



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

Friday October 05, 2012

Report Number: L597626

Samples Received: 09/27/12

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:


Roberto Celia , 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

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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

October 05, 2012

Date Received : September 27, 2012
Description : Berry Pit Reclamation

Sample ID : O-36B

Collected By : DK Nicholson
Collection Date : 09/26/12 15:00

ESC Sample # : L597626-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	10/04/12	1
ORP	46.		mV	2580	10/04/12	1
pH	12.		su	9045D	09/29/12	1
Sodium Adsorption Ratio	46.			Calc.	09/29/12	1
Specific Conductance	4800		umhos/cm	9050AMod	10/04/12	1
Mercury	0.036	0.020	mg/kg	7471	09/29/12	1
Arsenic	13.	5.0	mg/kg	6010B	10/01/12	5
Barium	4700	0.25	mg/kg	6010B	09/29/12	1
Boron	23.	10.	mg/kg	6010B	09/29/12	1
Cadmium	BDL	1.2	mg/kg	6010B	10/01/12	5
Chromium	20.	0.50	mg/kg	6010B	09/29/12	1
Copper	17.	1.0	mg/kg	6010B	09/29/12	1
Iron	14000	5.0	mg/kg	6010B	09/29/12	1
Lead	15.	1.2	mg/kg	6010B	10/01/12	5
Nickel	15.	1.0	mg/kg	6010B	09/29/12	1
Selenium	2.7	1.0	mg/kg	6010B	09/29/12	1
Silver	BDL	2.5	mg/kg	6010B	10/01/12	5
Zinc	72.	1.5	mg/kg	6010B	09/29/12	1
Benzene	0.0067	0.0025	mg/kg	8021/8015	09/28/12	5
Toluene	0.092	0.025	mg/kg	8021/8015	09/28/12	5
Ethylbenzene	0.050	0.0025	mg/kg	8021/8015	09/28/12	5
Total Xylene	0.67	0.0075	mg/kg	8021/8015	09/28/12	5
TPH (GC/FID) Low Fraction	13.	0.50	mg/kg	GRO	09/28/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	8021/8015	09/28/12	5
a,a,a-Trifluorotoluene(PID)	108.		% Rec.	8021/8015	09/28/12	5
TPH (GC/FID) High Fraction	3000	80.	mg/kg	3546/DRO	09/30/12	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	09/30/12	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.44	0.12	mg/kg	8270C-SIM	09/30/12	20
Acenaphthene	0.34	0.12	mg/kg	8270C-SIM	09/30/12	20
Acenaphthylene	0.23	0.12	mg/kg	8270C-SIM	09/30/12	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L597626-06 (PH) - 12@19.0c



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1999 Broadway, Suite 3700
Denver, CO 80202

October 05, 2012

Date Received : September 27, 2012
Description : Berry Pit Reclamation

Sample ID : O-36B

Collected By : DK Nicholson
Collection Date : 09/26/12 15:00

ESC Sample # : L597626-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Fluorene	0.43	0.12	mg/kg	8270C-SIM	09/30/12	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Naphthalene	0.80	0.12	mg/kg	8270C-SIM	09/30/12	20
Phenanthrene	1.5	0.12	mg/kg	8270C-SIM	09/30/12	20
Pyrene	0.44	0.12	mg/kg	8270C-SIM	09/30/12	20
1-Methylnaphthalene	2.2	0.12	mg/kg	8270C-SIM	09/30/12	20
2-Methylnaphthalene	3.4	0.12	mg/kg	8270C-SIM	09/30/12	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	09/30/12	20
Surrogate Recovery						
Nitrobenzene-d5	322.		% Rec.	8270C-SIM	09/30/12	20
2-Fluorobiphenyl	190.		% Rec.	8270C-SIM	09/30/12	20
p-Terphenyl-d14	104.		% Rec.	8270C-SIM	09/30/12	20

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: 10/05/12 09:59 Revised: 10/05/12 15:57
L597626-06 (PH) - 12@19.0c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L597626-01	WG615056	SAMP	pH	R2370936	T8
	WG615888	SAMP	Chromium,Hexavalent	R2376553	O
L597626-02	WG615249	SAMP	Mercury	R2371313	P1
	WG615056	SAMP	pH	R2370936	T8
L597626-03	WG615056	SAMP	pH	R2370936	T8
	WG615888	SAMP	Chromium,Hexavalent	R2376553	O
L597626-04	WG615041	SAMP	Nitrobenzene-d5	R2371693	J7
	WG615041	SAMP	2-Fluorobiphenyl	R2371693	J7
	WG615041	SAMP	p-Terphenyl-d14	R2371693	J7
	WG615056	SAMP	pH	R2370936	T8
L597626-05	WG615056	SAMP	pH	R2370936	T8
L597626-06	WG615131	SAMP	Cadmium	R2370995	O
	WG615131	SAMP	Silver	R2370995	O
	WG614584	SAMP	Nitrobenzene-d5	R2370633	J7
	WG614584	SAMP	2-Fluorobiphenyl	R2370633	J7
	WG614584	SAMP	p-Terphenyl-d14	R2370633	J7
	WG615056	SAMP	pH	R2370936	T8
	WG615888	SAMP	Chromium,Hexavalent	R2376553	J6
	WG615168	SAMP	o-Terphenyl	R2370494	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
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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October 05, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG615117	09/28/12 08:50
Ethylbenzene	< .0005	mg/kg			WG615117	09/28/12 08:50
Toluene	< .005	mg/kg			WG615117	09/28/12 08:50
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG615117	09/28/12 08:50
Total Xylene	< .0015	mg/kg			WG615117	09/28/12 08:50
a,a,a-Trifluorotoluene(FID)		% Rec.	100.6	59-128	WG615117	09/28/12 08:50
a,a,a-Trifluorotoluene(PID)		% Rec.	107.9	54-144	WG615117	09/28/12 08:50
TPH (GC/FID) High Fraction	< 4	ppm			WG615168	09/28/12 17:57
o-Terphenyl		% Rec.	81.17	50-150	WG615168	09/28/12 17:57
1-Methylnaphthalene	< .006	mg/kg			WG614584	09/29/12 09:50
2-Chloronaphthalene	< .006	mg/kg			WG614584	09/29/12 09:50
2-Methylnaphthalene	< .006	mg/kg			WG614584	09/29/12 09:50
Acenaphthene	< .006	mg/kg			WG614584	09/29/12 09:50
Acenaphthylene	< .006	mg/kg			WG614584	09/29/12 09:50
Anthracene	< .006	mg/kg			WG614584	09/29/12 09:50
Benzo(a)anthracene	< .006	mg/kg			WG614584	09/29/12 09:50
Benzo(a)pyrene	< .006	mg/kg			WG614584	09/29/12 09:50
Benzo(b)fluoranthene	< .006	mg/kg			WG614584	09/29/12 09:50
Benzo(g,h,i)perylene	< .006	mg/kg			WG614584	09/29/12 09:50
Benzo(k)fluoranthene	< .006	mg/kg			WG614584	09/29/12 09:50
Chrysene	< .006	mg/kg			WG614584	09/29/12 09:50
Dibenz(a,h)anthracene	< .006	mg/kg			WG614584	09/29/12 09:50
Fluoranthene	< .006	mg/kg			WG614584	09/29/12 09:50
Fluorene	< .006	mg/kg			WG614584	09/29/12 09:50
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG614584	09/29/12 09:50
Naphthalene	< .006	mg/kg			WG614584	09/29/12 09:50
Phenanthrene	< .006	mg/kg			WG614584	09/29/12 09:50
Pyrene	< .006	mg/kg			WG614584	09/29/12 09:50
2-Fluorobiphenyl		% Rec.	78.72	34-129	WG614584	09/29/12 09:50
Nitrobenzene-d5		% Rec.	70.25	14-141	WG614584	09/29/12 09:50
p-Terphenyl-d14		% Rec.	81.97	25-139	WG614584	09/29/12 09:50
Mercury	< .02	mg/kg			WG615250	09/29/12 19:49
Arsenic	< 1	mg/kg			WG615131	09/29/12 18:24
Barium	< .25	mg/kg			WG615131	09/29/12 18:24
Boron	< 10	mg/kg			WG615131	09/29/12 18:24
Cadmium	< .25	mg/kg			WG615131	09/29/12 18:24
Chromium	< .5	mg/kg			WG615131	09/29/12 18:24
Copper	< 1	mg/kg			WG615131	09/29/12 18:24
Iron	< 5	mg/kg			WG615131	09/29/12 18:24
Lead	< .25	mg/kg			WG615131	09/29/12 18:24
Nickel	< 1	mg/kg			WG615131	09/29/12 18:24
Selenium	< 1	mg/kg			WG615131	09/29/12 18:24
Silver	< .5	mg/kg			WG615131	09/29/12 18:24
Zinc	< 1.5	mg/kg			WG615131	09/29/12 18:24
Mercury	< .02	mg/kg			WG615249	10/01/12 08:59
1-Methylnaphthalene	< .006	mg/kg			WG615041	10/01/12 02:36
2-Chloronaphthalene	< .006	mg/kg			WG615041	10/01/12 02:36

* 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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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
2-Methylnaphthalene	< .006	mg/kg			WG615041	10/01/12 02:36
Acenaphthene	< .006	mg/kg			WG615041	10/01/12 02:36
Acenaphthylene	< .006	mg/kg			WG615041	10/01/12 02:36
Anthracene	< .006	mg/kg			WG615041	10/01/12 02:36
Benzo(a)anthracene	< .006	mg/kg			WG615041	10/01/12 02:36
Benzo(a)pyrene	< .006	mg/kg			WG615041	10/01/12 02:36
Benzo(b)fluoranthene	< .006	mg/kg			WG615041	10/01/12 02:36
Benzo(g,h,i)perylene	< .006	mg/kg			WG615041	10/01/12 02:36
Benzo(k)fluoranthene	< .006	mg/kg			WG615041	10/01/12 02:36
Chrysene	< .006	mg/kg			WG615041	10/01/12 02:36
Dibenz(a,h)anthracene	< .006	mg/kg			WG615041	10/01/12 02:36
Fluoranthene	< .006	mg/kg			WG615041	10/01/12 02:36
Fluorene	< .006	mg/kg			WG615041	10/01/12 02:36
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG615041	10/01/12 02:36
Naphthalene	< .006	mg/kg			WG615041	10/01/12 02:36
Phenanthrene	< .006	mg/kg			WG615041	10/01/12 02:36
Pyrene	< .006	mg/kg			WG615041	10/01/12 02:36
2-Fluorobiphenyl		% Rec.	81.53	34-129	WG615041	10/01/12 02:36
Nitrobenzene-d5		% Rec.	75.91	14-141	WG615041	10/01/12 02:36
p-Terphenyl-d14		% Rec.	97.21	25-139	WG615041	10/01/12 02:36
TPH (GC/FID) High Fraction	< 4	ppm			WG615468	10/03/12 08:46
o-Terphenyl		% Rec.	67.72	50-150	WG615468	10/03/12 08:46
Specific Conductance	1.14	umhos/cm			WG616082	10/04/12 11:30
Chromium,Hexavalent	< 2	mg/kg			WG615888	10/04/12 16:31

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0	0	0	20	L597738-01	WG615250
pH	su	12.0	12.0	0.0833	1	L597626-06	WG615056
pH	su	12.0	12.0	1.57*	1	L597686-03	WG615056
Barium	mg/kg	20.0	20.0	0	20	L597738-05	WG615131
Boron	mg/kg	0	1.78	NA	20	L597738-05	WG615131
Cadmium	mg/kg	0	0	0	20	L597738-05	WG615131
Chromium	mg/kg	6.70	7.20	7.79	20	L597738-05	WG615131
Copper	mg/kg	3.90	3.90	0.512	20	L597738-05	WG615131
Iron	mg/kg	9800	9690	0.924	20	L597738-05	WG615131
Lead	mg/kg	1.70	1.50	12.5	20	L597738-05	WG615131
Nickel	mg/kg	7.60	8.51	11.7	20	L597738-05	WG615131
Selenium	mg/kg	3.90	3.00	26.1*	20	L597738-05	WG615131
Silver	mg/kg	0	0	0	20	L597738-05	WG615131
Zinc	mg/kg	8.80	8.41	4.65	20	L597738-05	WG615131
Arsenic	mg/kg	0	0	0	20	L597738-05	WG615131
Mercury	mg/kg	0.0230	0	NA	20	L597626-02	WG615249
ORP	mV	160.	160.	1.26	20	L597626-01	WG616089

* 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	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
ORP	mV	250.	240.	3.28	20	L598408-08	WG616089
Specific Conductance	umhos/cm	490.	480.	1.65	20	L597626-01	WG616082
Specific Conductance	umhos/cm	1900	1900	0.528	20	L598408-08	WG616082
Chromium,Hexavalent	mg/kg	0	0	0	20	L598343-03	WG615888
Chromium,Hexavalent	mg/kg	0	0	0	20	L598408-08	WG615888

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0552	110.	76-113	WG615117
Ethylbenzene	mg/kg	.05	0.0514	103.	78-115	WG615117
Toluene	mg/kg	.05	0.0515	103.	76-114	WG615117
Total Xylene	mg/kg	.15	0.148	99.0	81-118	WG615117
a,a,a-Trifluorotoluene(PID)	mg/kg	5.5	6.38	108.4	54-144	WG615117
TPH (GC/FID) Low Fraction				116.	67-135	WG615117
a,a,a-Trifluorotoluene(FID)				107.8	59-128	WG615117
TPH (GC/FID) High Fraction	ppm	60	54.0	90.0	50-150	WG615168
o-Terphenyl				74.74	50-150	WG615168
1-Methylnaphthalene	mg/kg	.033	0.0270	81.8	48-113	WG614584
2-Chloronaphthalene	mg/kg	.033	0.0280	84.8	51-114	WG614584
2-Methylnaphthalene	mg/kg	.033	0.0266	80.6	44-109	WG614584
Acenaphthene	mg/kg	.033	0.0271	82.2	52-108	WG614584
Acenaphthylene	mg/kg	.033	0.0284	86.1	51-110	WG614584
Anthracene	mg/kg	.033	0.0266	80.7	58-120	WG614584
Benzo(a)anthracene	mg/kg	.033	0.0280	85.0	54-110	WG614584
Benzo(a)pyrene	mg/kg	.033	0.0281	85.2	56-118	WG614584
Benzo(b)fluoranthene	mg/kg	.033	0.0273	82.8	55-114	WG614584
Benzo(g,h,i)perylene	mg/kg	.033	0.0276	83.6	48-130	WG614584
Benzo(k)fluoranthene	mg/kg	.033	0.0284	86.0	55-122	WG614584
Chrysene	mg/kg	.033	0.0283	85.8	57-118	WG614584
Dibenz(a,h)anthracene	mg/kg	.033	0.0277	83.9	53-122	WG614584
Fluoranthene	mg/kg	.033	0.0275	83.2	58-118	WG614584
Fluorene	mg/kg	.033	0.0291	88.2	54-109	WG614584
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0279	84.5	51-125	WG614584
Naphthalene	mg/kg	.033	0.0250	75.8	45-105	WG614584
Phenanthrene	mg/kg	.033	0.0256	77.7	53-114	WG614584
Pyrene	mg/kg	.033	0.0289	87.7	53-121	WG614584
2-Fluorobiphenyl				83.72	34-129	WG614584
Nitrobenzene-d5				76.96	14-141	WG614584
p-Terphenyl-d14				84.23	25-139	WG614584
Mercury	mg/kg	12.4	14.2	115.	71.6-128	WG615250
pH	su	6.03	6.05	100.	98-101	WG615056
Arsenic	mg/kg	237	222.	93.7	83.1-117	WG615131
Barium	mg/kg	252	251.	99.6	84.1-116	WG615131
Boron	mg/kg	118	118.	100.	74-126	WG615131

* Performance of this Analyte is outside of established criteria.

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Dave Nicholson
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Denver, CO 80202

Quality Assurance Report
Level II

L597626

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

October 05, 2012

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Cadmium	mg/kg	191	180.	94.2	83.2-117	WG615131
Chromium	mg/kg	128	128.	100.	81.3-118	WG615131
Copper	mg/kg	123	123.	100.	83.7-116	WG615131
Iron	mg/kg	13100	13300	102.	50.8-150	WG615131
Lead	mg/kg	103	97.5	94.7	83.1-117	WG615131
Nickel	mg/kg	118	110.	93.2	82-118	WG615131
Selenium	mg/kg	110	108.	98.2	78.7-122	WG615131
Silver	mg/kg	47.3	44.9	94.9	66.2-134	WG615131
Zinc	mg/kg	183	178.	97.3	82-118	WG615131
Mercury	mg/kg	12.4	14.3	115.	71.6-128	WG615249
1-Methylnaphthalene	mg/kg	.033	0.0246	74.6	48-113	WG615041
2-Chloronaphthalene	mg/kg	.033	0.0236	71.4	51-114	WG615041
2-Methylnaphthalene	mg/kg	.033	0.0245	74.4	44-109	WG615041
Acenaphthene	mg/kg	.033	0.0241	72.9	52-108	WG615041
Acenaphthylene	mg/kg	.033	0.0245	74.2	51-110	WG615041
Anthracene	mg/kg	.033	0.0257	78.0	58-120	WG615041
Benzo(a)anthracene	mg/kg	.033	0.0256	77.5	54-110	WG615041
Benzo(a)pyrene	mg/kg	.033	0.0269	81.6	56-118	WG615041
Benzo(b)fluoranthene	mg/kg	.033	0.0273	82.8	55-114	WG615041
Benzo(g,h,i)perylene	mg/kg	.033	0.0282	85.5	48-130	WG615041
Benzo(k)fluoranthene	mg/kg	.033	0.0248	75.0	55-122	WG615041
Chrysene	mg/kg	.033	0.0260	78.7	57-118	WG615041
Dibenz(a,h)anthracene	mg/kg	.033	0.0300	90.8	53-122	WG615041
Fluoranthene	mg/kg	.033	0.0245	74.1	58-118	WG615041
Fluorene	mg/kg	.033	0.0251	76.0	54-109	WG615041
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0299	90.7	51-125	WG615041
Naphthalene	mg/kg	.033	0.0236	71.5	45-105	WG615041
Phenanthrene	mg/kg	.033	0.0254	77.0	53-114	WG615041
Pyrene	mg/kg	.033	0.0282	85.4	53-121	WG615041
2-Fluorobiphenyl				77.23	34-129	WG615041
Nitrobenzene-d5				74.22	14-141	WG615041
p-Terphenyl-d14				82.60	25-139	WG615041
TPH (GC/FID) High Fraction	ppm	60	48.1	80.2	50-150	WG615468
o-Terphenyl				74.28	50-150	WG615468
ORP	mV	228	230.	101.	95.6-104.	WG616089
Specific Conductance	umhos/cm	1050	1040	99.0	85-115	WG616082
Chromium, Hexavalent	mg/kg	150	137.	91.3	80-120	WG615888

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0561	0.0552	112.	76-113	1.74	20	WG615117
Ethylbenzene	mg/kg	0.0521	0.0514	104.	78-115	1.33	20	WG615117
Toluene	mg/kg	0.0524	0.0515	105.	76-114	1.80	20	WG615117
Total Xylene	mg/kg	0.151	0.148	100.	81-118	1.41	20	WG615117
a,a,a-Trifluorotoluene(PID)				107.8	54-144			WG615117
TPH (GC/FID) Low Fraction	mg/kg	6.35	6.38	115.	67-135	0.550	20	WG615117

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
a,a,a-Trifluorotoluene(FID)				107.8	59-128			
TPH (GC/FID) High Fraction	ppm	52.8	54.0	88.0	50-150	2.24	25	WG615168
o-Terphenyl				76.43	50-150			WG615168
1-Methylnaphthalene	mg/kg	0.0264	0.0270	80.0	48-113	2.12	24	WG614584
2-Chloronaphthalene	mg/kg	0.0265	0.0280	80.0	51-114	5.30	24	WG614584
2-Methylnaphthalene	mg/kg	0.0278	0.0266	84.0	44-109	4.52	24	WG614584
Acenaphthene	mg/kg	0.0255	0.0271	77.0	52-108	6.28	22	WG614584
Acenaphthylene	mg/kg	0.0275	0.0284	83.0	51-110	3.31	21	WG614584
Anthracene	mg/kg	0.0279	0.0266	84.0	58-120	4.63	20	WG614584
Benzo(a)anthracene	mg/kg	0.0280	0.0280	85.0	54-110	0.297	22	WG614584
Benzo(a)pyrene	mg/kg	0.0269	0.0281	81.0	56-118	4.57	21	WG614584
Benzo(b)fluoranthene	mg/kg	0.0261	0.0273	79.0	55-114	4.48	20	WG614584
Benzo(g,h,i)perylene	mg/kg	0.0262	0.0276	79.0	48-130	5.23	20	WG614584
Benzo(k)fluoranthene	mg/kg	0.0280	0.0284	85.0	55-122	1.44	25	WG614584
Chrysene	mg/kg	0.0277	0.0283	84.0	57-118	2.13	20	WG614584
Dibenz(a,h)anthracene	mg/kg	0.0273	0.0277	83.0	53-122	1.30	20	WG614584
Fluoranthene	mg/kg	0.0276	0.0275	84.0	58-118	0.390	20	WG614584
Fluorene	mg/kg	0.0268	0.0291	81.0	54-109	8.17	20	WG614584
Indeno(1,2,3-cd)pyrene	mg/kg	0.0262	0.0279	79.0	51-125	6.18	21	WG614584
Naphthalene	mg/kg	0.0240	0.0250	73.0	45-105	4.31	24	WG614584
Phenanthrene	mg/kg	0.0265	0.0256	80.0	53-114	3.36	20	WG614584
Pyrene	mg/kg	0.0282	0.0289	85.0	53-121	2.56	20	WG614584
2-Fluorobiphenyl				82.88	34-129			WG614584
Nitrobenzene-d5				70.85	14-141			WG614584
p-Terphenyl-d14				85.38	25-139			WG614584
pH	su	6.04	6.05	100.	98-101	0.165	20	WG615056
1-Methylnaphthalene	mg/kg	0.0244	0.0246	74.0	48-113	0.860	24	WG615041
2-Chloronaphthalene	mg/kg	0.0250	0.0236	76.0	51-114	5.89	24	WG615041
2-Methylnaphthalene	mg/kg	0.0248	0.0245	75.0	44-109	1.07	24	WG615041
Acenaphthene	mg/kg	0.0245	0.0241	74.0	52-108	1.80	22	WG615041
Acenaphthylene	mg/kg	0.0251	0.0245	76.0	51-110	2.59	21	WG615041
Anthracene	mg/kg	0.0293	0.0257	89.0	58-120	12.9	20	WG615041
Benzo(a)anthracene	mg/kg	0.0261	0.0256	79.0	54-110	2.08	22	WG615041
Benzo(a)pyrene	mg/kg	0.0280	0.0269	85.0	56-118	3.79	21	WG615041
Benzo(b)fluoranthene	mg/kg	0.0273	0.0273	83.0	55-114	0.0570	20	WG615041
Benzo(g,h,i)perylene	mg/kg	0.0252	0.0282	76.0	48-130	11.3	20	WG615041
Benzo(k)fluoranthene	mg/kg	0.0262	0.0248	79.0	55-122	5.51	25	WG615041
Chrysene	mg/kg	0.0270	0.0260	82.0	57-118	3.90	20	WG615041
Dibenz(a,h)anthracene	mg/kg	0.0311	0.0300	94.0	53-122	3.84	20	WG615041
Fluoranthene	mg/kg	0.0257	0.0245	78.0	58-118	5.05	20	WG615041
Fluorene	mg/kg	0.0259	0.0251	78.0	54-109	3.36	20	WG615041
Indeno(1,2,3-cd)pyrene	mg/kg	0.0310	0.0299	94.0	51-125	3.36	21	WG615041
Naphthalene	mg/kg	0.0225	0.0236	68.0	45-105	4.55	24	WG615041
Phenanthrene	mg/kg	0.0269	0.0254	82.0	53-114	5.80	20	WG615041
Pyrene	mg/kg	0.0314	0.0282	95.0	53-121	11.0	20	WG615041
2-Fluorobiphenyl				79.32	34-129			WG615041
Nitrobenzene-d5				72.36	14-141			WG615041
p-Terphenyl-d14				89.59	25-139			WG615041
TPH (GC/FID) High Fraction	ppm	50.1	48.1	83.0	50-150	4.05	25	WG615468
o-Terphenyl				76.32	50-150			WG615468

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
ORP	mV	230.	230.	101.	95.6-104.	0	20	WG616089
Specific Conductance	umhos/	1050	1040	100.	85-115	0.957	20	WG616082
Chromium, Hexavalent	mg/kg	146.	137.	97.0	80-120	6.36	20	WG615888

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.268	0	.05	107.	32-137	L597552-01	WG615117
Ethylbenzene	mg/kg	0.227	0	.05	90.6	10-150	L597552-01	WG615117
Toluene	mg/kg	0.242	0	.05	96.7	20-142	L597552-01	WG615117
Total Xylene	mg/kg	0.646	0	.15	86.2	16-141	L597552-01	WG615117
a,a,a-Trifluorotoluene(PID)	mg/kg	24.2	0	5.5	107.8	54-144	L597552-01	WG615117
TPH (GC/FID) Low Fraction					87.9	55-109		WG615117
a,a,a-Trifluorotoluene(FID)					105.3	59-128		WG615117

1-Methylnaphthalene	mg/kg	0.207	0.190	.033	52.8	25-155	L596635-01	WG614584
2-Chloronaphthalene	mg/kg	0.132	0.0950	.033	111.	31-153	L596635-01	WG614584
2-Methylnaphthalene	mg/kg	0.155	0.120	.033	105.	22-172	L596635-01	WG614584
Acenaphthene	mg/kg	0.222	0.200	.033	67.2	43-133	L596635-01	WG614584
Acenaphthylene	mg/kg	0.0861	0.0430	.033	131.	42-146	L596635-01	WG614584
Anthracene	mg/kg	0.227	0.230	.033	0*	38-153	L596635-01	WG614584
Benzo(a)anthracene	mg/kg	0.142	0.110	.033	96.5	31-142	L596635-01	WG614584
Benzo(a)pyrene	mg/kg	0.0758	0.0390	.033	112.	26-152	L596635-01	WG614584
Benzo(b)fluoranthene	mg/kg	0.110	0.0760	.033	103.	10-188	L596635-01	WG614584
Benzo(g,h,i)perylene	mg/kg	0.0249	0	.033	75.5	10-176	L596635-01	WG614584
Benzo(k)fluoranthene	mg/kg	0.0667	0.0250	.033	126.	22-163	L596635-01	WG614584
Chrysene	mg/kg	0.113	0.0840	.033	88.8	26-146	L596635-01	WG614584
Dibenz(a,h)anthracene	mg/kg	0.0245	0	.033	74.1	10-160	L596635-01	WG614584
Fluoranthene	mg/kg	0.403	0.350	.033	160.*	23-160	L596635-01	WG614584
Fluorene	mg/kg	0.182	0.0990	.033	252.*	44-143	L596635-01	WG614584
Indeno(1,2,3-cd)pyrene	mg/kg	0.0293	0	.033	88.8	10-157	L596635-01	WG614584
Naphthalene	mg/kg	0.627	0.610	.033	51.9	22-156	L596635-01	WG614584
Phenanthrene	mg/kg	0.142	0.110	.033	97.5	23-164	L596635-01	WG614584
Pyrene	mg/kg	0.308	0.320	.033	0*	12-170	L596635-01	WG614584
2-Fluorobiphenyl					159.1*	34-129		WG614584
Nitrobenzene-d5					54.25	14-141		WG614584
p-Terphenyl-d14					116.3	25-139		WG614584

Mercury	mg/kg	0.251	0	.25	100.	80-120	L597738-01	WG615250
Barium	mg/kg	65.8	20.0	50	91.6	75-125	L597738-05	WG615131
Boron	mg/kg	43.6	1.78	50	83.6	75-125	L597738-05	WG615131
Cadmium	mg/kg	45.7	0	50	91.4	75-125	L597738-05	WG615131
Chromium	mg/kg	53.6	7.20	50	92.8	75-125	L597738-05	WG615131
Copper	mg/kg	51.6	3.90	50	95.4	75-125	L597738-05	WG615131
Iron	mg/kg	9690	9690	50	0*	75-125	L597738-05	WG615131
Lead	mg/kg	46.9	1.50	50	90.8	75-125	L597738-05	WG615131
Nickel	mg/kg	51.8	8.51	50	86.6	75-125	L597738-05	WG615131
Selenium	mg/kg	45.4	3.00	50	84.8	75-125	L597738-05	WG615131
Silver	mg/kg	44.6	0	50	89.2	75-125	L597738-05	WG615131
Zinc	mg/kg	56.4	8.41	50	96.0	75-125	L597738-05	WG615131

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Arsenic	mg/kg	43.5	0	25	87.0	75-125	L597738-05	WG615131
Mercury	mg/kg	0.266	0	.25	106.	80-120	L597626-02	WG615249
1-Methylnaphthalene	mg/kg	0.0233	0.000900	.033	67.7	25-155	L597399-08	WG615041
2-Chloronaphthalene	mg/kg	0.0235	0	.033	71.3	31-153	L597399-08	WG615041
2-Methylnaphthalene	mg/kg	0.0240	0.00130	.033	68.7	22-172	L597399-08	WG615041
Acenaphthene	mg/kg	0.0236	0	.033	71.5	43-133	L597399-08	WG615041
Acenaphthylene	mg/kg	0.0241	0	.033	73.1	42-146	L597399-08	WG615041
Anthracene	mg/kg	0.0251	0	.033	75.9	38-153	L597399-08	WG615041
Benzo(a)anthracene	mg/kg	0.0238	0	.033	72.0	31-142	L597399-08	WG615041
Benzo(a)pyrene	mg/kg	0.0269	0	.033	81.4	26-152	L597399-08	WG615041
Benzo(b)fluoranthene	mg/kg	0.0290	0	.033	87.9	10-188	L597399-08	WG615041
Benzo(g,h,i)perylene	mg/kg	0.00982	0	.033	29.8	10-176	L597399-08	WG615041
Benzo(k)fluoranthene	mg/kg	0.0249	0	.033	75.4	22-163	L597399-08	WG615041
Chrysene	mg/kg	0.0246	0	.033	74.6	26-146	L597399-08	WG615041
Dibenz(a,h)anthracene	mg/kg	0.0161	0	.033	48.8	10-160	L597399-08	WG615041
Fluoranthene	mg/kg	0.0248	0	.033	75.1	23-160	L597399-08	WG615041
Fluorene	mg/kg	0.0239	0	.033	72.3	44-143	L597399-08	WG615041
Indeno(1,2,3-cd)pyrene	mg/kg	0.0163	0	.033	49.5	10-157	L597399-08	WG615041
Naphthalene	mg/kg	0.0222	0.00130	.033	63.3	22-156	L597399-08	WG615041
Phenanthrene	mg/kg	0.0242	0.00140	.033	69.1	23-164	L597399-08	WG615041
Pyrene	mg/kg	0.0245	0.000930	.033	71.5	12-170	L597399-08	WG615041
2-Fluorobiphenyl					76.18	34-129		WG615041
Nitrobenzene-d5					69.43	14-141		WG615041
p-Terphenyl-d14					69.27	25-139		WG615041
TPH (GC/FID) High Fraction	ppm	77.5	26.0	60	85.8	50-150	L598095-01	WG615468
o-Terphenyl					64.53	50-150		WG615468
Chromium,Hexavalent	mg/kg	0.480	0	20	2.40*	75-125	L597626-06	WG615888

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.264	0.268	106.	32-137	1.56	39	L597552-01	WG615117
Ethylbenzene	mg/kg	0.217	0.227	86.7	10-150	4.41	44	L597552-01	WG615117
Toluene	mg/kg	0.232	0.242	92.9	20-142	3.98	42	L597552-01	WG615117
Total Xylene	mg/kg	0.615	0.646	82.0	16-141	4.97	46	L597552-01	WG615117
a,a,a-Trifluorotoluene(PID)				107.3	54-144				WG615117
TPH (GC/FID) Low Fraction	mg/kg	23.8	24.2	86.6	55-109	1.52	20	L597552-01	WG615117
a,a,a-Trifluorotoluene(FID)				105.1	59-128				WG615117
1-Methylnaphthalene	mg/kg	0.159	0.207	0*	25-155	26.6	27	L596635-01	WG614584
2-Chloronaphthalene	mg/kg	0.119	0.132	72.4	31-153	10.2	22	L596635-01	WG614584
2-Methylnaphthalene	mg/kg	0.124	0.155	11.4*	22-172	22.2	29	L596635-01	WG614584
Acenaphthene	mg/kg	0.178	0.222	0*	43-133	22.2	26	L596635-01	WG614584
Acenaphthylene	mg/kg	0.0727	0.0861	90.0	42-146	16.9	22	L596635-01	WG614584
Anthracene	mg/kg	0.200	0.227	0*	38-153	13.0	27	L596635-01	WG614584
Benzo(a)anthracene	mg/kg	0.120	0.142	30.4*	31-142	16.7	31	L596635-01	WG614584
Benzo(a)pyrene	mg/kg	0.0711	0.0758	97.2	26-152	6.44	32	L596635-01	WG614584
Benzo(b)fluoranthene	mg/kg	0.106	0.110	91.1	10-188	3.63	33	L596635-01	WG614584
Benzo(g,h,i)perylene	mg/kg	0.0180	0.0249	54.4	10-176	32.4*	30	L596635-01	WG614584
Benzo(k)fluoranthene	mg/kg	0.0676	0.0667	129.	22-163	1.42	29	L596635-01	WG614584

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October 05, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Chrysene	mg/kg	0.101	0.113	51.0	26-146	11.6	30	L596635-01	WG614584
Dibenz(a,h)anthracene	mg/kg	0.0194	0.0245	58.8	10-160	23.1	39	L596635-01	WG614584
Fluoranthene	mg/kg	0.341	0.403	0*	23-160	16.7	22	L596635-01	WG614584
Fluorene	mg/kg	0.227	0.182	389.*	44-143	22.1	23	L596635-01	WG614584
Indeno(1,2,3-cd)pyrene	mg/kg	0.0229	0.0293	69.3	10-157	24.7	40	L596635-01	WG614584
Naphthalene	mg/kg	0.468	0.627	0*	22-156	29.0*	27	L596635-01	WG614584
Phenanthrene	mg/kg	0.107	0.142	0*	23-164	27.9*	25	L596635-01	WG614584
Pyrene	mg/kg	0.277	0.308	0*	12-170	10.7	24	L596635-01	WG614584
2-Fluorobiphenyl				138.2*	34-129				WG614584
Nitrobenzene-d5				55.27	14-141				WG614584
p-Terphenyl-d14				119.7	25-139				WG614584
Mercury	mg/kg	0.257	0.251	103.	80-120	2.36	20	L597738-01	WG615250
Barium	mg/kg	67.2	65.8	94.4	75-125	2.11	20	L597738-05	WG615131
Boron	mg/kg	44.0	43.6	84.4	75-125	0.913	20	L597738-05	WG615131
Cadmium	mg/kg	45.9	45.7	91.8	75-125	0.437	20	L597738-05	WG615131
Chromium	mg/kg	55.9	53.6	97.4	75-125	4.20	20	L597738-05	WG615131
Copper	mg/kg	51.4	51.6	95.0	75-125	0.388	20	L597738-05	WG615131
Iron	mg/kg	10300	9690	1220*	75-125	6.10	20	L597738-05	WG615131
Lead	mg/kg	48.1	46.9	93.2	75-125	2.53	20	L597738-05	WG615131
Nickel	mg/kg	53.2	51.8	89.4	75-125	2.67	20	L597738-05	WG615131
Selenium	mg/kg	46.4	45.4	86.8	75-125	2.18	20	L597738-05	WG615131
Silver	mg/kg	44.2	44.6	88.4	75-125	0.901	20	L597738-05	WG615131
Zinc	mg/kg	57.2	56.4	97.6	75-125	1.41	20	L597738-05	WG615131
Arsenic	mg/kg	43.3	43.5	86.6	75-125	0.461	20	L597738-05	WG615131
Mercury	mg/kg	0.275	0.266	110.	80-120	3.33	20	L597626-02	WG615249
1-Methylnaphthalene	mg/kg	0.0272	0.0233	79.6	25-155	15.5	27	L597399-08	WG615041
2-Chloronaphthalene	mg/kg	0.0279	0.0235	84.4	31-153	16.9	22	L597399-08	WG615041
2-Methylnaphthalene	mg/kg	0.0276	0.0240	79.8	22-172	14.2	29	L597399-08	WG615041
Acenaphthene	mg/kg	0.0269	0.0236	81.5	43-133	13.0	26	L597399-08	WG615041
Acenaphthylene	mg/kg	0.0282	0.0241	85.5	42-146	15.7	22	L597399-08	WG615041
Anthracene	mg/kg	0.0296	0.0251	89.8	38-153	16.8	27	L597399-08	WG615041
Benzo(a)anthracene	mg/kg	0.0284	0.0238	86.1	31-142	17.8	31	L597399-08	WG615041
Benzo(a)pyrene	mg/kg	0.0312	0.0269	94.7	26-152	15.1	32	L597399-08	WG615041
Benzo(b)fluoranthene	mg/kg	0.0325	0.0290	98.4	10-188	11.2	33	L597399-08	WG615041
Benzo(g,h,i)perylene	mg/kg	0.0122	0.00982	37.0	10-176	21.7	30	L597399-08	WG615041
Benzo(k)fluoranthene	mg/kg	0.0291	0.0249	88.3	22-163	15.8	29	L597399-08	WG615041
Chrysene	mg/kg	0.0281	0.0246	85.2	26-146	13.4	30	L597399-08	WG615041
Dibenz(a,h)anthracene	mg/kg	0.0194	0.0161	58.8	10-160	18.6	39	L597399-08	WG615041
Fluoranthene	mg/kg	0.0290	0.0248	87.9	23-160	15.7	22	L597399-08	WG615041
Fluorene	mg/kg	0.0279	0.0239	84.5	44-143	15.5	23	L597399-08	WG615041
Indeno(1,2,3-cd)pyrene	mg/kg	0.0200	0.0163	60.5	10-157	20.0	40	L597399-08	WG615041
Naphthalene	mg/kg	0.0263	0.0222	75.7	22-156	16.9	27	L597399-08	WG615041
Phenanthrene	mg/kg	0.0280	0.0242	80.7	23-164	14.6	25	L597399-08	WG615041
Pyrene	mg/kg	0.0296	0.0245	86.8	12-170	18.6	24	L597399-08	WG615041
2-Fluorobiphenyl				85.68	34-129				WG615041
Nitrobenzene-d5				78.44	14-141				WG615041
p-Terphenyl-d14				80.30	25-139				WG615041
TPH (GC/FID) High Fraction	ppm	78.9	77.5	88.2	50-150	1.77	25	L598095-01	WG615468
o-Terphenyl				67.51	50-150				WG615468

* Performance of this Analyte is outside of established criteria.

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



YOUR LAB OF CHOICE

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

Denver, CO 80202

Quality Assurance Report
Level II

L597626

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

October 05, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Chromium,Hexavalent	mg/kg	0.520	0.480	2.60*	75-125	8.00	20	L597626-06	WG615888	

Batch number /Run number / Sample number cross reference

WG615117: R2369593: L597626-01 02 03 04 05 06
WG615168: R2370494: L597626-02 03 04 05 06
WG614584: R2370633: L597626-05 06
WG615250: R2370694: L597626-03 04 05 06
WG615132: R2370893: L597626-01 02 03 04 05 06
WG615056: R2370936: L597626-01 02 03 04 05 06
WG615131: R2370995: L597626-01 02 03 04 05 06
WG615249: R2371313: L597626-01 02
WG615041: R2371693: L597626-01 02 03 04
WG615468: R2374693: L597626-01
WG616089: R2375993: L597626-01 02 03 04 05 06
WG616082: R2376155: L597626-01 02 03 04 05 06
WG615888: R2376553: L597626-01 02 03 04 05 06

* * 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.

