10	1
Specific Conductance	1800		umhos/cm	9050AMod	06/09/10	1
Mercury	0.032	0.020	mg/kg	7471	06/10/10	1
Arsenic	6.5	1.0	mg/kg	6010B	06/09/10	1
Barium	170	0.25	mg/kg	6010B	06/09/10	1
Cadmium	0.52	0.25	mg/kg	6010B	06/09/10	1
Chromium	14.	0.50	mg/kg	6010B	06/09/10	1
Copper	12.	1.0	mg/kg	6010B	06/09/10	1
Lead	10.	0.25	mg/kg	6010B	06/09/10	1
Nickel	11.	1.0	mg/kg	6010B	06/09/10	1
Selenium	3.8	1.0	mg/kg	6010B	06/09/10	1
Silver	BDL	0.50	mg/kg	6010B	06/09/10	1
Zinc	40.	1.5	mg/kg	6010B	06/09/10	1
Benzene	BDL	0.0025	mg/kg	8021/8015	06/09/10	5
Toluene	BDL	0.025	mg/kg	8021/8015	06/09/10	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	06/09/10	5
Total Xylene	0.0077	0.0075	mg/kg	8021/8015	06/09/10	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	06/09/10	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	109.		% Rec.	8021/8015	06/09/10	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	06/09/10	5
TPH (GC/FID) High Fraction	15.	4.0	mg/kg	3546/DRO	06/10/10	1
Surrogate recovery(%)						
o-Terphenyl	56.3		% Rec.	3546/DRO	06/10/10	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.020	0.0060	mg/kg	8270C-SIM	06/10/10	1
Acenaphthene	0.014	0.0060	mg/kg	8270C-SIM	06/10/10	1
Acenaphthylene	0.015	0.0060	mg/kg	8270C-SIM	06/10/10	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L463030-01 (PH) - 9.3@23.0C



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REPORT OF ANALYSIS

Chris Hines
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

June 11, 2010

Date Received : June 08, 2010
Description : PI20 Pit Closure
Sample ID : PI20-PIT-060710 6 IN
Collected By : Chris Hines
Collection Date : 06/07/10 13:30

ESC Sample # : L463030-01

Site ID : PI20

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Fluorene	0.081	0.0060	mg/kg	8270C-SIM	06/10/10	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Naphthalene	0.022	0.0060	mg/kg	8270C-SIM	06/10/10	1
Phenanthrene	0.075	0.0060	mg/kg	8270C-SIM	06/10/10	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
1-Methylnaphthalene	0.027	0.0060	mg/kg	8270C-SIM	06/10/10	1
2-Methylnaphthalene	0.073	0.0060	mg/kg	8270C-SIM	06/10/10	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	06/10/10	1
Surrogate Recovery						
Nitrobenzene-d5	75.4		% Rec.	8270C-SIM	06/10/10	1
2-Fluorobiphenyl	79.6		% Rec.	8270C-SIM	06/10/10	1
p-Terphenyl-d14	77.5		% Rec.	8270C-SIM	06/10/10	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 06/10/10 16:56 Revised: 06/11/10 09:03
L463030-01 (PH) - 9.3@23.0C

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L463030-01	WG482458	SAMP	Acenaphthene	R1249088	J6J3
	WG482458	SAMP	Fluorene	R1249088	J6
	WG482458	SAMP	Phenanthrene	R1249088	J6

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J3	The associated batch QC was outside the established quality control range for precision.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



YOUR LAB OF CHOICE

EnCana Oil & Gas Inc. - CO
Chris Hines
2717 County Road 215, Suite 100
Parachute, CO 81635

Quality Assurance Report
Level II

L463030

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 11, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
pH	4.10	su			WG482447	06/08/10 16:04
Arsenic	< 1	mg/kg			WG482462	06/09/10 14:37
Barium	< .25	mg/kg			WG482462	06/09/10 14:37
Cadmium	< .25	mg/kg			WG482462	06/09/10 14:37
Chromium	< .5	mg/kg			WG482462	06/09/10 14:37
Copper	< 1	mg/kg			WG482462	06/09/10 14:37
Lead	< .25	mg/kg			WG482462	06/09/10 14:37
Nickel	< 1	mg/kg			WG482462	06/09/10 14:37
Selenium	< 1	mg/kg			WG482462	06/09/10 14:37
Silver	< .5	mg/kg			WG482462	06/09/10 14:37
Zinc	< 1.5	mg/kg			WG482462	06/09/10 14:37
Specific Conductance	1.80	umhos/cm			WG482565	06/09/10 14:40
Chromium,Hexavalent	< 2	mg/kg			WG482349	06/09/10 15:37
Benzene	< .0005	mg/kg			WG482659	06/09/10 16:50
Ethylbenzene	< .0005	mg/kg			WG482659	06/09/10 16:50
Toluene	< .005	mg/kg			WG482659	06/09/10 16:50
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG482659	06/09/10 16:50
Total Xylene	< .0015	mg/kg			WG482659	06/09/10 16:50
a,a,a-Trifluorotoluene(FID)		% Rec.	108.8	59-128	WG482659	06/09/10 16:50
a,a,a-Trifluorotoluene(PID)		% Rec.	102.9	54-144	WG482659	06/09/10 16:50
1-Methylnaphthalene	< .006	mg/kg			WG482458	06/10/10 10:18
2-Chloronaphthalene	< .006	mg/kg			WG482458	06/10/10 10:18
2-Methylnaphthalene	< .006	mg/kg			WG482458	06/10/10 10:18
Acenaphthene	< .006	mg/kg			WG482458	06/10/10 10:18
Acenaphthylene	< .006	mg/kg			WG482458	06/10/10 10:18
Anthracene	< .006	mg/kg			WG482458	06/10/10 10:18
Benzo(a)anthracene	< .006	mg/kg			WG482458	06/10/10 10:18
Benzo(a)pyrene	< .006	mg/kg			WG482458	06/10/10 10:18
Benzo(b)fluoranthene	< .006	mg/kg			WG482458	06/10/10 10:18
Benzo(g,h,i)perylene	< .006	mg/kg			WG482458	06/10/10 10:18
Benzo(k)fluoranthene	< .006	mg/kg			WG482458	06/10/10 10:18
Chrysene	< .006	mg/kg			WG482458	06/10/10 10:18
Dibenz(a,h)anthracene	< .006	mg/kg			WG482458	06/10/10 10:18
Fluoranthene	< .006	mg/kg			WG482458	06/10/10 10:18
Fluorene	< .006	mg/kg			WG482458	06/10/10 10:18
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG482458	06/10/10 10:18
Naphthalene	< .006	mg/kg			WG482458	06/10/10 10:18
Phenanthrene	< .006	mg/kg			WG482458	06/10/10 10:18
Pyrene	< .006	mg/kg			WG482458	06/10/10 10:18
2-Fluorobiphenyl		% Rec.	82.28	21-120	WG482458	06/10/10 10:18
Nitrobenzene-d5		% Rec.	69.15	33-114	WG482458	06/10/10 10:18
p-Terphenyl-d14		% Rec.	92.60	18-142	WG482458	06/10/10 10:18
TPH (GC/FID) High Fraction	< 4	ppm			WG482689	06/10/10 09:38
o-Terphenyl		% Rec.	88.53	50-150	WG482689	06/10/10 09:38
Mercury	< .02	mg/kg			WG482632	06/10/10 13:04

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Chris Hines
2717 County Road 215, Suite 100
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Quality Assurance Report
Level II

L463030

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 11, 2010

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
pH	su	9.20	9.30		1.08*	1	L463030-01	WG482447
Arsenic	mg/kg	0	0.798		NA	20	L462874-05	WG482462
Cadmium	mg/kg	0	0.0659		NA	20	L462874-05	WG482462
Chromium	mg/kg	7.30	6.96		5.18	20	L462874-05	WG482462
Copper	mg/kg	1.50	1.43		7.41	20	L462874-05	WG482462
Lead	mg/kg	26.0	19.0		32.2*	20	L462874-05	WG482462
Nickel	mg/kg	2.20	1.99		11.8	20	L462874-05	WG482462
Selenium	mg/kg	2.10	2.09		0.480	20	L462874-05	WG482462
Silver	mg/kg	0	0.0147		NA	20	L462874-05	WG482462
Zinc	mg/kg	11.0	7.75		35.5*	20	L462874-05	WG482462
Specific Conductance	umhos/cm	1900	1800		5.46	20	L463030-01	WG482565
Chromium,Hexavalent	mg/kg	0	0		0	20	L463030-01	WG482349
Chromium,Hexavalent	mg/kg	0	0		0	20	L463212-01	WG482349
ORP	mV	0	0		0	20	L463212-01	WG482720
Mercury	mg/kg	0.0530	0.0620		15.5	20	L462846-09	WG482632

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
pH	su	9.36	9.30	99.4	98.9-102.0	WG482447
Arsenic	mg/kg	192	176.	91.7	78.6-120.8	WG482462
Barium	mg/kg	420	431.	103.	78.8-121.4	WG482462
Cadmium	mg/kg	70.1	65.0	92.7	78.5-121.5	WG482462
Chromium	mg/kg	168	169.	101.	80.4-120.2	WG482462
Copper	mg/kg	122	132.	108.	81.6-119.7	WG482462
Lead	mg/kg	113	110.	97.3	77.3-122.1	WG482462
Nickel	mg/kg	74.1	75.2	101.	78.8-121.2	WG482462
Selenium	mg/kg	176	173.	98.3	75.6-125.0	WG482462
Silver	mg/kg	115	108.	93.9	66-133.9	WG482462
Zinc	mg/kg	437	410.	93.8	78.5-121.7	WG482462
Specific Conductance	umhos/cm	406	410.	101.	85-115	WG482565
Chromium,Hexavalent	mg/kg	100	101.	101.	50-143	WG482349
Benzene	mg/kg	.05	0.0457	91.3	76-113	WG482659
Ethylbenzene	mg/kg	.05	0.0492	98.4	78-115	WG482659
Toluene	mg/kg	.05	0.0462	92.5	76-114	WG482659
Total Xylene	mg/kg	.15	0.142	94.9	81-118	WG482659
a,a,a-Trifluorotoluene(PID)				102.6	54-144	WG482659
TPH (GC/FID) Low Fraction	mg/kg	5.5	4.57	83.0	67-135	WG482659
a,a,a-Trifluorotoluene(FID)				80.36	59-128	WG482659

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1-Methylnaphthalene	mg/kg	.033	0.0259	78.4	41-110	WG482458
2-Chloronaphthalene	mg/kg	.033	0.0272	82.6	43-109	WG482458
2-Methylnaphthalene	mg/kg	.033	0.0266	80.7	38-104	WG482458
Acenaphthene	mg/kg	.033	0.0263	79.8	48-103	WG482458
Acenaphthylene	mg/kg	.033	0.0271	82.3	43-106	WG482458
Anthracene	mg/kg	.033	0.0264	79.9	51-110	WG482458
Benzo(a)anthracene	mg/kg	.033	0.0293	88.8	38-126	WG482458
Benzo(a)pyrene	mg/kg	.033	0.0280	85.0	47-118	WG482458
Benzo(b)fluoranthene	mg/kg	.033	0.0289	87.5	47-118	WG482458
Benzo(g,h,i)perylene	mg/kg	.033	0.0286	86.6	40-125	WG482458
Benzo(k)fluoranthene	mg/kg	.033	0.0269	81.5	45-121	WG482458
Chrysene	mg/kg	.033	0.0275	83.3	35-135	WG482458
Dibenz(a,h)anthracene	mg/kg	.033	0.0285	86.2	41-124	WG482458
Fluoranthene	mg/kg	.033	0.0267	81.0	50-114	WG482458
Fluorene	mg/kg	.033	0.0266	80.6	49-109	WG482458
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0285	86.5	40-126	WG482458
Naphthalene	mg/kg	.033	0.0248	75.1	36-100	WG482458
Phenanthrene	mg/kg	.033	0.0264	80.0	46-108	WG482458
Pyrene	mg/kg	.033	0.0269	81.5	30-136	WG482458
2-Fluorobiphenyl				81.97	21-120	WG482458
Nitrobenzene-d5				65.91	33-114	WG482458
p-Terphenyl-d14				90.25	18-142	WG482458
TPH (GC/FID) High Fraction	ppm	60	46.4	77.3	50-150	WG482689
o-Terphenyl				81.45	50-150	WG482689
ORP	mV	229	225.	98.3	95.6-104.37	WG482720
Mercury	mg/kg	8.77	7.77	88.6	71.6-127.7	WG482632

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
pH	su	9.30	9.30	99.0	98.9-102.0	0	20	WG482447
Specific Conductance	umhos/	410.	410.	101.	85-115	0	20	WG482565
Chromium,Hexavalent	mg/kg	106.	101.	106.	50-143	4.83	20	WG482349
TPH (GC/FID) Low Fraction	mg/kg	4.71	4.57	86.0	67-135	3.11	20	WG482659
a,a,a-Trifluorotoluene(FID)				79.92	59-128			WG482659
Benzene	mg/kg	0.0472	0.0457	94.0	76-113	3.43	20	WG482659
Ethylbenzene	mg/kg	0.0514	0.0492	103.	78-115	4.39	20	WG482659
Toluene	mg/kg	0.0485	0.0462	97.0	76-114	4.81	20	WG482659
Total Xylene	mg/kg	0.149	0.142	99.0	81-118	4.55	20	WG482659
a,a,a-Trifluorotoluene(PID)				104.4	54-144			WG482659
1-Methylnaphthalene	mg/kg	0.0276	0.0259	84.0	41-110	6.41	24	WG482458
2-Chloronaphthalene	mg/kg	0.0280	0.0272	85.0	43-109	2.86	21	WG482458
2-Methylnaphthalene	mg/kg	0.0280	0.0266	85.0	38-104	4.96	24	WG482458
Acenaphthene	mg/kg	0.0262	0.0263	79.0	48-103	0.639	20	WG482458
Acenaphthylene	mg/kg	0.0289	0.0271	88.0	43-106	6.29	20	WG482458

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Anthracene	mg/kg	0.0268	0.0264	81.0	51-110	1.75	22	WG482458
Benzo(a)anthracene	mg/kg	0.0294	0.0293	89.0	38-126	0.181	20	WG482458
Benzo(a)pyrene	mg/kg	0.0280	0.0280	85.0	47-118	0.193	20	WG482458
Benzo(b)fluoranthene	mg/kg	0.0271	0.0289	82.0	47-118	6.47	29	WG482458
Benzo(g,h,i)perylene	mg/kg	0.0289	0.0286	88.0	40-125	1.09	20	WG482458
Benzo(k)fluoranthene	mg/kg	0.0285	0.0269	86.0	45-121	5.88	31	WG482458
Chrysene	mg/kg	0.0269	0.0275	82.0	35-135	2.02	20	WG482458
Dibenz(a,h)anthracene	mg/kg	0.0289	0.0285	88.0	41-124	1.45	20	WG482458
Fluoranthene	mg/kg	0.0274	0.0267	83.0	50-114	2.58	20	WG482458
Fluorene	mg/kg	0.0274	0.0266	83.0	49-109	3.00	19	WG482458
Indeno(1,2,3-cd)pyrene	mg/kg	0.0285	0.0285	86.0	40-126	0.132	20	WG482458
Naphthalene	mg/kg	0.0278	0.0248	84.0	36-100	11.6	24	WG482458
Phenanthrene	mg/kg	0.0267	0.0264	81.0	46-108	0.918	21	WG482458
Pyrene	mg/kg	0.0264	0.0269	80.0	30-136	2.01	20	WG482458
2-Fluorobiphenyl				82.34	21-120			WG482458
Nitrobenzene-d5				72.13	33-114			WG482458
p-Terphenyl-d14				85.25	18-142			WG482458
TPH (GC/FID) High Fraction	ppm	43.2	46.4	72.0	50-150	7.18	25	WG482689
o-Terphenyl				73.43	50-150			WG482689
ORP	mV	225.	225.	98.0	95.6-104.37	0	20	WG482720

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Arsenic	mg/kg	47.8	0.798	50	94.0	75-125	L462874-05	WG482462
Barium	mg/kg	82.5	30.2	50	105.	75-125	L462874-05	WG482462
Cadmium	mg/kg	48.9	0.0659	50	97.7	75-125	L462874-05	WG482462
Chromium	mg/kg	60.5	6.96	50	107.	75-125	L462874-05	WG482462
Copper	mg/kg	53.4	1.43	50	104.	75-125	L462874-05	WG482462
Lead	mg/kg	87.6	19.0	50	137.*	75-125	L462874-05	WG482462
Nickel	mg/kg	51.8	1.99	50	99.6	75-125	L462874-05	WG482462
Selenium	mg/kg	47.8	2.09	50	91.4	75-125	L462874-05	WG482462
Silver	mg/kg	47.9	0.0147	50	95.8	75-125	L462874-05	WG482462
Zinc	mg/kg	60.0	7.75	50	104.	75-125	L462874-05	WG482462
Chromium, Hexavalent	mg/kg	15.6	0	20	78.0	50-150	L462978-01	WG482349
Benzene	mg/kg	0.242	0	.05	96.9	32-137	L463030-01	WG482659
Ethylbenzene	mg/kg	0.254	0	.05	102.	10-150	L463030-01	WG482659
Toluene	mg/kg	0.243	0	.05	97.2	20-142	L463030-01	WG482659
Total Xylene	mg/kg	0.735	0.00770	.15	96.9	16-141	L463030-01	WG482659
a,a,a-Trifluorotoluene (PID)					102.0	54-144		WG482659
TPH (GC/FID) Low Fraction	mg/kg	20.9	0	5.5	76.0	55-109	L463030-01	WG482659
a,a,a-Trifluorotoluene (FID)					88.52	59-128		WG482659
1-Methylnaphthalene	mg/kg	0.0454	0.0270	.033	55.9	19-131	L463030-01	WG482458
2-Chloronaphthalene	mg/kg	0.0263	0	.033	79.8	38-117	L463030-01	WG482458
2-Methylnaphthalene	mg/kg	0.0836	0.0730	.033	32.2	18-125	L463030-01	WG482458
Acenaphthene	mg/kg	0.0352	0.0140	.033	64.4	31-120	L463030-01	WG482458
Acenaphthylene	mg/kg	0.0280	0.0150	.033	39.3	34-116	L463030-01	WG482458
Anthracene	mg/kg	0.0375	0.0200	.033	52.9	32-131	L463030-01	WG482458
Benzo(a)anthracene	mg/kg	0.0268	0	.033	81.3	32-131	L463030-01	WG482458

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzo(a)pyrene	mg/kg	0.0248	0	.033	75.2	28-130	L463030-01	WG482458
Benzo(b)fluoranthene	mg/kg	0.0264	0	.033	79.9	37-130	L463030-01	WG482458
Benzo(g,h,i)perylene	mg/kg	0.0246	0	.033	74.7	10-134	L463030-01	WG482458
Benzo(k)fluoranthene	mg/kg	0.0251	0	.033	76.0	31-129	L463030-01	WG482458
Chrysene	mg/kg	0.0258	0	.033	78.2	25-137	L463030-01	WG482458
Dibenz(a,h)anthracene	mg/kg	0.0239	0	.033	72.5	20-134	L463030-01	WG482458
Fluoranthene	mg/kg	0.0278	0	.033	84.3	27-138	L463030-01	WG482458
Fluorene	mg/kg	0.0796	0.0810	.033	0*	26-136	L463030-01	WG482458
Indeno(1,2,3-cd)pyrene	mg/kg	0.0237	0	.033	71.8	16-135	L463030-01	WG482458
Naphthalene	mg/kg	0.0409	0.0220	.033	57.2	22-121	L463030-01	WG482458
Phenanthrene	mg/kg	0.0759	0.0750	.033	2.74*	27-133	L463030-01	WG482458
Pyrene	mg/kg	0.0262	0	.033	79.4	22-133	L463030-01	WG482458
2-Fluorobiphenyl					80.95	21-120		WG482458
Nitrobenzene-d5					87.47	33-114		WG482458
p-Terphenyl-d14					78.74	18-142		WG482458
TPH (GC/FID) High Fraction	ppm	44.0	6.30	60	62.8	50-150	L463132-01	WG482689
o-Terphenyl					73.76	50-150		WG482689
Mercury	mg/kg	0.297	0.0620	.25	94.0	70-130	L462846-09	WG482632

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Arsenic	mg/kg	47.6	47.8	93.6	75-125	0.419	20	L462874-05	WG482462
Barium	mg/kg	81.5	82.5	103.	75-125	1.22	20	L462874-05	WG482462
Cadmium	mg/kg	48.5	48.9	96.9	75-125	0.821	20	L462874-05	WG482462
Chromium	mg/kg	60.2	60.5	106.	75-125	0.497	20	L462874-05	WG482462
Copper	mg/kg	52.6	53.4	102.	75-125	1.51	20	L462874-05	WG482462
Lead	mg/kg	98.0	87.6	158.*	75-125	11.2	20	L462874-05	WG482462
Nickel	mg/kg	51.4	51.8	98.8	75-125	0.775	20	L462874-05	WG482462
Selenium	mg/kg	48.2	47.8	92.2	75-125	0.833	20	L462874-05	WG482462
Silver	mg/kg	47.3	47.9	94.6	75-125	1.26	20	L462874-05	WG482462
Zinc	mg/kg	62.6	60.0	110.	75-125	4.24	20	L462874-05	WG482462
Chromium, Hexavalent	mg/kg	16.3	15.6	81.5	50-150	4.39	20	L462978-01	WG482349
Benzene	mg/kg	0.238	0.242	95.4	32-137	1.57	39	L463030-01	WG482659
Ethylbenzene	mg/kg	0.248	0.254	99.4	10-150	2.37	44	L463030-01	WG482659
Toluene	mg/kg	0.238	0.243	95.3	20-142	1.97	42	L463030-01	WG482659
Total Xylene	mg/kg	0.717	0.735	94.6	16-141	2.38	46	L463030-01	WG482659
a,a,a-Trifluorotoluene (PID)				102.2	54-144				WG482659
TPH (GC/FID) Low Fraction	mg/kg	18.9	20.9	68.9	55-109	9.88	20	L463030-01	WG482659
a,a,a-Trifluorotoluene (FID)				92.65	59-128				WG482659
1-Methylnaphthalene	mg/kg	0.0512	0.0454	73.2	19-131	11.8	30	L463030-01	WG482458
2-Chloronaphthalene	mg/kg	0.0304	0.0263	92.0	38-117	14.3	26	L463030-01	WG482458
2-Methylnaphthalene	mg/kg	0.0838	0.0836	32.8	18-125	0.233	29	L463030-01	WG482458
Acenaphthene	mg/kg	0.0150	0.0352	3.17*	31-120	80.3*	30	L463030-01	WG482458
Acenaphthylene	mg/kg	0.0320	0.0280	51.4	34-116	13.3	29	L463030-01	WG482458
Anthracene	mg/kg	0.0430	0.0375	69.6	32-131	13.7	26	L463030-01	WG482458
Benzo(a)anthracene	mg/kg	0.0304	0.0268	92.2	32-131	12.6	31	L463030-01	WG482458
Benzo(a)pyrene	mg/kg	0.0279	0.0248	84.6	28-130	11.6	28	L463030-01	WG482458
Benzo(b)fluoranthene	mg/kg	0.0287	0.0264	87.0	37-130	8.54	41	L463030-01	WG482458

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Analyte	Units	MSD	Matrix Spike	Duplicate	Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Benzo(g,h,i)perylene	mg/kg	0.0279	0.0246	84.6	10-134	12.4	26	L463030-01	WG482458	
Benzo(k)fluoranthene	mg/kg	0.0297	0.0251	89.9	31-129	16.7	42	L463030-01	WG482458	
Chrysene	mg/kg	0.0289	0.0258	87.7	25-137	11.3	22	L463030-01	WG482458	
Dibenz(a,h)anthracene	mg/kg	0.0272	0.0239	82.4	20-134	12.8	25	L463030-01	WG482458	
Fluoranthene	mg/kg	0.0306	0.0278	92.6	27-138	9.40	35	L463030-01	WG482458	
Fluorene	mg/kg	0.0940	0.0796	39.3	26-136	16.6	30	L463030-01	WG482458	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0273	0.0237	82.8	16-135	14.2	26	L463030-01	WG482458	
Naphthalene	mg/kg	0.0441	0.0409	67.1	22-121	7.71	30	L463030-01	WG482458	
Phenanthrene	mg/kg	0.0791	0.0759	12.4*	27-133	4.12	36	L463030-01	WG482458	
Pyrene	mg/kg	0.0299	0.0262	90.5	22-133	13.1	33	L463030-01	WG482458	
2-Fluorobiphenyl				95.14	21-120				WG482458	
Nitrobenzene-d5				102.5	33-114				WG482458	
p-Terphenyl-d14				90.11	18-142				WG482458	
TPH (GC/FID) High Fraction	ppm	47.2	44.0	68.2	50-150	7.15	25	L463132-01	WG482689	
o-Terphenyl				71.03	50-150				WG482689	
Mercury	mg/kg	0.257	0.297	78.0	70-130	14.4	20	L462846-09	WG482632	

Batch number /Run number / Sample number cross reference

WG482447: R1247749: L463030-01
WG482462: R1248310: L463030-01
WG482565: R1248372: L463030-01
WG482349: R1248408: L463030-01
WG482659: R1248869: L463030-01
WG482463: R1248890: L463030-01
WG482458: R1249088: L463030-01
WG482689: R1249173: L463030-01
WG482720: R1249174: L463030-01
WG482632: R1249208: L463030-01

* * Calculations are performed prior to rounding of reported values .
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

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Est. 1970

June 11, 2010

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.