

0-33

#6583

FORM 27 Rev 6/99

State of Colorado Oil and Gas Conservation Commission



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

FOR OGCC USE ONLY RECEIVED 10/3/2011 OGCC Employee: Spill Inspection Complaint NOAV Tracking No:

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe): Drill cuttings

OGCC Operator Number: 10091 Name of Operator: Berry Petroleum Company Address: 1999 Broadway, Suite 3700 City: Denver State: CO Zip: 80202 Contact Name and Telephone: Chris Freeman No: 303-999-4400 Fax: 303-999-4402 API Number: 05-045-14590 County: Garfield Facility Name: Chevron 33-10 D Facility Number: 336872 Well Name: Chevron O-33 596 Well Number: Chevron O-33 596 Location: (QtrQtr, Sec, Twp, Rng, Meridian): SW SW Sec. 33, T5S, R96W Latitude: Longitude:

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y No If yes, attach evaluation. Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): rangeland and natural gas development Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Potential receptors (water wells within 1/4 mi, surface waters, etc.): Circle Dot Gulch -1,200 ft Description of Impact (if previously provided, refer to that form or document): Impacted Media (check): Soils Extent of Impact: drill cuttings How Determined: laboratory testing Vegetation Groundwater Surface Water

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document): Drill cuttings were excavated and tested for Table 910-1 parameters. Testing showed TPH above the standard. Describe how source is to be removed: Drill cuttings were excavated from the pit. Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.: Drill cuttings were passively treated on site and retested. All parameters were below the Table 910-1 standards except for arsenic and SAR. Cuttings with SAR greater than 12 will be buried in the pit to a depth of at least three feet. Three background soil samples were collected in the vicinity of the pit to characterize natural soil arsenic levels. A Sundry Form 4 is attached that shows that the maximum background arsenic concentration is higher than that in the cuttings.

Submit Page 2 with Page 1

0-33

FORM  
27  
Rev 6/99

State of Colorado  
Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
(303)894-2100 Fax: (303)894-2109



Tracking Number:	_____
Name of Operator:	_____
OGCC Operator No:	_____
Received Date:	_____
Well Name & No:	_____
Facility Name & No:	_____

**REMEDIATION WORKPLAN (Cont.)**

**If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):**

There are no impacts to groundwater.

**Describe reclamation plan.** Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Drill cuttings will be placed in the reserve pit and compacted. All cuttings with SAR greater than 12 will be buried at least three feet below the reclaimed ground surface. The remainder of the pit will be backfilled using native rock and soil, regraded to conform to the surrounding ground surface, and reseeded using an approved seed mix. Noxious weeds will be controlled as necessary using approved methods.

**Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.**

**Is further site investigation required?** Y  N If yes, describe:

The laboratory report for the remediated drill cuttings and subsoil beneath the pit bottom are attached. A Sundry Form 4 is also attached that provides the results for three background soil samples for arsenic.

**Final disposition of E&P waste** (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

The remediated drill cuttings will be buried in the reserve pit as described above.

**IMPLEMENTATION SCHEDULE**

Date Site Investigation Began: <u>5/27/11</u>	Date Site Investigation Completed: <u>9/29/11</u>	Date Remediation Plan Submitted: <u>10/3/11</u>
Remediation Start Date: _____	Anticipated Completion Date: <u>11/30/11</u>	Actual Completion Date: _____

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

Print Name: Chris P. Freeman Signed: [Signature]  
Title: Regional Manager Environ., Health & Safety Date: 10/5/11

OGCC Approved: [Signature] Title: FOR Chris Canfield Date: 10/25/2011  
EPS NW Region



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Tax I.D. 62-0814289

Est. 1970

Dave Nicholson  
Berry Petroleum Company - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

### Report Summary

Tuesday June 07, 2011

Report Number: L518291

Samples Received: 05/28/11

Client Project:

Description: Berry Pit Permitting

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:

Mark W. Beasley , 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,  
TX - T104704245, OK-9915

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.



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REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

June 07, 2011

Date Received : May 28, 2011  
Description : Berry Pit Permitting  
Sample ID : O-33 PILE 6-12 IN  
Collected By : DK Nicholson  
Collection Date : 05/27/11 13:10

ESC Sample # : L518291-06  
Site ID :  
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	06/04/11	1
ORP	47.		mV	2580	06/02/11	1
pH	7.9		su	9045D	06/02/11	1
Sodium Adsorption Ratio	7.4			Calc.	06/05/11	1
Specific Conductance	700		umhos/cm	9050AMod	06/06/11	1
Mercury	0.035	0.020	mg/kg	7471	05/30/11	1
Arsenic	11.	1.0	mg/kg	6010B	05/30/11	1
Barium	370	0.25	mg/kg	6010B	05/30/11	1
Boron	BDL	10.	mg/kg	6010B	05/30/11	1
Cadmium	1.8	0.25	mg/kg	6010B	05/30/11	1
Chromium	25.	0.50	mg/kg	6010B	05/30/11	1
Copper	19.	1.0	mg/kg	6010B	05/30/11	1
Lead	19.	0.25	mg/kg	6010B	05/30/11	1
Nickel	16.	1.0	mg/kg	6010B	05/30/11	1
Selenium	1.2	1.0	mg/kg	6010B	05/30/11	1
Silver	BDL	0.50	mg/kg	6010B	05/30/11	1
Zinc	60.	1.5	mg/kg	6010B	05/30/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/29/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/29/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/29/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/29/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/29/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	05/29/11	5
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021/8015	05/29/11	5
TPH (GC/FID) High Fraction	50.	4.0	mg/kg	3546/DRO	06/02/11	1
Surrogate recovery(%)						
o-Terphenyl	85.6		% Rec.	3546/DRO	06/02/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.033	mg/kg	8270C	06/03/11	1
Acenaphthene	BDL	0.033	mg/kg	8270C	06/03/11	1
Acenaphthylene	BDL	0.033	mg/kg	8270C	06/03/11	1
Benzo(a)anthracene	0.034	0.033	mg/kg	8270C	06/03/11	1
Benzo(a)pyrene	BDL	0.16	mg/kg	8270C	06/04/11	5
Benzo(b)fluoranthene	BDL	0.16	mg/kg	8270C	06/04/11	5

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L518291-06 (PH) - 7.9@20.7C



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1999 Broadway, Suite 3700
Denver, CO 80202

June 07, 2011

Date Received : May 28, 2011
Description : Berry Pit Permitting
Sample ID : O-33 PILE 6-12 IN
Collected By : DK Nicholson
Collection Date : 05/27/11 13:10

ESC Sample # : L518291-06
Site ID :
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include various chemical compounds like Benzo(g,h,i)perylene, Chrysene, etc., with their respective results and detection limits.

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted.
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Reported: 06/07/11 12:59 Printed: 06/07/11 13:12
L518291-06 (PH) - 7.9@20.7C



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REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

June 07, 2011

Date Received : May 28, 2011  
Description : Berry Pit Permitting  
Sample ID : O-33 PIT 6-12 IN  
Collected By : DK Nicholson  
Collection Date : 05/27/11 13:30

ESC Sample # : L518291-07  
Site ID :  
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	06/04/11	1
ORP	33.		mV	2580	06/02/11	1
pH	8.4		su	9045D	06/02/11	1
Sodium Adsorption Ratio	12.			Calc.	06/05/11	1
Specific Conductance	440		umhos/cm	9050AMod	06/06/11	1
Mercury	0.030	0.020	mg/kg	7471	05/30/11	1
Arsenic	11.	1.0	mg/kg	6010B	05/30/11	1
Barium	470	0.25	mg/kg	6010B	05/30/11	1
Boron	BDL	10.	mg/kg	6010B	05/30/11	1
Cadmium	1.8	0.25	mg/kg	6010B	05/30/11	1
Chromium	29.	0.50	mg/kg	6010B	05/30/11	1
Copper	20.	1.0	mg/kg	6010B	05/30/11	1
Lead	17.	0.25	mg/kg	6010B	05/30/11	1
Nickel	17.	1.0	mg/kg	6010B	05/30/11	1
Selenium	BDL	1.0	mg/kg	6010B	05/30/11	1
Silver	BDL	0.50	mg/kg	6010B	05/30/11	1
Zinc	59.	1.5	mg/kg	6010B	05/30/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/29/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/29/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/29/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/29/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/29/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	102.		% Rec.	8021/8015	05/29/11	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	05/29/11	5
TPH (GC/FID) High Fraction	110	4.0	mg/kg	3546/DRO	06/02/11	1
Surrogate recovery(%)						
o-Terphenyl	91.9		% Rec.	3546/DRO	06/02/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.16	mg/kg	8270C	06/03/11	5
Acenaphthene	BDL	0.16	mg/kg	8270C	06/03/11	5
Acenaphthylene	BDL	0.16	mg/kg	8270C	06/03/11	5
Benzo(a)anthracene	BDL	0.16	mg/kg	8270C	06/03/11	5
Benzo(a)pyrene	BDL	0.16	mg/kg	8270C	06/03/11	5
Benzo(b)fluoranthene	BDL	0.16	mg/kg	8270C	06/03/11	5

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L518291-07 (PH) - 8.4@20.6C  
L518291-07 (PAH BY GCMS) - Diluted due to matrix



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REPORT OF ANALYSIS

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Date Received : May 28, 2011
Description : Berry Pit Permitting
Sample ID : O-33 PIT 6-12 IN
Collected By : DK Nicholson
Collection Date : 05/27/11 13:30

ESC Sample # : L518291-07
Site ID :
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene, and Surrogate Recovery (Nitrobenzene-d5, 2-Fluorobiphenyl, p-Terphenyl-d14).

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 06/07/11 12:59 Printed: 06/07/11 13:12
L518291-07 (PH) - 8.4@20.6C
L518291-07 (PAH BY GCMS) - Diluted due to matrix

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L518291-01	WG538003	SAMP	TPH (GC/FID) Low Fraction	R1703789	J6
	WG539215	SAMP	Chromium, Hexavalent	R1714410	J3J6
L518291-02	WG538546	SAMP	Nitrobenzene-d5	R1710730	J1
	WG538261	SAMP	o-Terphenyl	R1707889	J7
L518291-04	WG538546	SAMP	Benzo(a)pyrene	R1710730	O
	WG538546	SAMP	Benzo(b)fluoranthene	R1710730	O
	WG538546	SAMP	Benzo(g,h,i)perylene	R1710730	O
	WG538546	SAMP	Benzo(k)fluoranthene	R1710730	O
	WG538546	SAMP	Dibenz(a,h)anthracene	R1710730	O
L518291-05	WG538546	SAMP	Indeno(1,2,3-cd)pyrene	R1710730	O
	WG538546	SAMP	Anthracene	R1710730	O
	WG538546	SAMP	Acenaphthene	R1710730	O
	WG538546	SAMP	Acenaphthylene	R1710730	O
	WG538546	SAMP	Benzo(a)anthracene	R1710730	O
	WG538546	SAMP	Benzo(a)pyrene	R1710730	O
	WG538546	SAMP	Benzo(b)fluoranthene	R1710730	O
	WG538546	SAMP	Benzo(g,h,i)perylene	R1710730	O
	WG538546	SAMP	Benzo(k)fluoranthene	R1710730	O
	WG538546	SAMP	Chrysene	R1710730	O
	WG538546	SAMP	Dibenz(a,h)anthracene	R1710730	O
	WG538546	SAMP	Fluoranthene	R1710730	O
	WG538546	SAMP	Fluorene	R1710730	O
	WG538546	SAMP	Indeno(1,2,3-cd)pyrene	R1710730	O
	WG538546	SAMP	Naphthalene	R1710730	O
L518291-06	WG538546	SAMP	Phenanthrene	R1710730	O
	WG538546	SAMP	Pyrene	R1710730	O
	WG538546	SAMP	Benzo(a)pyrene	R1710730	O
	WG538546	SAMP	Benzo(b)fluoranthene	R1710730	O
	WG538546	SAMP	Benzo(g,h,i)perylene	R1710730	O
L518291-07	WG538546	SAMP	Benzo(k)fluoranthene	R1710730	O
	WG538546	SAMP	Dibenz(a,h)anthracene	R1710730	O
	WG538546	SAMP	Indeno(1,2,3-cd)pyrene	R1710730	O
	WG538546	SAMP	Anthracene	R1710730	O
	WG538546	SAMP	Acenaphthene	R1710730	O
	WG538546	SAMP	Acenaphthylene	R1710730	O
	WG538546	SAMP	Benzo(a)anthracene	R1710730	O
	WG538546	SAMP	Benzo(a)pyrene	R1710730	O
	WG538546	SAMP	Benzo(b)fluoranthene	R1710730	J50
	WG538546	SAMP	Benzo(g,h,i)perylene	R1710730	O
L518291-09	WG538546	SAMP	Benzo(k)fluoranthene	R1710730	O
	WG538546	SAMP	Chrysene	R1710730	O
	WG538546	SAMP	Dibenz(a,h)anthracene	R1710730	J30
	WG538546	SAMP	Fluoranthene	R1710730	O
	WG538546	SAMP	Fluorene	R1710730	J30
	WG538546	SAMP	Indeno(1,2,3-cd)pyrene	R1710730	O
	WG538546	SAMP	Naphthalene	R1710730	J30
	WG538546	SAMP	Phenanthrene	R1710730	J30
	WG538546	SAMP	Pyrene	R1710730	O
	WG538596	SAMP	Benzo(a)pyrene	R1711329	J3
	WG538596	SAMP	Benzo(b)fluoranthene	R1711329	J3
	WG538596	SAMP	Benzo(g,h,i)perylene	R1711329	J3
WG538596	SAMP	Dibenz(a,h)anthracene	R1711329	J3	
WG538596	SAMP	Fluoranthene	R1711329	J3	

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
0	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.

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.



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 Dave Nicholson  
 1999 Broadway, Suite 3700  
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Quality Assurance Report  
 Level II

L518291

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June 07, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG538003	05/29/11 03:19
Ethylbenzene	< .0005	mg/kg			WG538003	05/29/11 03:19
Toluene	< .005	mg/kg			WG538003	05/29/11 03:19
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG538003	05/29/11 03:19
Total Xylene	< .0015	mg/kg			WG538003	05/29/11 03:19
a,a,a-Trifluorotoluene(FID)		% Rec.	106.4	59-128	WG538003	05/29/11 03:19
a,a,a-Trifluorotoluene(PID)		% Rec.	110.2	54-144	WG538003	05/29/11 03:19
Mercury	< .02	mg/kg			WG537978	05/30/11 11:48
Arsenic	< 1	mg/kg			WG538020	05/30/11 10:06
Barium	< .25	mg/kg			WG538020	05/30/11 10:06
Boron	< 10	mg/kg			WG538020	05/30/11 10:06
Cadmium	< .25	mg/kg			WG538020	05/30/11 10:06
Chromium	< .5	mg/kg			WG538020	05/30/11 10:06
Copper	< 1	mg/kg			WG538020	05/30/11 10:06
Lead	< .25	mg/kg			WG538020	05/30/11 10:06
Nickel	< 1	mg/kg			WG538020	05/30/11 10:06
Selenium	< 1	mg/kg			WG538020	05/30/11 10:06
Silver	< .5	mg/kg			WG538020	05/30/11 10:06
Zinc	< 1.5	mg/kg			WG538020	05/30/11 10:06
TPH (GC/FID) High Fraction	< 4	ppm			WG538261	06/02/11 07:19
o-Terphenyl		% Rec.	75.38	50-150	WG538261	06/02/11 07:19
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG538446	06/02/11 03:03
a,a,a-Trifluorotoluene(FID)		% Rec.	100.2	59-128	WG538446	06/02/11 03:03
a,a,a-Trifluorotoluene(PID)		% Rec.	101.4	54-144	WG538446	06/02/11 03:03
pH	4.20	su			WG538375	06/02/11 14:06
Acenaphthene	< .033	mg/kg			WG538546	06/03/11 10:16
Acenaphthylene	< .033	mg/kg			WG538546	06/03/11 10:16
Anthracene	< .033	mg/kg			WG538546	06/03/11 10:16
Benzo(a)anthracene	< .033	mg/kg			WG538546	06/03/11 10:16
Benzo(a)pyrene	< .033	mg/kg			WG538546	06/03/11 10:16
Benzo(b)fluoranthene	< .033	mg/kg			WG538546	06/03/11 10:16
Benzo(g,h,i)perylene	< .033	mg/kg			WG538546	06/03/11 10:16
Benzo(k)fluoranthene	< .033	mg/kg			WG538546	06/03/11 10:16
Chrysene	< .033	mg/kg			WG538546	06/03/11 10:16
Dibenz(a,h)anthracene	< .033	mg/kg			WG538546	06/03/11 10:16
Fluoranthene	< .033	mg/kg			WG538546	06/03/11 10:16
Fluorene	< .033	mg/kg			WG538546	06/03/11 10:16
Indeno(1,2,3-cd)pyrene	< .033	mg/kg			WG538546	06/03/11 10:16
Naphthalene	< .033	mg/kg			WG538546	06/03/11 10:16
Phenanthrene	< .033	mg/kg			WG538546	06/03/11 10:16
Pyrene	< .033	mg/kg			WG538546	06/03/11 10:16
2-Fluorobiphenyl		% Rec.	63.13	37-123	WG538546	06/03/11 10:16
Nitrobenzene-d5		% Rec.	68.67	19-129	WG538546	06/03/11 10:16
p-Terphenyl-d14		% Rec.	66.95	34-149	WG538546	06/03/11 10:16
Acenaphthene	< .033	mg/kg			WG538596	06/04/11 09:47

\* Performance of this Analyte is outside of established criteria.

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 Level II

L518291

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

Tax I.D. 62-0814289

Est. 1970

June 07, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Acenaphthylene	< .033	mg/kg			WG538596	06/04/11 09:47
Anthracene	< .033	mg/kg			WG538596	06/04/11 09:47
Benzo(a)anthracene	< .033	mg/kg			WG538596	06/04/11 09:47
Benzo(a)pyrene	< .033	mg/kg			WG538596	06/04/11 09:47
Benzo(b)fluoranthene	< .033	mg/kg			WG538596	06/04/11 09:47
Benzo(g,h,i)perylene	< .033	mg/kg			WG538596	06/04/11 09:47
Benzo(k)fluoranthene	< .033	mg/kg			WG538596	06/04/11 09:47
Chrysene	< .033	mg/kg			WG538596	06/04/11 09:47
Dibenz(a,h)anthracene	< .033	mg/kg			WG538596	06/04/11 09:47
Fluoranthene	< .033	mg/kg			WG538596	06/04/11 09:47
Fluorene	< .033	mg/kg			WG538596	06/04/11 09:47
Indeno(1,2,3-cd)pyrene	< .033	mg/kg			WG538596	06/04/11 09:47
Naphthalene	< .033	mg/kg			WG538596	06/04/11 09:47
Phenanthrene	< .033	mg/kg			WG538596	06/04/11 09:47
Pyrene	< .033	mg/kg			WG538596	06/04/11 09:47
2-Fluorobiphenyl		% Rec.	56.94	37-123	WG538596	06/04/11 09:47
Nitrobenzene-d5		% Rec.	56.23	19-129	WG538596	06/04/11 09:47
p-Terphenyl-d14		% Rec.	65.68	34-149	WG538596	06/04/11 09:47
Chromium,Hexavalent	< 2	mg/kg			WG538481	06/04/11 13:13
Specific Conductance	2.70	umhos/cm			WG538927	06/06/11 10:30
Chromium,Hexavalent	< 2	mg/kg			WG539215	06/07/11 11:29

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0	0	0	20	L518216-07	WG537978
Arsenic	mg/kg	12.0	6.83	57.2*	20	L518375-05	WG538020
Barium	mg/kg	36.0	39.6	10.1	20	L518375-05	WG538020
Boron	mg/kg	0	10.0	NA	20	L518375-05	WG538020
Cadmium	mg/kg	2.50	1.95	24.7*	20	L518375-05	WG538020
Chromium	mg/kg	22.0	22.9	4.46	20	L518375-05	WG538020
Copper	mg/kg	32.0	25.9	19.5	20	L518375-05	WG538020
Lead	mg/kg	180.	150.	20.4*	20	L518375-05	WG538020
Nickel	mg/kg	24.0	23.7	0.421	20	L518375-05	WG538020
Selenium	mg/kg	0	0	0	20	L518375-05	WG538020
Silver	mg/kg	0	0	0	20	L518375-05	WG538020
Zinc	mg/kg	74.0	71.7	2.89	20	L518375-05	WG538020
ORP	mV	59.0	58.0	1.71	20	L518291-03	WG538383
ORP	mV	80.0	67.0	17.7	20	L518325-02	WG538383
pH	su	11.0	11.0	0	1	L518291-01	WG538375
pH	su	7.40	7.40	0	1	L518510-01	WG538375
Chromium,Hexavalent	mg/kg	0	0	0	20	L518690-07	WG538481
Specific Conductance	umhos/cm	2400	2600	8.00	20	L518291-01	WG538927

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Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Specific Conductance	umhos/cm	1100	1100	0	20	L518690-07	WG538927
Chromium,Hexavalent	mg/kg	0	0	0	20	L518291-01	WG539215
Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch	
		Known Val	Result				
Benzene	mg/kg	.05	0.0543	109.	76-113	WG538003	
Ethylbenzene	mg/kg	.05	0.0553	111.	78-115	WG538003	
Toluene	mg/kg	.05	0.0547	109.	76-114	WG538003	
Total Xylene	mg/kg	.15	0.171	114.	81-118	WG538003	
a,a,a-Trifluorotoluene(PID)				107.4	54-144	WG538003	
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.20	94.5	67-135	WG538003	
a,a,a-Trifluorotoluene(FID)				104.7	59-128	WG538003	
Mercury	mg/kg	8.77	9.02	103.	71.6-127.7	WG537978	
Arsenic	mg/kg	192	173.	90.1	78.6-120.8	WG538020	
Barium	mg/kg	420	386.	91.9	78.8-121.4	WG538020	
Boron	mg/kg	140	125.	89.3	74.3-125.7	WG538020	
Cadmium	mg/kg	70.1	65.0	92.7	78.5-121.5	WG538020	
Chromium	mg/kg	168	158.	94.0	80.4-120.2	WG538020	
Copper	mg/kg	122	112.	91.8	81.6-119.7	WG538020	
Lead	mg/kg	113	102.	90.3	77.3-122.1	WG538020	
Nickel	mg/kg	74.1	64.2	86.6	78.8-121.2	WG538020	
Selenium	mg/kg	176	159.	90.3	75.6-125.0	WG538020	
Silver	mg/kg	115	107.	93.0	66-133.9	WG538020	
Zinc	mg/kg	437	403.	92.2	78.5-121.7	WG538020	
TPH (GC/FID) High Fraction	ppm	60	46.0	76.6	50-150	WG538261	
o-Terphenyl				64.63	50-150	WG538261	
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.16	93.9	67-135	WG538446	
a,a,a-Trifluorotoluene(FID)				108.0	59-128	WG538446	
ORP	mV	229	220.	96.1	95.6-104.37	WG538383	
pH	su	6.3	6.30	100.	97.98-102.02	WG538375	
Acenaphthene	mg/kg	.167	0.111	66.4	44-117	WG538546	
Acenaphthylene	mg/kg	.167	0.108	64.6	43-118	WG538546	
Anthracene	mg/kg	.167	0.110	66.0	42-127	WG538546	
Benzo(a)anthracene	mg/kg	.167	0.114	68.4	45-127	WG538546	
Benzo(a)pyrene	mg/kg	.167	0.113	67.7	46-123	WG538546	
Benzo(b)fluoranthene	mg/kg	.167	0.117	69.8	43-126	WG538546	
Benzo(g,h,i)perylene	mg/kg	.167	0.113	67.7	43-128	WG538546	
Benzo(k)fluoranthene	mg/kg	.167	0.113	67.6	40-126	WG538546	
Chrysene	mg/kg	.167	0.117	70.0	44-129	WG538546	
Dibenz(a,h)anthracene	mg/kg	.167	0.115	68.8	43-127	WG538546	
Fluoranthene	mg/kg	.167	0.114	68.6	44-125	WG538546	
Fluorene	mg/kg	.167	0.112	66.9	45-121	WG538546	

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Indeno(1,2,3-cd)pyrene	mg/kg	.167	0.117	69.9	43-127	WG538546
Naphthalene	mg/kg	.167	0.101	60.5	32-113	WG538546
Phenanthrene	mg/kg	.167	0.107	63.9	43-124	WG538546
Pyrene	mg/kg	.167	0.116	69.6	47-128	WG538546
2-Fluorobiphenyl				65.26	37-123	WG538546
Nitrobenzene-d5				68.20	19-129	WG538546
p-Terphenyl-d14				72.21	34-149	WG538546
Acenaphthene	mg/kg	.167	0.0942	56.4	44-117	WG538596
Acenaphthylene	mg/kg	.167	0.0944	56.5	43-118	WG538596
Anthracene	mg/kg	.167	0.100	60.2	42-127	WG538596
Benzo(a)anthracene	mg/kg	.167	0.102	60.8	45-127	WG538596
Benzo(a)pyrene	mg/kg	.167	0.0817	48.9	46-123	WG538596
Benzo(b)fluoranthene	mg/kg	.167	0.0818	49.0	43-126	WG538596
Benzo(g,h,i)perylene	mg/kg	.167	0.0866	51.9	43-128	WG538596
Benzo(k)fluoranthene	mg/kg	.167	0.0887	53.1	40-126	WG538596
Chrysene	mg/kg	.167	0.100	60.2	44-129	WG538596
Dibenz(a,h)anthracene	mg/kg	.167	0.0854	51.1	43-127	WG538596
Fluoranthene	mg/kg	.167	0.0877	52.5	44-125	WG538596
Fluorene	mg/kg	.167	0.0880	52.7	45-121	WG538596
Indeno(1,2,3-cd)pyrene	mg/kg	.167	0.0911	54.6	43-127	WG538596
Naphthalene	mg/kg	.167	0.0928	55.6	32-113	WG538596
Phenanthrene	mg/kg	.167	0.0966	57.9	43-124	WG538596
Pyrene	mg/kg	.167	0.0891	53.3	47-128	WG538596
2-Fluorobiphenyl				59.77	37-123	WG538596
Nitrobenzene-d5				62.80	19-129	WG538596
p-Terphenyl-d14				52.61	34-149	WG538596
Chromium,Hexavalent	mg/kg	132	100.	75.8	50-150	WG538481
Specific Conductance	umhos/cm	556	560.	101.	85-115	WG538927
Chromium,Hexavalent	mg/kg	132	110.	83.3	50-150	WG539215

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0565	0.0543	113.	76-113	3.84	20	WG538003
Ethylbenzene	mg/kg	0.0564	0.0553	113.	78-115	1.97	20	WG538003
Toluene	mg/kg	0.0556	0.0547	111.	76-114	1.70	20	WG538003
Total Xylene	mg/kg	0.173	0.171	115.	81-118	0.800	20	WG538003
a,a,a-Trifluorotoluene(PID)				107.1	54-144			WG538003
TPH (GC/FID) Low Fraction	mg/kg	5.51	5.20	100.	67-135	5.83	20	WG538003
a,a,a-Trifluorotoluene(FID)				107.2	59-128			WG538003
TPH (GC/FID) High Fraction	ppm	45.0	46.0	75.0	50-150	2.07	25	WG538261
o-Terphenyl				63.99	50-150			WG538261
TPH (GC/FID) Low Fraction	mg/kg	5.10	5.16	93.0	67-135	1.33	20	WG538446
a,a,a-Trifluorotoluene(FID)				107.8	59-128			WG538446
ORP	mV	220.	220.	96.0	95.6-104.37	0	20	WG538383

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
pH	su	6.30	6.30	100.	97.98-102.02	0	20	WG538375
Acenaphthene	mg/kg	0.105	0.111	63.0	44-117	5.86	21	WG538546
Acenaphthylene	mg/kg	0.105	0.108	63.0	43-118	2.89	20	WG538546
Anthracene	mg/kg	0.106	0.110	63.0	42-127	4.16	21	WG538546
Benzo(a)anthracene	mg/kg	0.110	0.114	66.0	45-127	4.01	21	WG538546
Benzo(a)pyrene	mg/kg	0.110	0.113	66.0	46-123	2.89	20	WG538546
Benzo(b)fluoranthene	mg/kg	0.124	0.117	74.0	43-126	5.99	27	WG538546
Benzo(g,h,i)perylene	mg/kg	0.111	0.113	66.0	43-128	2.16	20	WG538546
Benzo(k)fluoranthene	mg/kg	0.102	0.113	61.0	40-126	10.0	32	WG538546
Chrysene	mg/kg	0.114	0.117	68.0	44-129	2.15	22	WG538546
Dibenz(a,h)anthracene	mg/kg	0.114	0.115	68.0	43-127	0.714	20	WG538546
Fluoranthene	mg/kg	0.108	0.114	65.0	44-125	5.63	22	WG538546
Fluorene	mg/kg	0.101	0.112	60.0	45-121	10.4	20	WG538546
Indeno(1,2,3-cd)pyrene	mg/kg	0.114	0.117	68.0	43-127	2.17	21	WG538546
Naphthalene	mg/kg	0.0999	0.101	60.0	32-113	1.15	26	WG538546
Phenanthrene	mg/kg	0.104	0.107	62.0	43-124	2.38	21	WG538546
Pyrene	mg/kg	0.113	0.116	67.0	47-128	3.19	20	WG538546
2-Fluorobiphenyl				61.29	37-123			WG538546
Nitrobenzene-d5				67.40	19-129			WG538546
p-Terphenyl-d14				69.29	34-149			WG538546
Acenaphthene	mg/kg	0.0994	0.0942	60.0	44-117	5.34	21	WG538596
Acenaphthylene	mg/kg	0.100	0.0944	60.0	43-118	6.08	20	WG538596
Anthracene	mg/kg	0.104	0.100	62.0	42-127	3.21	21	WG538596
Benzo(a)anthracene	mg/kg	0.100	0.102	60.0	45-127	1.45	21	WG538596
Benzo(a)pyrene	mg/kg	0.104	0.0817	62.0	46-123	24.3*	20	WG538596
Benzo(b)fluoranthene	mg/kg	0.109	0.0818	65.0	43-126	28.2*	27	WG538596
Benzo(g,h,i)perylene	mg/kg	0.107	0.0866	64.0	43-128	21.0*	20	WG538596
Benzo(k)fluoranthene	mg/kg	0.107	0.0887	64.0	40-126	18.7	32	WG538596
Chrysene	mg/kg	0.102	0.100	61.0	44-129	1.81	22	WG538596
Dibenz(a,h)anthracene	mg/kg	0.107	0.0854	64.0	43-127	22.7*	20	WG538596
Fluoranthene	mg/kg	0.111	0.0877	67.0	44-125	23.9*	22	WG538596
Fluorene	mg/kg	0.105	0.0880	63.0	45-121	17.3	20	WG538596
Indeno(1,2,3-cd)pyrene	mg/kg	0.108	0.0911	64.0	43-127	16.8	21	WG538596
Naphthalene	mg/kg	0.0910	0.0928	54.0	32-113	1.92	26	WG538596
Phenanthrene	mg/kg	0.100	0.0966	60.0	43-124	3.49	21	WG538596
Pyrene	mg/kg	0.101	0.0891	60.0	47-128	12.6	20	WG538596
2-Fluorobiphenyl				59.00	37-123			WG538596
Nitrobenzene-d5				57.47	19-129			WG538596
p-Terphenyl-d14				61.31	34-149			WG538596
Chromium,Hexavalent	mg/kg	100.	100.	76.0	50-150	0	20	WG538481
Specific Conductance	umhos/	560.	560.	101.	85-115	0	20	WG538927
Chromium,Hexavalent	mg/kg	120.	110.	91.0	50-150	8.70	20	WG539215

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.224	0	.05	89.6	32-137	L518291-01	WG538003
Ethylbenzene	mg/kg	0.172	0	.05	69.0	10-150	L518291-01	WG538003
Toluene	mg/kg	0.202	0	.05	80.6	20-142	L518291-01	WG538003

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Total Xylene	mg/kg	0.536	0	.15	71.5	16-141	L518291-01	WG538003
a,a,a-Trifluorotoluene(PID)					104.5	54-144		
TPH (GC/FID) Low Fraction	mg/kg	15.8	0	5.5	57.5	55-109	L518291-01	WG538003
a,a,a-Trifluorotoluene(FID)					109.0	59-128		WG538003
Mercury	mg/kg	0.264	0	.25	106.	70-130	L518216-07	WG537978
Arsenic	mg/kg	54.8	6.83	50	95.9	75-125	L518375-05	WG538020
Barium	mg/kg	83.1	39.6	50	87.0	75-125	L518375-05	WG538020
Boron	mg/kg	54.0	10.0	50	88.0	75-125	L518375-05	WG538020
Cadmium	mg/kg	47.3	1.95	50	90.7	75-125	L518375-05	WG538020
Chromium	mg/kg	71.8	22.9	50	97.8	75-125	L518375-05	WG538020
Copper	mg/kg	74.6	25.9	50	97.4	75-125	L518375-05	WG538020
Lead	mg/kg	632.	150.	50	964.*	75-125	L518375-05	WG538020
Nickel	mg/kg	67.1	23.7	50	86.8	75-125	L518375-05	WG538020
Selenium	mg/kg	44.6	0	50	89.2	75-125	L518375-05	WG538020
Silver	mg/kg	47.8	0	50	95.6	75-125	L518375-05	WG538020
Zinc	mg/kg	113.	71.7	50	82.6	75-125	L518375-05	WG538020
TPH (GC/FID) Low Fraction	mg/kg	16.6	0.610	5.5	58.2	55-109	L518647-01	WG538446
a,a,a-Trifluorotoluene(FID)					104.5	59-128		WG538446
Acenaphthene	mg/kg	0.0933	0	.167	55.9	38-121	L518291-07	WG538546
Acenaphthylene	mg/kg	0.0869	0	.167	52.0	39-120	L518291-07	WG538546
Anthracene	mg/kg	0.0867	0	.167	51.9	35-133	L518291-07	WG538546
Benzo(a)anthracene	mg/kg	0.137	0	.167	82.1	35-136	L518291-07	WG538546
Benzo(a)pyrene	mg/kg	0.132	0	.167	79.0	37-131	L518291-07	WG538546
Benzo(b)fluoranthene	mg/kg	0.215	0	.167	129.	29-145	L518291-07	WG538546
Benzo(g,h,i)perylene	mg/kg	0.0447	0	.167	26.7	10-139	L518291-07	WG538546
Benzo(k)fluoranthene	mg/kg	0.144	0	.167	85.9	31-140	L518291-07	WG538546
Chrysene	mg/kg	0.144	0	.167	86.2	34-137	L518291-07	WG538546
Dibenz(a,h)anthracene	mg/kg	0.0448	0	.167	26.8	21-132	L518291-07	WG538546
Fluoranthene	mg/kg	0.177	0	.167	106.	34-132	L518291-07	WG538546
Fluorene	mg/kg	0.0997	0	.167	59.7	38-126	L518291-07	WG538546
Indeno(1,2,3-cd)pyrene	mg/kg	0.0518	0	.167	31.0	17-134	L518291-07	WG538546
Naphthalene	mg/kg	0.118	0	.167	70.7	24-122	L518291-07	WG538546
Phenanthrene	mg/kg	0.128	0	.167	76.8	38-128	L518291-07	WG538546
Pyrene	mg/kg	0.149	0	.167	89.1	35-141	L518291-07	WG538546
2-Fluorobiphenyl					49.73	37-123		WG538546
Nitrobenzene-d5					54.34	19-129		WG538546
p-Terphenyl-d14					43.43	34-149		WG538546
Acenaphthene	mg/kg	0.119	0	.167	71.2	38-121	L518215-08	WG538596
Acenaphthylene	mg/kg	0.120	0	.167	71.8	39-120	L518215-08	WG538596
Anthracene	mg/kg	0.121	0	.167	72.5	35-133	L518215-08	WG538596
Benzo(a)anthracene	mg/kg	0.109	0	.167	65.3	35-136	L518215-08	WG538596
Benzo(a)pyrene	mg/kg	0.110	0	.167	65.9	37-131	L518215-08	WG538596
Benzo(b)fluoranthene	mg/kg	0.102	0	.167	61.0	29-145	L518215-08	WG538596
Benzo(g,h,i)perylene	mg/kg	0.105	0	.167	62.9	10-139	L518215-08	WG538596
Benzo(k)fluoranthene	mg/kg	0.0956	0	.167	57.3	31-140	L518215-08	WG538596
Chrysene	mg/kg	0.109	0	.167	65.1	34-137	L518215-08	WG538596
Dibenz(a,h)anthracene	mg/kg	0.112	0	.167	67.2	21-132	L518215-08	WG538596
Fluoranthene	mg/kg	0.115	0	.167	68.8	34-132	L518215-08	WG538596
Fluorene	mg/kg	0.120	0	.167	71.9	38-126	L518215-08	WG538596

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Est. 1970

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Analyte	Units	MS Res	Matrix Spike			% Rec	Limit	Ref Samp	Batch
			Ref Res	TV					
Indeno(1,2,3-cd)pyrene	mg/kg	0.112	0	.167	67.2	17-134	L518215-08	WG538596	
Naphthalene	mg/kg	0.115	0	.167	68.7	24-122	L518215-08	WG538596	
Phenanthrene	mg/kg	0.125	0	.167	74.7	38-128	L518215-08	WG538596	
Pyrene	mg/kg	0.114	0	.167	68.3	35-141	L518215-08	WG538596	
2-Fluorobiphenyl					70.01	37-123		WG538596	
Nitrobenzene-d5					80.08	19-129		WG538596	
p-Terphenyl-d14					67.63	34-149		WG538596	
Chromium,Hexavalent	mg/kg	9.70	0	20	48.5*	50-150	L518291-01	WG539215	

Analyte	Units	MSD	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec						
Benzene	mg/kg	0.240	0.224	96.2	32-137	7.05	39	L518291-01	WG538003	
Ethylbenzene	mg/kg	0.189	0.172	75.7	10-150	9.26	44	L518291-01	WG538003	
Toluene	mg/kg	0.214	0.202	85.6	20-142	6.00	42	L518291-01	WG538003	
Total Xylene	mg/kg	0.583	0.536	77.7	16-141	8.34	46	L518291-01	WG538003	
a,a,a-Trifluorotoluene(PID)				107.1	54-144				WG538003	
TPH (GC/FID) Low Fraction	mg/kg	14.8	15.8	53.8*	55-109	6.68	20	L518291-01	WG538003	
a,a,a-Trifluorotoluene(FID)				109.1	59-128				WG538003	
Mercury	mg/kg	0.271	0.264	108.	70-130	2.62	20	L518216-07	WG537978	
Arsenic	mg/kg	57.5	54.8	101.	75-125	4.81	20	L518375-05	WG538020	
Barium	mg/kg	77.2	83.1	75.2	75-125	7.36	20	L518375-05	WG538020	
Boron	mg/kg	50.1	54.0	80.2	75-125	7.49	20	L518375-05	WG538020	
Cadmium	mg/kg	43.2	47.3	82.5	75-125	9.06	20	L518375-05	WG538020	
Chromium	mg/kg	68.7	71.8	91.6	75-125	4.41	20	L518375-05	WG538020	
Copper	mg/kg	73.5	74.6	95.2	75-125	1.49	20	L518375-05	WG538020	
Lead	mg/kg	154.	632.	8.00*	75-125	122.*	20	L518375-05	WG538020	
Nickel	mg/kg	70.7	67.1	94.0	75-125	5.22	20	L518375-05	WG538020	
Selenium	mg/kg	41.2	44.6	82.4	75-125	7.93	20	L518375-05	WG538020	
Silver	mg/kg	44.8	47.8	89.6	75-125	6.48	20	L518375-05	WG538020	
Zinc	mg/kg	110.	113.	76.6	75-125	2.69	20	L518375-05	WG538020	
TPH (GC/FID) Low Fraction	mg/kg	13.5	16.6	47.0*	55-109	20.4*	20	L518647-01	WG538446	
a,a,a-Trifluorotoluene(FID)				104.0	59-128				WG538446	
Acenaphthene	mg/kg	0.114	0.0933	68.1	38-121	19.7	23	L518291-07	WG538546	
Acenaphthylene	mg/kg	0.102	0.0869	60.9	39-120	15.8	22	L518291-07	WG538546	
Anthracene	mg/kg	0.106	0.0867	63.2	35-133	19.6	23	L518291-07	WG538546	
Benzo(a)anthracene	mg/kg	0.166	0.137	99.4	35-136	19.1	23	L518291-07	WG538546	
Benzo(a)pyrene	mg/kg	0.149	0.132	89.3	37-131	12.2	22	L518291-07	WG538546	
Benzo(b)fluoranthene	mg/kg	0.252	0.215	151.*	29-145	16.1	33	L518291-07	WG538546	
Benzo(g,h,i)perylene	mg/kg	0.0532	0.0447	31.8	10-139	17.4	26	L518291-07	WG538546	
Benzo(k)fluoranthene	mg/kg	0.171	0.144	102.	31-140	17.6	34	L518291-07	WG538546	
Chrysene	mg/kg	0.166	0.144	99.3	34-137	14.1	23	L518291-07	WG538546	
Dibenz(a,h)anthracene	mg/kg	0.0576	0.0448	34.5	21-132	25.0*	25	L518291-07	WG538546	
Fluoranthene	mg/kg	0.211	0.177	126.	34-132	17.5	24	L518291-07	WG538546	
Fluorene	mg/kg	0.133	0.0997	79.9	38-126	29.0*	23	L518291-07	WG538546	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0584	0.0518	35.0	17-134	11.9	25	L518291-07	WG538546	
Naphthalene	mg/kg	0.198	0.118	118.	24-122	50.4*	29	L518291-07	WG538546	
Phenanthrene	mg/kg	0.177	0.128	106.	38-128	31.9*	25	L518291-07	WG538546	
Pyrene	mg/kg	0.178	0.149	107.	35-141	18.1	25	L518291-07	WG538546	

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
2-Fluorobiphenyl				61.78	37-123				
Nitrobenzene-d5				67.26	19-129				
p-Terphenyl-d14				54.89	34-149				
Acenaphthene	mg/kg	0.116	0.119	69.4	38-121	2.49	23	L518215-08	WG538596
Acenaphthylene	mg/kg	0.117	0.120	70.0	39-120	2.56	22	L518215-08	WG538596
Anthracene	mg/kg	0.114	0.121	68.4	35-133	5.91	23	L518215-08	WG538596
Benzo(a)anthracene	mg/kg	0.104	0.109	62.1	35-136	5.15	23	L518215-08	WG538596
Benzo(a)pyrene	mg/kg	0.0986	0.110	59.1	37-131	10.9	22	L518215-08	WG538596
Benzo(b)fluoranthene	mg/kg	0.0959	0.102	57.4	29-145	5.92	33	L518215-08	WG538596
Benzo(g,h,i)perylene	mg/kg	0.0997	0.105	59.7	10-139	5.11	26	L518215-08	WG538596
Benzo(k)fluoranthene	mg/kg	0.106	0.0956	63.6	31-140	10.4	34	L518215-08	WG538596
Chrysene	mg/kg	0.102	0.109	61.4	34-137	5.97	23	L518215-08	WG538596
Dibenz(a,h)anthracene	mg/kg	0.103	0.112	61.8	21-132	8.30	25	L518215-08	WG538596
Fluoranthene	mg/kg	0.111	0.115	66.4	34-132	3.62	24	L518215-08	WG538596
Fluorene	mg/kg	0.115	0.120	68.8	38-126	4.44	23	L518215-08	WG538596
Indeno(1,2,3-cd)pyrene	mg/kg	0.102	0.112	60.8	17-134	9.98	25	L518215-08	WG538596
Naphthalene	mg/kg	0.116	0.115	69.3	24-122	0.850	29	L518215-08	WG538596
Phenanthrene	mg/kg	0.113	0.125	67.8	38-128	9.72	25	L518215-08	WG538596
Pyrene	mg/kg	0.107	0.114	63.9	35-141	6.66	25	L518215-08	WG538596
2-Fluorobiphenyl				66.14	37-123				WG538596
Nitrobenzene-d5				73.78	19-129				WG538596
p-Terphenyl-d14				60.57	34-149				WG538596
Chromium,Hexavalent	mg/kg	7.80	9.70	39.0*	50-150	21.7*	20	L518291-01	WG539215

Batch number /Run number / Sample number cross reference

WG538003: R1703789: L518291-01 02 03 04 05 06 07 08 09  
 WG537978: R1704251: L518291-01 02 03 04 05 06 07 08 09  
 WG538020: R1704733: L518291-01 02 03 04 05 06 07 08 09  
 WG538261: R1707889: L518291-01 02 03 04 05 06 07 08 09  
 WG538446: R1707929: L518291-08 09  
 WG538383: R1708591: L518291-01 02 03 04 05 06 07 08 09  
 WG538375: R1708610: L518291-01 02 03 04 05 06 07 08 09  
 WG538546: R1710730: L518291-01 02 03 04 05 06 07 08  
 WG538596: R1711329: L518291-09  
 WG538481: R1712310: L518291-02 03 04 05 06 07 08 09  
 WG538239: R1712433: L518291-01 02 03 04 05 06 07 08 09  
 WG538927: R1712771: L518291-01 02 03 04 05 06 07 08 09  
 WG539215: R1714410: L518291-01

\* \* Calculations are performed prior to rounding of reported values.  
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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.