



12065 Lebanon Rd.
Mt. Juliet, TN 37122
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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 September 24, 2013

Report Number: L658268

Samples Received: 09/19/13

Client Project:

Description: Berry Pit Reclamation

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 - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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.

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REPORT OF ANALYSIS

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

September 24, 2013

Date Received : September 19, 2013
Description : Berry Pit Reclamation
Sample ID : E-33 PIT BOTTOM
Collected By :
Collection Date : 09/15/13 13:30

ESC Sample # : L658268-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	09/24/13	1
ORP	110		mV	2580 B-2011	09/24/13	1
pH	9.0		su	9045D	09/23/13	1
Sodium Adsorption Ratio	6.6			Calc.	09/24/13	1
Specific Conductance	490		umhos/cm	9050AMod	09/23/13	1
Mercury	0.023	0.020	mg/kg	7471	09/20/13	1
Arsenic	12.	1.0	mg/kg	6010B	09/24/13	1
Barium	350	0.25	mg/kg	6010B	09/24/13	1
Boron	BDL	10.	mg/kg	6010B	09/24/13	1
Cadmium	BDL	0.25	mg/kg	6010B	09/24/13	1
Chromium	24.	0.50	mg/kg	6010B	09/24/13	1
Copper	18.	1.0	mg/kg	6010B	09/24/13	1
Iron	18000	5.0	mg/kg	6010B	09/24/13	1
Lead	12.	0.25	mg/kg	6010B	09/24/13	1
Nickel	19.	1.0	mg/kg	6010B	09/24/13	1
Selenium	1.2	1.0	mg/kg	6010B	09/24/13	1
Silver	BDL	0.50	mg/kg	6010B	09/24/13	1
Zinc	46.	1.5	mg/kg	6010B	09/24/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	09/22/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	09/22/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	09/22/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	09/22/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	09/22/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.8		% Rec.	8021/8015	09/22/13	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	09/22/13	5
TPH (GC/FID) High Fraction	20.	4.0	mg/kg	3546/DRO	09/20/13	1
Surrogate recovery(%)						
o-Terphenyl	76.3		% Rec.	3546/DRO	09/20/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1
Benzo(a)anthracene	0.0068	0.0060	mg/kg	8270C-SIM	09/20/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L658268-02 (PH) - 9.0@20.6c



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Denver, CO 80202

September 24, 2013

Date Received : September 19, 2013
Description : Berry Pit Reclamation

ESC Sample # : L658268-02

Sample ID : E-33 PIT BOTTOM

Site ID :

Collected By :
Collection Date : 09/15/13 13:30

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	0.012	0.0060	mg/kg	8270C-SIM	09/20/13	1
Benzo(g,h,i)perylene	0.0062	0.0060	mg/kg	8270C-SIM	09/20/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1
Chrysene	0.011	0.0060	mg/kg	8270C-SIM	09/20/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1
Fluoranthene	0.0090	0.0060	mg/kg	8270C-SIM	09/20/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	09/20/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	09/20/13	1
Phenanthrene	0.0061	0.0060	mg/kg	8270C-SIM	09/20/13	1
Pyrene	0.011	0.0060	mg/kg	8270C-SIM	09/20/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	09/20/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	09/20/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	09/20/13	1
Surrogate Recovery						
Nitrobenzene-d5	87.1		% Rec.	8270C-SIM	09/20/13	1
2-Fluorobiphenyl	65.7		% Rec.	8270C-SIM	09/20/13	1
p-Terphenyl-d14	62.5		% Rec.	8270C-SIM	09/20/13	1

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: 09/24/13 14:45 Printed: 09/24/13 14:45
L658268-02 (PH) - 9.0@20.6c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L658268-01	WG682889	SAMP	Total Xylene	R2822541	J6
	WG682726	SAMP	Mercury	R2821421	P1J6
	WG682695	SAMP	Benzo(a)pyrene	R2822402	J
	WG682695	SAMP	Dibenz(a,h)anthracene	R2822402	J
	WG683147	SAMP	Chromium,Hexavalent	R2825040	J6J301

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
O1	(ESC) The analyte failed both the method required serial dilution test and subsequent post-spike criteria. These failures indicate matrix interference.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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.

Summary of Remarks For Samples Printed
09/24/13 at 14:45:59

TSR Signing Reports: 134
R4 - Rush: Three Day

Always log As, Cd, Cr, Cu, Ni, Pb, Se, Ag, & Zn GW by 6020 Log all PAHs by 8270-SIM

Sample: L658268-01 Account: BERPETDCO Received: 09/19/13 09:00 Due Date: 09/24/13 00:00 RPT Date: 09/24/13 14:45
Run PAHSIM @ 1x if at all possible
Sample: L658268-02 Account: BERPETDCO Received: 09/19/13 09:00 Due Date: 09/24/13 00:00 RPT Date: 09/24/13 14:45
Run PAHSIM @ 1x if at all possible
Sample: L658268-03 Account: BERPETDCO Received: 09/19/13 09:00 Due Date: 09/24/13 00:00 RPT Date: 09/24/13 14:45
Run PAHSIM @ 1x if at all possible



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Quality Assurance Report
Level II

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September 24, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Mercury	< .02	mg/kg			WG682726	09/20/13 09:09
1-Methylnaphthalene	< .02	mg/kg			WG682695	09/20/13 02:05
2-Chloronaphthalene	< .02	mg/kg			WG682695	09/20/13 02:05
2-Methylnaphthalene	< .02	mg/kg			WG682695	09/20/13 02:05
Acenaphthene	< .006	mg/kg			WG682695	09/20/13 02:05
Acenaphthylene	< .006	mg/kg			WG682695	09/20/13 02:05
Anthracene	< .006	mg/kg			WG682695	09/20/13 02:05
Benzo(a)anthracene	< .006	mg/kg			WG682695	09/20/13 02:05
Benzo(a)pyrene	< .006	mg/kg			WG682695	09/20/13 02:05
Benzo(b)fluoranthene	< .006	mg/kg			WG682695	09/20/13 02:05
Benzo(g,h,i)perylene	< .006	mg/kg			WG682695	09/20/13 02:05
Benzo(k)fluoranthene	< .006	mg/kg			WG682695	09/20/13 02:05
Chrysene	< .006	mg/kg			WG682695	09/20/13 02:05
Dibenz(a,h)anthracene	< .006	mg/kg			WG682695	09/20/13 02:05
Fluoranthene	< .006	mg/kg			WG682695	09/20/13 02:05
Fluorene	< .006	mg/kg			WG682695	09/20/13 02:05
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG682695	09/20/13 02:05
Naphthalene	< .02	mg/kg			WG682695	09/20/13 02:05
Phenanthrene	< .006	mg/kg			WG682695	09/20/13 02:05
Pyrene	< .006	mg/kg			WG682695	09/20/13 02:05
2-Fluorobiphenyl		% Rec.	82.10	51.1-131	WG682695	09/20/13 02:05
Nitrobenzene-d5		% Rec.	77.20	40.9-147	WG682695	09/20/13 02:05
p-Terphenyl-d14		% Rec.	93.10	45.3-138	WG682695	09/20/13 02:05
TPH (GC/FID) High Fraction	< 4	mg/kg			WG682762	09/20/13 14:24
o-Terphenyl		% Rec.	88.50	50-150	WG682762	09/20/13 14:24
Benzene	< .0005	mg/kg			WG682889	09/21/13 16:58
Ethylbenzene	< .0005	mg/kg			WG682889	09/21/13 16:58
Toluene	< .005	mg/kg			WG682889	09/21/13 16:58
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG682889	09/21/13 16:58
Total Xylene	< .0015	mg/kg			WG682889	09/21/13 16:58
a,a,a-Trifluorotoluene(FID)		% Rec.	100.0	59-128	WG682889	09/21/13 16:58
a,a,a-Trifluorotoluene(PID)		% Rec.	102.0	54-144	WG682889	09/21/13 16:58
Specific Conductance	1.20	umhos/cm			WG683029	09/23/13 12:31
TPH (GC/FID) High Fraction	< 4	mg/kg			WG683206	09/23/13 16:57
o-Terphenyl		% Rec.	82.00	50-150	WG683206	09/23/13 16:57
Chromium,Hexavalent	< 2	mg/kg			WG683147	09/24/13 11:20
Arsenic	< 1	mg/kg			WG682796	09/24/13 00:44
Barium	< .25	mg/kg			WG682796	09/24/13 00:44
Boron	< 10	mg/kg			WG682796	09/24/13 00:44
Cadmium	< .25	mg/kg			WG682796	09/24/13 00:44
Chromium	< .5	mg/kg			WG682796	09/24/13 00:44
Copper	< 1	mg/kg			WG682796	09/24/13 00:44
Iron	< 5	mg/kg			WG682796	09/24/13 00:44
Lead	< .25	mg/kg			WG682796	09/24/13 00:44
Nickel	< 1	mg/kg			WG682796	09/24/13 00:44

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Selenium	< 1	mg/kg			WG682796	09/24/13 00:44
Silver	< .5	mg/kg			WG682796	09/24/13 00:44
Zinc	< 1.5	mg/kg			WG682796	09/24/13 00:44

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0250	0.0325	27.1*	20	L658268-01	WG682726
Specific Conductance	umhos/cm	360.	340.	5.44	20	L658268-01	WG683029
pH	su	7.60	7.60	0.528	1	L658045-01	WG683150
pH	su	7.20	7.20	0.278	1	L658630-03	WG683150
Chromium,Hexavalent	mg/kg	0.0	0.0	0.0	20	L658106-03	WG683147
Chromium,Hexavalent	mg/kg	0.0	0.0	0.0	20	L658854-06	WG683147
ORP	mV	190.	190.	1.57	20	L658106-01	WG683385
ORP	mV	140.	150.	4.08	20	L658859-01	WG683385
Arsenic	mg/kg	1.40	2.09	38.7*	20	L656844-02	WG682796
Barium	mg/kg	82.0	56.6	37.3*	20	L656844-02	WG682796
Boron	mg/kg	0.0	4.05	21.9*	20	L656844-02	WG682796
Cadmium	mg/kg	0.0	0.0462	615.*	20	L656844-02	WG682796
Chromium	mg/kg	14.0	18.1	27.7*	20	L656844-02	WG682796
Copper	mg/kg	5.10	5.71	11.7	20	L656844-02	WG682796
Iron	mg/kg	9800	12000	20.5*	20	L656844-02	WG682796
Lead	mg/kg	7.40	7.04	5.11	20	L656844-02	WG682796
Nickel	mg/kg	8.50	11.1	26.6*	20	L656844-02	WG682796
Selenium	mg/kg	0.0	0.828	0.207	20	L656844-02	WG682796
Silver	mg/kg	0.0	0.0185	26.6*	20	L656844-02	WG682796
Zinc	mg/kg	26.0	31.0	19.3	20	L656844-02	WG682796

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Mercury	mg/kg	12.4	14.8	119.	71.6-128	WG682726
1-Methylnaphthalene	mg/kg	.08	0.0710	88.7	62.5-121	WG682695
2-Chloronaphthalene	mg/kg	.08	0.0629	78.6	62.1-120	WG682695
2-Methylnaphthalene	mg/kg	.08	0.0710	88.7	62.5-121	WG682695
Acenaphthene	mg/kg	.08	0.0641	80.1	62.4-121	WG682695
Acenaphthylene	mg/kg	.08	0.0646	80.7	62.9-123	WG682695
Anthracene	mg/kg	.08	0.0692	86.5	64.9-129	WG682695
Benzo(a)anthracene	mg/kg	.08	0.0677	84.7	61.8-125	WG682695
Benzo(a)pyrene	mg/kg	.08	0.0607	75.9	63.4-119	WG682695
Benzo(b)fluoranthene	mg/kg	.08	0.0559	69.8	62.7-119	WG682695
Benzo(g,h,i)perylene	mg/kg	.08	0.0671	83.8	68.2-129	WG682695
Benzo(k)fluoranthene	mg/kg	.08	0.0577	72.1	64.5-128	WG682695
Chrysene	mg/kg	.08	0.0780	97.5	64.4-128	WG682695
Dibenz(a,h)anthracene	mg/kg	.08	0.0629	78.6	65.3-128	WG682695
Fluoranthene	mg/kg	.08	0.0651	81.3	61.8-129	WG682695
Fluorene	mg/kg	.08	0.0630	78.7	60.8-121	WG682695

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0633	79.2	67.6-129	WG682695
Naphthalene	mg/kg	.08	0.0650	81.2	59.5-116	WG682695
Phenanthrene	mg/kg	.08	0.0628	78.5	59.4-121	WG682695
Pyrene	mg/kg	.08	0.0704	88.1	61.2-130	WG682695
2-Fluorobiphenyl				81.80	51.1-131	WG682695
Nitrobenzene-d5				78.20	40.9-147	WG682695
p-Terphenyl-d14				94.80	45.3-138	WG682695
TPH (GC/FID) High Fraction	mg/kg	60	48.8	81.3	50-150	WG682762
o-Terphenyl				87.60	50-150	WG682762
Benzene	mg/kg	.05	0.0563	113.	70-130	WG682889
Ethylbenzene	mg/kg	.05	0.0559	112.	70-130	WG682889
Toluene	mg/kg	.05	0.0562	112.	70-130	WG682889
Total Xylene	mg/kg	.15	0.163	109.	70-130	WG682889
a,a,a-Trifluorotoluene(PID)				101.0	54-144	WG682889
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.07	110.	63.5-137	WG682889
a,a,a-Trifluorotoluene(FID)				101.0	59-128	WG682889
Specific Conductance	umhos/cm	878	900.	103.	85-115	WG683029
pH	su	6.96	6.90	99.1	98.3-101.7	WG683150
TPH (GC/FID) High Fraction	mg/kg	60	40.9	68.2	50-150	WG683206
o-Terphenyl				78.20	50-150	WG683206
Chromium,Hexavalent	mg/kg	146	137.	93.8	80-120	WG683147
ORP	mV	100	110.	110.	90-110	WG683385
Arsenic	mg/kg	237	230.	96.9	83.1-117	WG682796
Barium	mg/kg	252	242.	96.1	84.1-116	WG682796
Boron	mg/kg	118	117.	99.2	74-126	WG682796
Cadmium	mg/kg	191	177.	92.7	83.2-117	WG682796
Chromium	mg/kg	128	121.	94.5	81.3-118	WG682796
Copper	mg/kg	123	114.	92.7	83.7-116	WG682796
Iron	mg/kg	13100	12400	94.7	50.8-150	WG682796
Lead	mg/kg	103	98.6	95.8	83.1-117	WG682796
Nickel	mg/kg	118	106.	90.0	82-118	WG682796
Selenium	mg/kg	110	108.	97.7	78.7-122	WG682796
Silver	mg/kg	47.3	45.6	96.5	66.2-134	WG682796
Zinc	mg/kg	183	176.	96.1	82-118	WG682796

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1-Methylnaphthalene	mg/kg	0.0709	0.0710	88.0	62.5-121	0.160	20	WG682695
2-Chloronaphthalene	mg/kg	0.0650	0.0629	81.0	62.1-120	3.31	20	WG682695
2-Methylnaphthalene	mg/kg	0.0714	0.0710	89.0	62.5-121	0.670	20	WG682695
Acenaphthene	mg/kg	0.0654	0.0641	82.0	62.4-121	2.02	20	WG682695
Acenaphthylene	mg/kg	0.0658	0.0646	82.0	62.9-123	1.90	20	WG682695

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Dave Nicholson
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Denver, CO 80202

Quality Assurance Report
Level II

L658268

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(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

September 24, 2013

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Anthracene	mg/kg	0.0716	0.0692	89.0	64.9-129	3.38	20	WG682695
Benzo(a)anthracene	mg/kg	0.0711	0.0677	89.0	61.8-125	4.79	20	WG682695
Benzo(a)pyrene	mg/kg	0.0629	0.0607	79.0	63.4-119	3.54	20	WG682695
Benzo(b)fluoranthene	mg/kg	0.0570	0.0559	71.0	62.7-119	2.04	20	WG682695
Benzo(g,h,i)perylene	mg/kg	0.0701	0.0671	88.0	68.2-129	4.34	20	WG682695
Benzo(k)fluoranthene	mg/kg	0.0619	0.0577	77.0	64.5-128	7.02	20	WG682695
Chrysene	mg/kg	0.0774	0.0780	97.0	64.4-128	0.880	20	WG682695
Dibenz(a,h)anthracene	mg/kg	0.0658	0.0629	82.0	65.3-128	4.46	20	WG682695
Fluoranthene	mg/kg	0.0661	0.0651	83.0	61.8-129	1.65	20	WG682695
Fluorene	mg/kg	0.0638	0.0630	80.0	60.8-121	1.34	20	WG682695
Indeno(1,2,3-cd)pyrene	mg/kg	0.0662	0.0633	83.0	67.6-129	4.36	20	WG682695
Naphthalene	mg/kg	0.0654	0.0650	82.0	59.5-116	0.570	20	WG682695
Phenanthrene	mg/kg	0.0637	0.0628	80.0	59.4-121	1.40	20	WG682695
Pyrene	mg/kg	0.0718	0.0704	90.0	61.2-130	1.92	20	WG682695
2-Fluorobiphenyl				90.10	51.1-131			WG682695
Nitrobenzene-d5				88.80	40.9-147			WG682695
p-Terphenyl-d14				101.0	45.3-138			WG682695
TPH (GC/FID) High Fraction	mg/kg	48.5	48.8	81.0	50-150	0.720	20	WG682762
o-Terphenyl				85.80	50-150			WG682762
Benzene	mg/kg	0.0553	0.0563	110.	70-130	1.79	20	WG682889
Ethylbenzene	mg/kg	0.0547	0.0559	109.	70-130	2.16	20	WG682889
Toluene	mg/kg	0.0552	0.0562	110.	70-130	1.87	20	WG682889
Total Xylene	mg/kg	0.160	0.163	106.	70-130	1.93	20	WG682889
a,a,a-Trifluorotoluene(PID)				102.0	54-144			WG682889
TPH (GC/FID) Low Fraction	mg/kg	6.03	6.07	110.	63.5-137	0.630	20	WG682889
a,a,a-Trifluorotoluene(FID)				101.0	59-128			WG682889
Specific Conductance	umhos/	900.	900.	102.	85-115	0.0	20	WG683029
pH	su	6.90	6.90	99.0	98.3-101.7	0.0	20	WG683150
TPH (GC/FID) High Fraction	mg/kg	45.0	40.9	75.0	50-150	9.48	20	WG683206
o-Terphenyl				87.90	50-150			WG683206
Chromium, Hexavalent	mg/kg	139.	137.	95.0	80-120	1.45	20	WG683147
ORP	mV	110.	110.	110.	90-110	0.0	20	WG683385

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Mercury	mg/kg	0.229	0.0325	.25	79.0*	80-120	L658268-01	WG682726
Benzene	mg/kg	0.197	0.0	.05	79.0	49.7-127	L658268-01	WG682889
Ethylbenzene	mg/kg	0.132	0.0	.05	53.0	40.8-141	L658268-01	WG682889
Toluene	mg/kg	0.161	0.0	.05	64.0	49.8-132	L658268-01	WG682889
Total Xylene	mg/kg	0.350	0.00106	.15	46.0	41.2-140	L658268-01	WG682889
a,a,a-Trifluorotoluene(PID)					99.90	54-144		WG682889
TPH (GC/FID) Low Fraction	mg/kg	14.0	0.0	5.5	51.0	28.5-138	L658268-01	WG682889

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
a,a,a-Trifluorotoluene(FID)					98.10	59-128		
TPH (GC/FID) High Fraction	mg/kg	38.3	1.25	60	62.0	50-150	L658652-09	WG683206
o-Terphenyl					63.00	50-150		WG683206
Chromium,Hexavalent	mg/kg	0.600	0.0	20	3.00*	75-125	L658268-01	WG683147
Arsenic	mg/kg	46.4	2.09	50	89.0	75-125	L656844-02	WG682796
Barium	mg/kg	146.	56.6	50	180.*	75-125	L656844-02	WG682796
Boron	mg/kg	44.5	4.05	50	81.0	75-125	L656844-02	WG682796
Cadmium	mg/kg	45.2	0.0462	50	90.0	75-125	L656844-02	WG682796
Chromium	mg/kg	65.2	18.1	50	94.0	75-125	L656844-02	WG682796
Copper	mg/kg	51.5	5.71	50	92.0	75-125	L656844-02	WG682796
Iron	mg/kg	13200	12000	50	2500*	75-125	L656844-02	WG682796
Lead	mg/kg	53.2	7.04	50	92.0	75-125	L656844-02	WG682796
Nickel	mg/kg	52.4	11.1	50	83.0	75-125	L656844-02	WG682796
Selenium	mg/kg	46.5	0.828	50	91.0	75-125	L656844-02	WG682796
Silver	mg/kg	45.3	0.0185	50	90.0	75-125	L656844-02	WG682796
Zinc	mg/kg	77.7	31.0	50	93.0	75-125	L656844-02	WG682796

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.242	0.229	83.8	80-120	5.50	20	L658268-01	WG682726
Benzene	mg/kg	0.187	0.197	75.0	49.7-127	5.05	23.5	L658268-01	WG682889
Ethylbenzene	mg/kg	0.119	0.132	47.8	40.8-141	10.2	23.8	L658268-01	WG682889
Toluene	mg/kg	0.145	0.161	58.0	49.8-132	10.4	23.5	L658268-01	WG682889
Total Xylene	mg/kg	0.302	0.350	40.2*	41.2-140	14.6	23.7	L658268-01	WG682889
a,a,a-Trifluorotoluene(PID)				99.50	54-144				WG682889
TPH (GC/FID) Low Fraction	mg/kg	15.8	14.0	57.4	28.5-138	12.1	23.6	L658268-01	WG682889
a,a,a-Trifluorotoluene(FID)				97.90	59-128				WG682889
TPH (GC/FID) High Fraction	mg/kg	40.6	38.3	65.6	50-150	5.75	20	L658652-09	WG683206
o-Terphenyl				77.70	50-150				WG683206
Chromium,Hexavalent	mg/kg	0.880	0.600	4.40*	75-125	37.8*	20	L658268-01	WG683147
Arsenic	mg/kg	44.6	46.4	84.9	75-125	4.02	20	L656844-02	WG682796
Barium	mg/kg	92.9	146.	72.7*	75-125	44.5*	20	L656844-02	WG682796
Boron	mg/kg	42.3	44.5	76.5	75-125	4.99	20	L656844-02	WG682796
Cadmium	mg/kg	43.6	45.2	87.1	75-125	3.61	20	L656844-02	WG682796
Chromium	mg/kg	63.0	65.2	89.8	75-125	3.41	20	L656844-02	WG682796
Copper	mg/kg	50.7	51.5	90.1	75-125	1.50	20	L656844-02	WG682796
Iron	mg/kg	13700	13200	3300*	75-125	3.08	20	L656844-02	WG682796
Lead	mg/kg	52.6	53.2	91.2	75-125	0.996	20	L656844-02	WG682796
Nickel	mg/kg	51.8	52.4	81.2	75-125	1.30	20	L656844-02	WG682796
Selenium	mg/kg	43.9	46.5	86.2	75-125	5.72	20	L656844-02	WG682796
Silver	mg/kg	44.1	45.3	88.2	75-125	2.65	20	L656844-02	WG682796
Zinc	mg/kg	76.3	77.7	90.4	75-125	1.82	20	L656844-02	WG682796

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Post Spike

Serial Dilution

Batch number / Run number / Sample number cross reference

WG682726: R2821421: L658268-01 02 03
WG682695: R2821642 R2822402 R2823045: L658268-01 02 03
WG682762: R2821701: L658268-02 03
WG682889: R2822541: L658268-01 02 03
WG683029: R2823480: L658268-01 02 03
WG683150: R2823621: L658268-01 02 03
WG682960: R2824529: L658268-01 02 03
WG683206: R2824663: L658268-01
WG683147: R2825040: L658268-01 02 03
WG683385: R2825081: L658268-01 02 03
WG682796: R2825200: L658268-01 02 03

* * 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.