



Location ID 335887
Pit Facility ID 423847
REM 10080
Document 2495735

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

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

Report Summary

Sunday July 29, 2012

Report Number: L585569

Samples Received: 07/18/12

Client Project:

Description: 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

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

July 29, 2012

Date Received : July 18, 2012
 Description : Pit Reclamation
 Sample ID : F-06 PIT BOTTOM
 Collected By : DK Nicholson
 Collection Date : 07/17/12 12:40

ESC Sample # : L585569-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/20/12	1
ORP	180		mV	2580	07/20/12	1
pH	8.6		su	9045D	07/24/12	1
Sodium Adsorption Ratio	83.			Calc.	07/25/12	1
Specific Conductance	1700		umhos/cm	9050AMod	07/23/12	1
Mercury	BDL	0.020	mg/kg	7471	07/20/12	1
Arsenic	2.7	1.0	mg/kg	6010B	07/27/12	1
Barium	450	0.25	mg/kg	6010B	07/27/12	1
Boron	BDL	10.	mg/kg	6010B	07/27/12	1
Cadmium	BDL	0.25	mg/kg	6010B	07/27/12	1
Chromium	62.	0.50	mg/kg	6010B	07/27/12	1
Copper	13.	1.0	mg/kg	6010B	07/27/12	1
Lead	13.	0.25	mg/kg	6010B	07/27/12	1
Nickel	26.	1.0	mg/kg	6010B	07/27/12	1
Selenium	BDL	1.0	mg/kg	6010B	07/27/12	1
Silver	BDL	0.50	mg/kg	6010B	07/27/12	1
Zinc	46.	1.5	mg/kg	6010B	07/27/12	1
Benzene	BDL	0.0025	mg/kg	8021/8015	07/19/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/19/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/19/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/19/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/19/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	92.5		% Rec.	8021/8015	07/19/12	5
a,a,a-Trifluorotoluene(PID)	97.7		% Rec.	8021/8015	07/19/12	5
TPH (GC/FID) High Fraction	52.	4.0	mg/kg	3546/DRO	07/20/12	1
Surrogate recovery(%)						
o-Terphenyl	69.1		% Rec.	3546/DRO	07/20/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L585569-01 (PH) - 8.6@22.9c



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1999 Broadway, Suite 3700
Denver, CO 80202

July 29, 2012

Date Received : July 18, 2012
Description : Pit Reclamation

Sample ID : F-06 PIT BOTTOM

Collected By : DK Nicholson
Collection Date : 07/17/12 12:40

ESC Sample # : L585569-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Fluorene	0.011	0.0060	mg/kg	8270C-SIM	07/19/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Naphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Phenanthrene	0.016	0.0060	mg/kg	8270C-SIM	07/19/12	1
Pyrene	0.010	0.0060	mg/kg	8270C-SIM	07/19/12	1
1-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
2-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/19/12	1
Surrogate Recovery						
Nitrobenzene-d5	59.8		% Rec.	8270C-SIM	07/19/12	1
2-Fluorobiphenyl	67.4		% Rec.	8270C-SIM	07/19/12	1
p-Terphenyl-d14	71.3		% Rec.	8270C-SIM	07/19/12	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: 07/29/12 10:35 Printed: 07/29/12 10:35
L585569-01 (PH) - 8.6@22.9c

Attachment C
Document 2495735
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L585569-01	WG603304	SAMP	Benzo(a)anthracene	R2262153	J3
	WG603304	SAMP	Benzo(k)fluoranthene	R2262153	J3
	WG603304	SAMP	Fluoranthene	R2262153	J3
	WG603304	SAMP	Phenanthrene	R2262153	J3
	WG603304	SAMP	Pyrene	R2262153	J3
	WG603859	SAMP	pH	R2270193	T8

Attachment 8
Document 2495735
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

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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Summary of Remarks For Samples Printed
07/29/12 at 10:35:53

TSR Signing Reports: 134
R5 - Desired TAT

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

Sample: L585569-01 Account: BERPETDCO Received: 07/18/12 09:00 Due Date: 07/25/12 00:00 RPT Date: 07/29/12 10:35



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Dave Nicholson
1999 Broadway, Suite 3700

Denver, CO 80202

Quality Assurance Report
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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG603277	07/18/12 19:30
Ethylbenzene	< .0005	mg/kg			WG603277	07/18/12 19:30
Toluene	< .005	mg/kg			WG603277	07/18/12 19:30
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG603277	07/18/12 19:30
Total Xylene	< .0015	mg/kg			WG603277	07/18/12 19:30
a,a,a-Trifluorotoluene(FID)		% Rec.	93.16	59-128	WG603277	07/18/12 19:30
a,a,a-Trifluorotoluene(PID)		% Rec.	98.43	54-144	WG603277	07/18/12 19:30
1-Methylnaphthalene	< .006	mg/kg			WG603304	07/19/12 04:12
2-Chloronaphthalene	< .006	mg/kg			WG603304	07/19/12 04:12
2-Methylnaphthalene	< .006	mg/kg			WG603304	07/19/12 04:12
Acenaphthene	< .006	mg/kg			WG603304	07/19/12 04:12
Acenaphthylene	< .006	mg/kg			WG603304	07/19/12 04:12
Anthracene	< .006	mg/kg			WG603304	07/19/12 04:12
Benzo(a)anthracene	< .006	mg/kg			WG603304	07/19/12 04:12
Benzo(a)pyrene	< .006	mg/kg			WG603304	07/19/12 04:12
Benzo(b)fluoranthene	< .006	mg/kg			WG603304	07/19/12 04:12
Benzo(g,h,i)perylene	< .006	mg/kg			WG603304	07/19/12 04:12
Benzo(k)fluoranthene	< .006	mg/kg			WG603304	07/19/12 04:12
Chrysene	< .006	mg/kg			WG603304	07/19/12 04:12
Dibenz(a,h)anthracene	< .006	mg/kg			WG603304	07/19/12 04:12
Fluoranthene	< .006	mg/kg			WG603304	07/19/12 04:12
Fluorene	< .006	mg/kg			WG603304	07/19/12 04:12
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG603304	07/19/12 04:12
Naphthalene	< .006	mg/kg			WG603304	07/19/12 04:12
Phenanthrene	< .006	mg/kg			WG603304	07/19/12 04:12
Pyrene	< .006	mg/kg			WG603304	07/19/12 04:12
2-Fluorobiphenyl		% Rec.	71.04	34-129	WG603304	07/19/12 04:12
Nitrobenzene-d5		% Rec.	68.81	14-141	WG603304	07/19/12 04:12
p-Terphenyl-d14		% Rec.	87.63	25-139	WG603304	07/19/12 04:12
TPH (GC/FID) High Fraction	< 4	ppm			WG603385	07/20/12 04:02
o-Terphenyl		% Rec.	71.42	50-150	WG603385	07/20/12 04:02
Mercury	< .02	mg/kg			WG603463	07/20/12 10:34
Chromium,Hexavalent	< 2	mg/kg			WG603113	07/20/12 14:59
Specific Conductance	2.17	umhos/cm			WG603840	07/23/12 17:34
pH	4.86	su			WG603859	07/24/12 10:30
Arsenic	< 1	mg/kg			WG603302	07/27/12 01:36
Barium	< .25	mg/kg			WG603302	07/27/12 01:36
Boron	< 10	mg/kg			WG603302	07/27/12 01:36
Cadmium	< .25	mg/kg			WG603302	07/27/12 01:36
Chromium	< .5	mg/kg			WG603302	07/27/12 01:36
Copper	< 1	mg/kg			WG603302	07/27/12 01:36
Lead	< .25	mg/kg			WG603302	07/27/12 01:36
Nickel	< 1	mg/kg			WG603302	07/27/12 01:36
Selenium	< 1	mg/kg			WG603302	07/27/12 01:36
Silver	< .5	mg/kg			WG603302	07/27/12 01:36

* 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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Denver, CO 80202

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Level II

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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Zinc	< 1.5	mg/kg			WG603302	07/27/12 01:36

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
ORP	mV	220.	210.	2.35	20	L585068-01	WG603522
Mercury	mg/kg	0	0	0	20	L585715-09	WG603463
Chromium, Hexavalent	mg/kg	0	0	0	20	L585229-02	WG603113
Specific Conductance	umhos/cm	380.	330.	13.8	20	L585352-05	WG603840
Specific Conductance	umhos/cm	1400	1400	1.42	20	L586202-02	WG603840
pH	su	7.50	7.40	1.21*	1	L586087-01	WG603859
pH	su	7.90	7.90	0.505	1	L586202-02	WG603859
Arsenic	mg/kg	0	2.40	NA	20	L585527-06	WG603302
Barium	mg/kg	140.	140.	1.44	20	L585527-06	WG603302
Boron	mg/kg	0	8.13	NA	20	L585527-06	WG603302
Cadmium	mg/kg	0.260	0.310	17.2	20	L585527-06	WG603302
Chromium	mg/kg	9.60	8.90	7.67	20	L585527-06	WG603302
Copper	mg/kg	18.0	20.0	11.1	20	L585527-06	WG603302
Lead	mg/kg	20.0	22.0	7.06	20	L585527-06	WG603302
Nickel	mg/kg	15.0	15.0	1.32	20	L585527-06	WG603302
Selenium	mg/kg	0	0	0	20	L585527-06	WG603302
Silver	mg/kg	0	0	0	20	L585527-06	WG603302
Zinc	mg/kg	320.	520.	47.0*	20	L585527-06	WG603302

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0476	95.2	76-113	WG603277
Ethylbenzene	mg/kg	.05	0.0516	103.	78-115	WG603277
Toluene	mg/kg	.05	0.0491	98.1	76-114	WG603277
Total Xylene	mg/kg	.15	0.151	101.	81-118	WG603277
a,a,a-Trifluorotoluene(PID)				98.00	54-144	WG603277
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.28	132.	67-135	WG603277
a,a,a-Trifluorotoluene(FID)				95.87	59-128	WG603277
1-Methylnaphthalene	mg/kg	.033	0.0214	64.9	48-113	WG603304
2-Chloronaphthalene	mg/kg	.033	0.0212	64.2	51-114	WG603304
2-Methylnaphthalene	mg/kg	.033	0.0206	62.3	44-109	WG603304
Acenaphthene	mg/kg	.033	0.0221	66.9	52-108	WG603304
Acenaphthylene	mg/kg	.033	0.0230	69.7	51-110	WG603304
Anthracene	mg/kg	.033	0.0264	80.0	58-120	WG603304
Benzo(a)anthracene	mg/kg	.033	0.0316	95.9	54-110	WG603304
Benzo(a)pyrene	mg/kg	.033	0.0303	92.0	56-118	WG603304
Benzo(b)fluoranthene	mg/kg	.033	0.0312	94.6	55-114	WG603304
Benzo(g,h,i)perylene	mg/kg	.033	0.0301	91.3	48-130	WG603304
Benzo(k)fluoranthene	mg/kg	.033	0.0297	89.9	55-122	WG603304
Chrysene	mg/kg	.033	0.0291	88.3	57-118	WG603304
Dibenz(a,h)anthracene	mg/kg	.033	0.0301	91.1	53-122	WG603304

* 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			
Fluoranthene	mg/kg	.033		0.0290	87.7	58-118	WG603304
Fluorene	mg/kg	.033		0.0240	72.7	54-109	WG603304
Indeno(1,2,3-cd)pyrene	mg/kg	.033		0.0297	89.9	51-125	WG603304
Naphthalene	mg/kg	.033		0.0198	60.1	45-105	WG603304
Phenanthrene	mg/kg	.033		0.0249	75.4	53-114	WG603304
Pyrene	mg/kg	.033		0.0288	87.1	53-121	WG603304
2-Fluorobiphenyl					64.42	34-129	WG603304
Nitrobenzene-d5					60.83	14-141	WG603304
p-Terphenyl-d14					85.14	25-139	WG603304
TPH (GC/FID) High Fraction	ppm	60		52.4	87.4	50-150	WG603385
o-Terphenyl					72.32	50-150	WG603385
ORP	mV	228		226.	99.1	95.6-104.	WG603522
Mercury	mg/kg	12.4		12.8	103.	71.6-128	WG603463
Chromium, Hexavalent	mg/kg	150		133.	88.7	50-150	WG603113
Specific Conductance	umhos/cm	495		511.	103.	85-115	WG603840
pH	su	5.7		5.72	100.	98-101	WG603859
Arsenic	mg/kg	237		215.	90.7	83.1-117	WG603302
Barium	mg/kg	252		238.	94.4	84.1-116	WG603302
Boron	mg/kg	118		110.	93.2	74-126	WG603302
Cadmium	mg/kg	191		176.	92.1	83.2-117	WG603302
Chromium	mg/kg	128		121.	94.5	81.3-118	WG603302
Copper	mg/kg	123		115.	93.5	83.7-116	WG603302
Lead	mg/kg	103		97.5	94.7	83.1-117	WG603302
Nickel	mg/kg	118		108.	91.5	82-118	WG603302
Selenium	mg/kg	110		102.	92.7	78.7-122	WG603302
Silver	mg/kg	47.3		41.3	87.3	66.2-134	WG603302
Zinc	mg/kg	183		165.	90.2	82-118	WG603302

Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0479	0.0476	96.0	76-113	0.610	20	WG603277
Ethylbenzene	mg/kg	0.0517	0.0516	103.	78-115	0.240	20	WG603277
Toluene	mg/kg	0.0491	0.0491	98.0	76-114	0.0800	20	WG603277
Total Xylene	mg/kg	0.151	0.151	101.	81-118	0.200	20	WG603277
a,a,a-Trifluorotoluene(PID)				97.47	54-144			WG603277
TPH (GC/FID) Low Fraction	mg/kg	7.20	7.28	131.	67-135	0.980	20	WG603277
a,a,a-Trifluorotoluene(FID)				95.35	59-128			WG603277
1-Methylnaphthalene	mg/kg	0.0171	0.0214	52.0	48-113	22.6	24	WG603304
2-Chloronaphthalene	mg/kg	0.0174	0.0212	53.0	51-114	19.5	24	WG603304
2-Methylnaphthalene	mg/kg	0.0167	0.0206	50.0	44-109	20.8	24	WG603304
Acenaphthene	mg/kg	0.0184	0.0221	56.0	52-108	18.4	22	WG603304
Acenaphthylene	mg/kg	0.0189	0.0230	57.0	51-110	19.8	21	WG603304

* 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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L585569

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

July 29, 2012

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Anthracene	mg/kg	0.0220	0.0264	66.0	58-120	18.2	20	WG603304
Benzo(a)anthracene	mg/kg	0.0297	0.0316	90.0	54-110	6.26	22	WG603304
Benzo(a)pyrene	mg/kg	0.0284	0.0303	86.0	56-118	6.57	21	WG603304
Benzo(b)fluoranthene	mg/kg	0.0285	0.0312	86.0	55-114	9.14	20	WG603304
Benzo(g,h,i)perylene	mg/kg	0.0283	0.0301	86.0	48-130	6.20	20	WG603304
Benzo(k)fluoranthene	mg/kg	0.0285	0.0297	86.0	55-122	3.95	25	WG603304
Chrysene	mg/kg	0.0276	0.0291	84.0	57-118	5.48	20	WG603304
Dibenz(a,h)anthracene	mg/kg	0.0284	0.0301	86.0	53-122	5.85	20	WG603304
Fluoranthene	mg/kg	0.0260	0.0290	79.0	58-118	10.9	20	WG603304
Fluorene	mg/kg	0.0195	0.0240	59.0	54-109	20.7*	20	WG603304
Indeno(1,2,3-cd)pyrene	mg/kg	0.0279	0.0297	84.0	51-125	6.10	21	WG603304
Naphthalene	mg/kg	0.0157	0.0198	48.0	45-105	23.3	24	WG603304
Phenanthrene	mg/kg	0.0212	0.0249	64.0	53-114	16.1	20	WG603304
Pyrene	mg/kg	0.0267	0.0288	81.0	53-121	7.34	20	WG603304
2-Fluorobiphenyl				51.73	34-129			WG603304
Nitrobenzene-d5				47.79	14-141			WG603304
p-Terphenyl-d14				77.94	25-139			WG603304
TPH (GC/FID) High Fraction	ppm	53.0	52.4	88.0	50-150	1.04	25	WG603385
o-Terphenyl				72.84	50-150			WG603385
ORP	mV	226.	226.	99.0	95.6-104.	0	20	WG603522
Chromium, Hexavalent	mg/kg	131.	133.	87.0	50-150	1.52	20	WG603113
Specific Conductance	umhos/	510.	511.	103.	85-115	0.196	20	WG603840
pH	su	5.72	5.72	100.	98-101	0	20	WG603859

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.223	0	.05	89.2	32-137	L585527-02	WG603277
Ethylbenzene	mg/kg	0.229	0	.05	91.8	10-150	L585527-02	WG603277
Toluene	mg/kg	0.228	0	.05	91.2	20-142	L585527-02	WG603277
Total Xylene	mg/kg	0.666	0	.15	88.8	16-141	L585527-02	WG603277
a,a,a-Trifluorotoluene(PID)					99.49	54-144		WG603277
TPH (GC/FID) Low Fraction	mg/kg	16.8	0	5.5	61.1	55-109	L585527-02	WG603277
a,a,a-Trifluorotoluene(FID)					92.69	59-128		WG603277
1-Methylnaphthalene	mg/kg	0.0225	0	.033	68.1	25-155	L585569-01	WG603304
2-Chloronaphthalene	mg/kg	0.0202	0	.033	61.1	31-153	L585569-01	WG603304
2-Methylnaphthalene	mg/kg	0.0228	0	.033	69.2	22-172	L585569-01	WG603304
Acenaphthene	mg/kg	0.0248	0	.033	75.2	43-133	L585569-01	WG603304
Acenaphthylene	mg/kg	0.0204	0	.033	61.8	42-146	L585569-01	WG603304
Anthracene	mg/kg	0.0230	0	.033	69.8	38-153	L585569-01	WG603304
Benzo(a)anthracene	mg/kg	0.0229	0	.033	69.4	31-142	L585569-01	WG603304
Benzo(a)pyrene	mg/kg	0.0218	0	.033	66.2	26-152	L585569-01	WG603304
Benzo(b)fluoranthene	mg/kg	0.0238	0	.033	72.2	10-188	L585569-01	WG603304
Benzo(g,h,i)perylene	mg/kg	0.0196	0	.033	59.4	10-176	L585569-01	WG603304
Benzo(k)fluoranthene	mg/kg	0.0199	0	.033	60.2	22-163	L585569-01	WG603304
Chrysene	mg/kg	0.0221	0	.033	67.1	26-146	L585569-01	WG603304
Dibenz(a,h)anthracene	mg/kg	0.0189	0	.033	57.2	10-160	L585569-01	WG603304

* 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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Dave Nicholson
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Denver, CO 80202

Quality Assurance Report
Level II

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Fluoranthene	mg/kg	0.0265	0	.033	80.2	23-160	L585569-01	WG603304
Fluorene	mg/kg	0.0289	0.0110	.033	54.1	44-143	L585569-01	WG603304
Indeno(1,2,3-cd)pyrene	mg/kg	0.0196	0	.033	59.4	10-157	L585569-01	WG603304
Naphthalene	mg/kg	0.0208	0	.033	63.0	22-156	L585569-01	WG603304
Phenanthrene	mg/kg	0.0310	0.0160	.033	45.6	23-164	L585569-01	WG603304
Pyrene	mg/kg	0.0252	0.0100	.033	46.1	12-170	L585569-01	WG603304
2-Fluorobiphenyl					61.40	34-129		WG603304
Nitrobenzene-d5					61.44	14-141		WG603304
p-Terphenyl-d14					57.74	25-139		WG603304
TPH (GC/FID) High Fraction	ppm	55.9	0	60	93.2	50-150	L585647-10	WG603385
o-Terphenyl					73.58	50-150		WG603385
Mercury	mg/kg	0.282	0	.25	113.	80-120	L585715-09	WG603463
Chromium,Hexavalent	mg/kg	14.5	0	20	72.5	50-150	L585229-02	WG603113
Arsenic	mg/kg	40.4	2.40	50	76.0	75-125	L585527-06	WG603302
Barium	mg/kg	174.	140.	50	68.0*	75-125	L585527-06	WG603302
Boron	mg/kg	47.0	8.13	50	77.7	75-125	L585527-06	WG603302
Cadmium	mg/kg	43.4	0.310	50	86.2	75-125	L585527-06	WG603302
Chromium	mg/kg	48.4	8.90	50	79.0	75-125	L585527-06	WG603302
Copper	mg/kg	63.2	20.0	50	86.4	75-125	L585527-06	WG603302
Lead	mg/kg	58.4	22.0	50	72.8*	75-125	L585527-06	WG603302
Nickel	mg/kg	48.8	15.0	50	67.6*	75-125	L585527-06	WG603302
Selenium	mg/kg	37.9	0	50	75.8	75-125	L585527-06	WG603302
Silver	mg/kg	43.6	0	50	87.2	75-125	L585527-06	WG603302
Zinc	mg/kg	456.	520.	50	0*	75-125	L585527-06	WG603302

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.224	0.223	89.5	32-137	0.290	39	L585527-02	WG603277
Ethylbenzene	mg/kg	0.227	0.229	90.9	10-150	0.940	44	L585527-02	WG603277
Toluene	mg/kg	0.225	0.228	90.1	20-142	1.30	42	L585527-02	WG603277
Total Xylene	mg/kg	0.662	0.666	88.2	16-141	0.630	46	L585527-02	WG603277
a,a,a-Trifluorotoluene(PID)				97.13	54-144				WG603277
TPH (GC/FID) Low Fraction	mg/kg	28.9	16.8	105.	55-109	53.0*	20	L585527-02	WG603277
a,a,a-Trifluorotoluene(FID)				94.11	59-128				WG603277
1-Methylnaphthalene	mg/kg	0.0293	0.0225	88.9	25-155	26.4	27	L585569-01	WG603304
2-Chloronaphthalene	mg/kg	0.0240	0.0202	72.8	31-153	17.5	22	L585569-01	WG603304
2-Methylnaphthalene	mg/kg	0.0302	0.0228	91.4	22-172	27.6	29	L585569-01	WG603304
Acenaphthene	mg/kg	0.0304	0.0248	92.0	43-133	20.2	26	L585569-01	WG603304
Acenaphthylene	mg/kg	0.0249	0.0204	75.4	42-146	19.9	22	L585569-01	WG603304
Anthracene	mg/kg	0.0285	0.0230	86.4	38-153	21.3	27	L585569-01	WG603304
Benzo(a)anthracene	mg/kg	0.0314	0.0229	95.0	31-142	31.2*	31	L585569-01	WG603304
Benzo(a)pyrene	mg/kg	0.0285	0.0218	86.2	26-152	26.4	32	L585569-01	WG603304
Benzo(b)fluoranthene	mg/kg	0.0328	0.0238	99.3	10-188	31.5	33	L585569-01	WG603304
Benzo(g,h,i)perylene	mg/kg	0.0225	0.0196	68.2	10-176	13.9	30	L585569-01	WG603304
Benzo(k)fluoranthene	mg/kg	0.0268	0.0199	81.2	22-163	29.8*	29	L585569-01	WG603304
Chrysene	mg/kg	0.0288	0.0221	87.3	26-146	26.2	30	L585569-01	WG603304
Dibenz(a,h)anthracene	mg/kg	0.0223	0.0189	67.5	10-160	16.4	39	L585569-01	WG603304
Fluoranthene	mg/kg	0.0357	0.0265	108.	23-160	29.7*	22	L585569-01	WG603304

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Quality Assurance Report
Level II

L585569

Location ID 335887
Pit Facility ID 423847
REM 10080
Document 2495735

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Tax I.D. 62-0814289

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July 29, 2012

Analyte	Units	MSD	Matrix Spike	Duplicate	Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Fluorene	mg/kg	0.0363	0.0289	76.6	44-143	22.8	23	L585569-01	WG603304	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0234	0.0196	70.9	10-157	17.6	40	L585569-01	WG603304	
Naphthalene	mg/kg	0.0250	0.0208	75.7	22-156	18.3	27	L585569-01	WG603304	
Phenanthrene	mg/kg	0.0440	0.0310	84.8	23-164	34.5*	25	L585569-01	WG603304	
Pyrene	mg/kg	0.0342	0.0252	73.2	12-170	30.2*	24	L585569-01	WG603304	
2-Fluorobiphenyl				70.86	34-129				WG603304	
Nitrobenzene-d5				76.27	14-141				WG603304	
p-Terphenyl-d14				69.22	25-139				WG603304	
TPH (GC/FID) High Fraction	ppm	53.6	55.9	89.4	50-150	4.20	25	L585647-10	WG603385	
o-Terphenyl				69.10	50-150				WG603385	
Mercury	mg/kg	0.256	0.282	102.	80-120	9.67	20	L585715-09	WG603463	
Chromium, Hexavalent	mg/kg	16.1	14.5	80.5	50-150	10.5	20	L585229-02	WG603113	
Arsenic	mg/kg	46.6	40.4	88.4	75-125	14.3	20	L585527-06	WG603302	
Barium	mg/kg	192.	174.	104.	75-125	9.84	20	L585527-06	WG603302	
Boron	mg/kg	49.3	47.0	82.3	75-125	4.78	20	L585527-06	WG603302	
Cadmium	mg/kg	45.8	43.4	91.0	75-125	5.38	20	L585527-06	WG603302	
Chromium	mg/kg	57.9	48.4	98.0	75-125	17.9	20	L585527-06	WG603302	
Copper	mg/kg	65.4	63.2	90.8	75-125	3.42	20	L585527-06	WG603302	
Lead	mg/kg	66.2	58.4	88.4	75-125	12.5	20	L585527-06	WG603302	
Nickel	mg/kg	60.0	48.8	90.0	75-125	20.6*	20	L585527-06	WG603302	
Selenium	mg/kg	43.9	37.9	87.8	75-125	14.7	20	L585527-06	WG603302	
Silver	mg/kg	45.1	43.6	90.2	75-125	3.38	20	L585527-06	WG603302	
Zinc	mg/kg	410.	456.	0*	75-125	10.6	20	L585527-06	WG603302	

Batch number /Run number / Sample number cross reference

WG603277: R2261293: L585569-01
WG603304: R2262153: L585569-01
WG603385: R2264495: L585569-01
WG603522: R2264533: L585569-01
WG603463: R2264673: L585569-01
WG603113: R2264833: L585569-01
WG603840: R2268793: L585569-01
WG603859: R2270193: L585569-01
WG603925: R2273096: L585569-01
WG603302: R2274753: L585569-01

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

* Performance of this Analyte is outside of established criteria.

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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.