



PROJECT NO:	012-1538
DRAWN BY:	KJG
DATE:	5/10/13

Landfarm Sampling Diagram
Location: MV 25-17
 WPX Energy Rocky Mountain, LLC



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FIGURE
 1

Technical Report for

WPX Energy Rocky Mountain, LLC

CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

NXEPPARACH

Accutest Job Number: D50288

Sampling Date: 09/06/13

Report to:

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Total number of pages in report: 45



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.



Scott Heideman
Laboratory Director

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Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D50288

CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up
Project No: NXEPPARACH

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D50288-1	09/06/13	12:35 JS	09/07/13	SO	Soil	MV 25-17 LF 1-1(0-6IN)
D50288-2	09/06/13	12:40 JS	09/07/13	SO	Soil	MV 25-17 LF 1-3(0-6IN)
D50288-3	09/06/13	12:45 JS	09/07/13	SO	Soil	MV 25-17 LF 1-5(0-6IN)
D50288-4	09/06/13	12:50 JS	09/07/13	SO	Soil	MV 25-17 LF 1-7(0-6IN)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: WPX Energy Rocky Mountain, LLC

Job No D50288

Site: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Report Date 9/11/2013 3:59:01 PM

On 09/07/2013, 4 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D50288 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO	Batch ID: V5V1747
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D50287-1MS, D50287-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO	Batch ID: OP8528
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D50213-1MS, D50213-1MSD were used as the QC samples indicated.

Matrix SO	Batch ID: OP8550
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D50288-3MS, D50288-3MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO	Batch ID: GGB1212
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D50287-1MS, D50287-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP8527
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D50216-1MS, D50216-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM2540B-2011 M

Matrix SO	Batch ID: GN21815
------------------	--------------------------

- The data for SM2540B-2011 M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D50288
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up
Collected: 09/06/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D50288-1	MV 25-17 LF 1-1(0-6IN)					
Naphthalene		14.9	13	12	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		6.26 J	12	6.1	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		118	7.4	5.6	mg/kg	SW846-8015B
D50288-2	MV 25-17 LF 1-3(0-6IN)					
Fluorene		7.8 J	9.1	5.4	ug/kg	SW846 8270C BY SIM
Naphthalene		43.8	13	11	ug/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)		90.5	7.3	5.4	mg/kg	SW846-8015B
D50288-3	MV 25-17 LF 1-5(0-6IN)					
Naphthalene		50.2	13	12	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		12.1	12	6.2	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		105	7.5	5.6	mg/kg	SW846-8015B
D50288-4	MV 25-17 LF 1-7(0-6IN)					
Fluorene		6.8 J	9.2	5.5	ug/kg	SW846 8270C BY SIM
Naphthalene		15.9	13	11	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		6.61 J	12	6.1	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		74.9	7.4	5.5	mg/kg	SW846-8015B

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: MV 25-17 LF 1-1(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-1	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 89.7
Method: SW846 8260B	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29006.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.08 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	61	30	ug/kg	
108-88-3	Toluene	ND	120	61	ug/kg	
100-41-4	Ethylbenzene	ND	120	23	ug/kg	
1330-20-7	Xylene (total)	ND	240	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		64-130%
460-00-4	4-Bromofluorobenzene	103%		62-131%
17060-07-0	1,2-Dichloroethane-D4	100%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
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Report of Analysis

Client Sample ID: MV 25-17 LF 1-1(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-1	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 89.7
Method: SW846 8270C BY SIM SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16259.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.3	4.8	ug/kg	
120-12-7	Anthracene	ND	9.3	4.8	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.3	4.8	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.3	4.8	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.3	4.8	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.3	4.8	ug/kg	
218-01-9	Chrysene	ND	9.3	4.8	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.3	4.8	ug/kg	
206-44-0	Fluoranthene	ND	9.3	4.8	ug/kg	
86-73-7	Fluorene	ND	9.3	5.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.3	4.8	ug/kg	
91-20-3	Naphthalene	14.9	13	12	ug/kg	
129-00-0	Pyrene	ND	9.3	4.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		10-175%
321-60-8	2-Fluorobiphenyl	57%		25-130%
1718-51-0	Terphenyl-d14	77%		41-133%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MV 25-17 LF 1-1(0-6IN)	
Lab Sample ID: D50288-1	Date Sampled: 09/06/13
Matrix: SO - Soil	Date Received: 09/07/13
Method: SW846 8015B	Percent Solids: 89.7
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22020.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	6.26	12	6.1	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	82%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-1(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-1	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 89.7
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28505.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	118	7.4	5.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	68%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-3(0-6IN)		Date Sampled: 09/06/13
Lab Sample ID: D50288-2		Date Received: 09/07/13
Matrix: SO - Soil		Percent Solids: 91.9
Method: SW846 8260B		
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29007.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	58	29	ug/kg	
108-88-3	Toluene	ND	120	58	ug/kg	
100-41-4	Ethylbenzene	ND	120	22	ug/kg	
1330-20-7	Xylene (total)	ND	230	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		64-130%
460-00-4	4-Bromofluorobenzene	98%		62-131%
17060-07-0	1,2-Dichloroethane-D4	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-3(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-2	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 91.9
Method: SW846 8270C BY SIM SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16260.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.1	4.7	ug/kg	
120-12-7	Anthracene	ND	9.1	4.7	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.1	4.7	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.1	4.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.1	4.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.1	4.7	ug/kg	
218-01-9	Chrysene	ND	9.1	4.7	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.1	4.7	ug/kg	
206-44-0	Fluoranthene	ND	9.1	4.7	ug/kg	
86-73-7	Fluorene	7.8	9.1	5.4	ug/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.1	4.7	ug/kg	
91-20-3	Naphthalene	43.8	13	11	ug/kg	
129-00-0	Pyrene	ND	9.1	4.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		10-175%
321-60-8	2-Fluorobiphenyl	77%		25-130%
1718-51-0	Terphenyl-d14	91%		41-133%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-3(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-2	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 91.9
Method: SW846 8015B	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22021.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	12	5.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	88%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-3(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-2	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 91.9
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28507.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	90.5	7.3	5.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	83%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID:	MV 25-17 LF 1-5(0-6IN)	Date Sampled:	09/06/13
Lab Sample ID:	D50288-3	Date Received:	09/07/13
Matrix:	SO - Soil	Percent Solids:	88.7
Method:	SW846 8260B		
Project:	CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29008.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	62	31	ug/kg	
108-88-3	Toluene	ND	120	62	ug/kg	
100-41-4	Ethylbenzene	ND	120	24	ug/kg	
1330-20-7	Xylene (total)	ND	250	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		64-130%
460-00-4	4-Bromofluorobenzene	103%		62-131%
17060-07-0	1,2-Dichloroethane-D4	104%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-5(0-6IN)	
Lab Sample ID: D50288-3	Date Sampled: 09/06/13
Matrix: SO - Soil	Date Received: 09/07/13
Method: SW846 8270C BY SIM SW846 3546	Percent Solids: 88.7
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16299.D	1	09/11/13	DC	09/11/13	OP8550	E3G803
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.4	4.9	ug/kg	
120-12-7	Anthracene	ND	9.4	4.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.4	4.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.4	4.9	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.4	4.9	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.4	4.9	ug/kg	
218-01-9	Chrysene	ND	9.4	4.9	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.4	4.9	ug/kg	
206-44-0	Fluoranthene	ND	9.4	4.9	ug/kg	
86-73-7	Fluorene	ND	9.4	5.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.4	4.9	ug/kg	
91-20-3	Naphthalene	50.2	13	12	ug/kg	
129-00-0	Pyrene	ND	9.4	4.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	70%		10-175%
321-60-8	2-Fluorobiphenyl	62%		25-130%
1718-51-0	Terphenyl-d14	75%		41-133%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
 4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-5(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-3	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 88.7
Method: SW846 8015B	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22022.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	12.1	12	6.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-5(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-3	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 88.7
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28509.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	105	7.5	5.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	63%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-7(0-6IN)		Date Sampled: 09/06/13
Lab Sample ID: D50288-4		Date Received: 09/07/13
Matrix: SO - Soil		Percent Solids: 89.9
Method: SW846 8260B		
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29009.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	61	30	ug/kg	
108-88-3	Toluene	ND	120	61	ug/kg	
100-41-4	Ethylbenzene	ND	120	23	ug/kg	
1330-20-7	Xylene (total)	ND	240	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		64-130%
460-00-4	4-Bromofluorobenzene	101%		62-131%
17060-07-0	1,2-Dichloroethane-D4	102%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID:	MV 25-17 LF 1-7(0-6IN)	Date Sampled:	09/06/13
Lab Sample ID:	D50288-4	Date Received:	09/07/13
Matrix:	SO - Soil	Percent Solids:	89.9
Method:	SW846 8270C BY SIM SW846 3546		
Project:	CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16262.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.2	4.8	ug/kg	
120-12-7	Anthracene	ND	9.2	4.8	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.2	4.8	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.2	4.8	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.2	4.8	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.2	4.8	ug/kg	
218-01-9	Chrysene	ND	9.2	4.8	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.2	4.8	ug/kg	
206-44-0	Fluoranthene	ND	9.2	4.8	ug/kg	
86-73-7	Fluorene	6.8	9.2	5.5	ug/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.2	4.8	ug/kg	
91-20-3	Naphthalene	15.9	13	11	ug/kg	
129-00-0	Pyrene	ND	9.2	4.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	15%		10-175%
321-60-8	2-Fluorobiphenyl	46%		25-130%
1718-51-0	Terphenyl-d14	83%		41-133%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-7(0-6IN)	
Lab Sample ID: D50288-4	Date Sampled: 09/06/13
Matrix: SO - Soil	Date Received: 09/07/13
Method: SW846 8015B	Percent Solids: 89.9
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22023.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	6.61	12	6.1	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: MV 25-17 LF 1-7(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50288-4	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 89.9
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28511.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	74.9	7.4	5.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	66%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
WWW.accutest.com

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D50288

Client / Reporting Information		Project Information										Requested Analysis (see TEST CODE sheet)										Matrix Codes																											
Company Name Olsson Associates		Project Name: CORCCOG: MV 26-17 Landfarm 1 Pad Surface Follow-Up										<table border="1"> <tr><td>GRO/DRO</td><td>BTEX</td><td>PAH (COGCC Table 910 List)</td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table>										GRO/DRO	BTEX	PAH (COGCC Table 910 List)										<table border="1"> <tr><td>GW - Ground Water</td></tr> <tr><td>WW - Water</td></tr> <tr><td>SW - Surface Water</td></tr> <tr><td>SO - Soil</td></tr> <tr><td>SL - Sludge</td></tr> <tr><td>SED - Sediment</td></tr> <tr><td>OI - Oil</td></tr> <tr><td>LIQ - Other Liquid</td></tr> <tr><td>AIR - Air</td></tr> <tr><td>SOL - Other Solid</td></tr> <tr><td>WP - Wipe</td></tr> <tr><td>FB - Field Blank</td></tr> <tr><td>EB - Equipment Blank</td></tr> <tr><td>RS - Rinse Blank</td></tr> <tr><td>TB - Trip Blank</td></tr> </table>	GW - Ground Water	WW - Water	SW - Surface Water	SO - Soil	SL - Sludge	SED - Sediment	OI - Oil	LIQ - Other Liquid	AIR - Air	SOL - Other Solid	WP - Wipe	FB - Field Blank	EB - Equipment Blank	RS - Rinse Blank	TB - Trip Blank
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Street Address 780 Horizon Drive, STE 102		Street		Billing Information (If different from Report to)								<table border="1"> <tr><td>Company Name</td></tr> <tr><td>WPX Energy Rocky Mountain, LLC (WILLCOP)</td></tr> <tr><td>Street Address</td></tr> <tr><td>1058 County Road 216</td></tr> <tr><td>City</td></tr> <tr><td>Parachute, CO 81635</td></tr> <tr><td>Attention:</td></tr> <tr><td>Leo Braun</td></tr> <tr><td>Email Invoices: Leo.Braun@wpxenergy.com</td></tr> </table>	Company Name	WPX Energy Rocky Mountain, LLC (WILLCOP)	Street Address	1058 County Road 216	City	Parachute, CO 81635	Attention:	Leo Braun	Email Invoices: Leo.Braun@wpxenergy.com																												
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City Grand Junction, CO 81506		City		State																																													
Project Contact Tim Dobransky tdobransky@olssonassociates.c		Project #		Client Purchase Order #																																													
Phone # 970-263-7800		Project Manager																																															
Sampler(s) Name(s) J. Sutrina		Project Manager																																															
Field ID / Point of Collection		MECH/DI Val #		Date		Time		Sampled by		Matrix		# of bottles		Number of preserved bottles										LAB USE ONLY																									
MV 25-17 LF 1-1 (0-0 in)				9/10/13		1235		JS		SO		1												01																									
MV 25-17 LF 1-3 (0-0 in)				↓		1240		↓		↓		↓												02																									
MV 25-17 LF 1-5 (0-0 in)				↓		1245		↓		↓		↓												03																									
MV 25-17 LF 1-7 (0-0 in)				9/10/13		1250		JS		SO		1												04																									

Turnaround Time (Business days)		Data Deliverable Information										Comments / Special Instructions											
<input type="checkbox"/> 5 Business Day Std. (per contract) <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input checked="" type="checkbox"/> 1 Day Emergency <input type="checkbox"/> Emergency & Rush T/A data available via Lablink		Approved By (Accutest PM): / Date: JGM 12/6/12		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMBN <input type="checkbox"/> COMMBN+ <input type="checkbox"/> Commercial "A" = Results Only <input type="checkbox"/> Commercial "B" = Results + QC Summary <input type="checkbox"/> Commercial "B" = Results/Qualitative (+ = chromatograms)										<input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF <input type="checkbox"/> EDD Format Also email final report to: Karolina.Slaney@wpxenergy.com PLEASE RUSH 24 HR TAT									
Relinquished by Sampler: 1 [Signature]		Date Time: 9/10/13 1500		Received By: 1 [Signature] Risk Service Center										Date Time: 9/17/13 1000									
Relinquished by Sampler: 3 [Signature]		Date Time:		Received By: 3 [Signature]										Date Time:									
Relinquished by: 6		Date Time:		Received By: 6										Date Time:									
				Custody Seal # FX										<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact <input checked="" type="checkbox"/> Preserved where applicable <input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. 45									

D50288: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D50288

Client: OLSSON ASS.

Immediate Client Services Action Required: No

Date / Time Received: 9/7/2013 10:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: MV 25-17 LANDFARM 1 PAD SURFACE

Airbill #'s: Fedex

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smp'l Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	Infrared gun	
3. Cooler media:	Ice (bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

5.1
5

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1747-MB	5V29001.D	1	09/09/13	BD	n/a	n/a	V5V1747

The QC reported here applies to the following samples:

Method: SW846 8260B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
2037-26-5	Toluene-D8	98%	64-130%
460-00-4	4-Bromofluorobenzene	87%	62-131%
17060-07-0	1,2-Dichloroethane-D4	106%	70-130%

Blank Spike Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1747-BS	5V29002.D	1	09/09/13	BD	n/a	n/a	V5V1747

The QC reported here applies to the following samples:

Method: SW846 8260B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2520	101	70-130
100-41-4	Ethylbenzene	2500	2560	102	70-130
108-88-3	Toluene	2500	2480	99	70-130
1330-20-7	Xylene (total)	7500	8100	108	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	98%	64-130%
460-00-4	4-Bromofluorobenzene	101%	62-131%
17060-07-0	1,2-Dichloroethane-D4	97%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D50287-1MS	5V29004.D	1	09/09/13	BD	n/a	n/a	V5V1747
D50287-1MSD	5V29005.D	1	09/09/13	BD	n/a	n/a	V5V1747
D50287-1	5V29003.D	1	09/09/13	BD	n/a	n/a	V5V1747

The QC reported here applies to the following samples:

Method: SW846 8260B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	D50287-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
71-43-2	Benzene	ND		3190	3310	104	3330	105	1	64-139/30
100-41-4	Ethylbenzene	51.1	J	3190	3160	98	3260	101	3	68-136/30
108-88-3	Toluene	114	J	3190	3030	92	3100	94	2	60-130/30
1330-20-7	Xylene (total)	136	J	9560	10200	105	10300	106	1	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D50287-1	Limits
2037-26-5	Toluene-D8	91%	92%	91%	64-130%
460-00-4	4-Bromofluorobenzene	110%	107%	99%	62-131%
17060-07-0	1,2-Dichloroethane-D4	98%	93%	97%	70-130%

* = Outside of Control Limits.

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8528-MB	3G16252.D	1	09/09/13	DC	09/07/13	OP8528	E3G801

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50288-1, D50288-2, D50288-4

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.3	4.3	ug/kg	
120-12-7	Anthracene	ND	8.3	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.3	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.3	4.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.3	4.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	46% 10-159%
321-60-8	2-Fluorobiphenyl	52% 19-131%
1718-51-0	Terphenyl-d14	70% 18-150%

Method Blank Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8550-MB	3G16297.D	1	09/11/13	DC	09/11/13	OP8550	E3G803

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50288-3

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.3	4.3	ug/kg	
120-12-7	Anthracene	ND	8.3	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.3	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.3	4.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.3	4.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	75% 10-175%
321-60-8	2-Fluorobiphenyl	79% 25-130%
1718-51-0	Terphenyl-d14	91% 41-133%

Blank Spike Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8528-BS	3G16253.D	1	09/09/13	DC	09/07/13	OP8528	E3G801

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50288-1, D50288-2, D50288-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	51.6	62	55-130
120-12-7	Anthracene	83.3	61.8	74	60-130
56-55-3	Benzo(a)anthracene	83.3	69.6	84	62-130
205-99-2	Benzo(b)fluoranthene	83.3	62.1	75	55-130
207-08-9	Benzo(k)fluoranthene	83.3	54.4	65	59-130
50-32-8	Benzo(a)pyrene	83.3	61.9	74	64-130
218-01-9	Chrysene	83.3	61.6	74	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	62.3	75	56-130
206-44-0	Fluoranthene	83.3	61.6	74	59-130
86-73-7	Fluorene	83.3	60.4	72	58-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	64.1	77	60-130
91-20-3	Naphthalene	83.3	47.6	57	56-130
129-00-0	Pyrene	83.3	67.5	81	65-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	61%	10-175%
321-60-8	2-Fluorobiphenyl	61%	25-130%
1718-51-0	Terphenyl-d14	87%	41-133%

* = Outside of Control Limits.

7.2.1
 7

Blank Spike Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8550-BS	3G16298.D	1	09/11/13	DC	09/11/13	OP8550	E3G803

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50288-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	55.1	66	55-130
120-12-7	Anthracene	83.3	60.6	73	60-130
56-55-3	Benzo(a)anthracene	83.3	55.7	67	62-130
205-99-2	Benzo(b)fluoranthene	83.3	57.6	69	55-130
207-08-9	Benzo(k)fluoranthene	83.3	62.6	75	59-130
50-32-8	Benzo(a)pyrene	83.3	59.4	71	64-130
218-01-9	Chrysene	83.3	60.2	72	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	58.0	70	56-130
206-44-0	Fluoranthene	83.3	57.4	69	59-130
86-73-7	Fluorene	83.3	58.0	70	58-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	58.5	70	60-130
91-20-3	Naphthalene	83.3	58.9	71	56-130
129-00-0	Pyrene	83.3	58.8	71	65-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	84%	10-175%
321-60-8	2-Fluorobiphenyl	76%	25-130%
1718-51-0	Terphenyl-d14	88%	41-133%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8528-MS	3G16255.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
OP8528-MSD	3G16256.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
D50213-1	3G16254.D	1	09/09/13	DC	09/07/13	OP8528	E3G801

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50288-1, D50288-2, D50288-4

CAS No.	Compound	D50213-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		92.9	50.3	54	45.6	49	10	29-139/30
120-12-7	Anthracene	ND		92.9	70.7	76	67.3	72	5	10-182/30
56-55-3	Benzo(a)anthracene	ND		92.9	89.8	97	83.6	90	7	35-149/30
205-99-2	Benzo(b)fluoranthene	ND		92.9	80.1	86	77.8	84	3	22-174/30
207-08-9	Benzo(k)fluoranthene	ND		92.9	62.7	67	59.6	64	5	10-185/30
50-32-8	Benzo(a)pyrene	ND		92.9	78.3	84	75.1	81	4	10-168/30
218-01-9	Chrysene	5.1	J	92.9	76.1	76	71.1	71	7	10-168/30
53-70-3	Dibenzo(a,h)anthracene	ND		92.9	78.6	85	74.9	81	5	12-160/30
206-44-0	Fluoranthene	ND		92.9	89.4	96	84.7	91	5	20-156/30
86-73-7	Fluorene	11.5		92.9	82.5	76	75.2	69	9	10-164/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		92.9	79.4	85	75.3	81	5	29-136/30
91-20-3	Naphthalene	23.4		92.9	74.3	55	71.5	52	4	10-258/30
129-00-0	Pyrene	ND		92.9	83.9	90	79.6	86	5	10-196/30

CAS No.	Surrogate Recoveries	MS	MSD	D50213-1	Limits
4165-60-0	Nitrobenzene-d5	51%	48%	39%	10-175%
321-60-8	2-Fluorobiphenyl	49%	45%	54%	25-130%
1718-51-0	Terphenyl-d14	74%	74%	76%	41-133%

* = Outside of Control Limits.

7.3.1
 7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8550-MS	3G16300.D	1	09/11/13	DC	09/11/13	OP8550	E3G803
OP8550-MSD	3G16301.D	1	09/11/13	DC	09/11/13	OP8550	E3G803
D50288-3	3G16299.D	1	09/11/13	DC	09/11/13	OP8550	E3G803

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50288-3

CAS No.	Compound	D50288-3 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND	93.9	51.5	55	59.5	63	14	29-139/30	
120-12-7	Anthracene	ND	93.9	55.9	59	62.8	67	12	10-182/30	
56-55-3	Benzo(a)anthracene	ND	93.9	57.3	61	63.7	68	11	35-149/30	
205-99-2	Benzo(b)fluoranthene	ND	93.9	57.8	62	64.2	68	10	22-174/30	
207-08-9	Benzo(k)fluoranthene	ND	93.9	57.6	61	62.6	67	8	10-185/30	
50-32-8	Benzo(a)pyrene	ND	93.9	57.2	61	63.8	68	11	10-168/30	
218-01-9	Chrysene	ND	93.9	55.9	59	61.7	66	10	10-168/30	
53-70-3	Dibenzo(a,h)anthracene	ND	93.9	54.0	57	58.4	62	8	12-160/30	
206-44-0	Fluoranthene	ND	93.9	57.8	62	65.5	70	12	20-156/30	
86-73-7	Fluorene	ND	93.9	67.4	72	78.0	83	15	10-164/30	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	93.9	52.5	56	56.9	61	8	29-136/30	
91-20-3	Naphthalene	50.2	93.9	145	101	151	107	4	10-258/30	
129-00-0	Pyrene	ND	93.9	57.7	61	66.4	71	14	10-196/30	

CAS No.	Surrogate Recoveries	MS	MSD	D50288-3	Limits
4165-60-0	Nitrobenzene-d5	58%	65%	70%	10-175%
321-60-8	2-Fluorobiphenyl	60%	64%	62%	25-130%
1718-51-0	Terphenyl-d14	71%	78%	75%	41-133%

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1212-MB	GB22014.D	1	09/09/13	EV	n/a	n/a	GGB1212

The QC reported here applies to the following samples:

Method: SW846 8015B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	89% 60-140%

Blank Spike Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1212-BS	GB22015.D	1	09/09/13	EV	n/a	n/a	GGB1212

The QC reported here applies to the following samples:

Method: SW846 8015B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	111	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	96%	60-140%

8.2.1

8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D50287-1MS	GB22017.D	1	09/09/13	EV	n/a	n/a	GGB1212
D50287-1MSD	GB22018.D	1	09/09/13	EV	n/a	n/a	GGB1212
D50287-1	GB22016.D	1	09/09/13	EV	n/a	n/a	GGB1212

The QC reported here applies to the following samples: Method: SW846 8015B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	D50287-1 mg/kg	Spike Q	mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	7.92	J	140	145	98	145	98	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D50287-1	Limits
120-82-1	1,2,4-Trichlorobenzene	99%	96%	86%	60-140%

8.3.1
8

* = Outside of Control Limits.

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8527-MB	FD28493.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382

The QC reported here applies to the following samples:

Method: SW846-8015B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	80% 35-130%

9.1.1
9

Blank Spike Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8527-BS	FD28495.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382

The QC reported here applies to the following samples:

Method: SW846-8015B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	864	130	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	74%	35-130%

9.2.1

9

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50288
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 1 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8527-MS	FD28497.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
OP8527-MSD	FD28499.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
D50216-1	FD28501.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382

The QC reported here applies to the following samples: Method: SW846-8015B

D50288-1, D50288-2, D50288-3, D50288-4

CAS No.	Compound	D50216-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	52.9	729	732	93	981	127	29	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D50216-1	Limits
84-15-1	o-Terphenyl	75%	88%	65%	35-130%

9.3.1
9

* = Outside of Control Limits.

Technical Report for

WPX Energy Rocky Mountain, LLC

CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

NXEPPARACH

Accutest Job Number: D50289

Sampling Date: 09/06/13

Report to:

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Total number of pages in report: **42**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.



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Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D50289

CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up
 Project No: NXEPPARACH

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D50289-1	09/06/13	13:30 JS	09/07/13	SO	Soil	MV 25-17 LF 2-11(0-6IN)
D50289-2	09/06/13	13:35 JS	09/07/13	SO	Soil	MV 25-17 LF 2-8(0-6IN)
D50289-3	09/06/13	13:40 JS	09/07/13	SO	Soil	MV 25-17 LF 2-5(0-6IN)
D50289-4	09/06/13	13:45 JS	09/07/13	SO	Soil	MV 25-17 LF 2-2(0-6IN)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: WPX Energy Rocky Mountain, LLC

Job No D50289

Site: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Report Date 9/10/2013 1:23:35 PM

On 09/07/2013, 4 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D50289 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO **Batch ID:** V5V1747

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D50287-1MS, D50287-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP8528

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D50213-1MS, D50213-1MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB1212

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D50287-1MS, D50287-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP8527

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D50216-1MS, D50216-1MSD were used as the QC samples indicated.

Wet Chemistry By Method SM2540B-2011 M

Matrix SO **Batch ID:** GN21815

- The data for SM2540B-2011 M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D50289
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up
Collected: 09/06/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D50289-1	MV 25-17 LF 2-11(0-6IN)					
Fluorene		16.3	9.3	5.6	ug/kg	SW846 8270C BY SIM
Naphthalene		94.3	13	11	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		120	12	6.1	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		173	7.4	5.6	mg/kg	SW846-8015B
D50289-2	MV 25-17 LF 2-8(0-6IN)					
Xylene (total)		1200	230	110	ug/kg	SW846 8260B
Fluorene		8.0 J	8.9	5.3	ug/kg	SW846 8270C BY SIM
Naphthalene		240	12	11	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		32.0	11	5.6	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		81.1	7.1	5.3	mg/kg	SW846-8015B
D50289-3	MV 25-17 LF 2-5(0-6IN)					
Fluorene		8.1 J	9.2	5.5	ug/kg	SW846 8270C BY SIM
Naphthalene		62.1	13	11	ug/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)		64.9	7.4	5.5	mg/kg	SW846-8015B
D50289-4	MV 25-17 LF 2-2(0-6IN)					
TPH-DRO (C10-C28)		63.8	7.2	5.4	mg/kg	SW846-8015B

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: MV 25-17 LF 2-11(0-6IN)		Date Sampled: 09/06/13
Lab Sample ID: D50289-1		Date Received: 09/07/13
Matrix: SO - Soil		Percent Solids: 89.7
Method: SW846 8260B		
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29013.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.09 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	61	30	ug/kg	
108-88-3	Toluene	ND	120	61	ug/kg	
100-41-4	Ethylbenzene	ND	120	23	ug/kg	
1330-20-7	Xylene (total)	ND	240	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		64-130%
460-00-4	4-Bromofluorobenzene	113%		62-131%
17060-07-0	1,2-Dichloroethane-D4	108%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-11(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-1	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 89.7
Method: SW846 8270C BY SIM SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16263.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.3	4.8	ug/kg	
120-12-7	Anthracene	ND	9.3	4.8	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.3	4.8	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.3	4.8	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.3	4.8	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.3	4.8	ug/kg	
218-01-9	Chrysene	ND	9.3	4.8	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.3	4.8	ug/kg	
206-44-0	Fluoranthene	ND	9.3	4.8	ug/kg	
86-73-7	Fluorene	16.3	9.3	5.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.3	4.8	ug/kg	
91-20-3	Naphthalene	94.3	13	11	ug/kg	
129-00-0	Pyrene	ND	9.3	4.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		10-175%
321-60-8	2-Fluorobiphenyl	79%		25-130%
1718-51-0	Terphenyl-d14	92%		41-133%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MV 25-17 LF 2-11(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-1	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 89.7
Method: SW846 8015B	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22024.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	120	12	6.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	94%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-11(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-1	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 89.7
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28513.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	173	7.4	5.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	59%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID:	MV 25-17 LF 2-8(0-6IN)	Date Sampled:	09/06/13
Lab Sample ID:	D50289-2	Date Received:	09/07/13
Matrix:	SO - Soil	Percent Solids:	93.5
Method:	SW846 8260B		
Project:	CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29011.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	56	28	ug/kg	
108-88-3	Toluene	ND	110	56	ug/kg	
100-41-4	Ethylbenzene	ND	110	21	ug/kg	
1330-20-7	Xylene (total)	1200	230	110	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		64-130%
460-00-4	4-Bromofluorobenzene	107%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-8(0-6IN)	
Lab Sample ID: D50289-2	Date Sampled: 09/06/13
Matrix: SO - Soil	Date Received: 09/07/13
Method: SW846 8270C BY SIM SW846 3546	Percent Solids: 93.5
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16264.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.9	4.6	ug/kg	
120-12-7	Anthracene	ND	8.9	4.6	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.9	4.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.9	4.6	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.9	4.6	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.9	4.6	ug/kg	
218-01-9	Chrysene	ND	8.9	4.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.9	4.6	ug/kg	
206-44-0	Fluoranthene	ND	8.9	4.6	ug/kg	
86-73-7	Fluorene	8.0	8.9	5.3	ug/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.9	4.6	ug/kg	
91-20-3	Naphthalene	240	12	11	ug/kg	
129-00-0	Pyrene	ND	8.9	4.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	50%		10-175%
321-60-8	2-Fluorobiphenyl	66%		25-130%
1718-51-0	Terphenyl-d14	81%		41-133%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
 4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-8(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-2	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 93.5
Method: SW846 8015B	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22025.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	32.0	11	5.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	76%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-8(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-2	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 93.5
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28515.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	81.1	7.1	5.3	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	43%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-5(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-3	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 90.0
Method: SW846 8260B	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29012.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	61	30	ug/kg	
108-88-3	Toluene	ND	120	61	ug/kg	
100-41-4	Ethylbenzene	ND	120	23	ug/kg	
1330-20-7	Xylene (total)	ND	240	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		64-130%
460-00-4	4-Bromofluorobenzene	104%		62-131%
17060-07-0	1,2-Dichloroethane-D4	105%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-5(0-6IN)	
Lab Sample ID: D50289-3	Date Sampled: 09/06/13
Matrix: SO - Soil	Date Received: 09/07/13
Method: SW846 8270C BY SIM SW846 3546	Percent Solids: 90.0
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16265.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.2	4.8	ug/kg	
120-12-7	Anthracene	ND	9.2	4.8	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.2	4.8	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.2	4.8	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.2	4.8	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.2	4.8	ug/kg	
218-01-9	Chrysene	ND	9.2	4.8	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.2	4.8	ug/kg	
206-44-0	Fluoranthene	ND	9.2	4.8	ug/kg	
86-73-7	Fluorene	8.1	9.2	5.5	ug/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.2	4.8	ug/kg	
91-20-3	Naphthalene	62.1	13	11	ug/kg	
129-00-0	Pyrene	ND	9.2	4.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		10-175%
321-60-8	2-Fluorobiphenyl	61%		25-130%
1718-51-0	Terphenyl-d14	76%		41-133%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
 4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-5(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-3	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 90.0
Method: SW846 8015B	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22026.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	12	6.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	82%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-5(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-3	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 90.0
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28517.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	64.9	7.4	5.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	71%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-2(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-4	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 93.0
Method: SW846 8260B	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V29010.D	1	09/09/13	BD	n/a	n/a	V5V1747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	57	29	ug/kg	
108-88-3	Toluene	ND	110	57	ug/kg	
100-41-4	Ethylbenzene	ND	110	22	ug/kg	
1330-20-7	Xylene (total)	ND	230	110	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		64-130%
460-00-4	4-Bromofluorobenzene	99%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-2(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-4	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 93.0
Method: SW846 8270C BY SIM SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G16266.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.0	4.7	ug/kg	
120-12-7	Anthracene	ND	9.0	4.7	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.0	4.7	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.0	4.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.0	4.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.0	4.7	ug/kg	
218-01-9	Chrysene	ND	9.0	4.7	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.0	4.7	ug/kg	
206-44-0	Fluoranthene	ND	9.0	4.7	ug/kg	
86-73-7	Fluorene	ND	9.0	5.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.0	4.7	ug/kg	
91-20-3	Naphthalene	ND	13	11	ug/kg	
129-00-0	Pyrene	ND	9.0	4.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	43%		10-175%
321-60-8	2-Fluorobiphenyl	49%		25-130%
1718-51-0	Terphenyl-d14	55%		41-133%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-2(0-6IN)	
Lab Sample ID: D50289-4	Date Sampled: 09/06/13
Matrix: SO - Soil	Date Received: 09/07/13
Method: SW846 8015B	Percent Solids: 93.0
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB22027.D	1	09/09/13	EV	n/a	n/a	GGB1212
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	83%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: MV 25-17 LF 2-2(0-6IN)	Date Sampled: 09/06/13
Lab Sample ID: D50289-4	Date Received: 09/07/13
Matrix: SO - Soil	Percent Solids: 93.0
Method: SW846-8015B SW846 3546	
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD28519.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	63.8	7.2	5.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	77%		35-130%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D50289

Client: OLSSON ASS.

Immediate Client Services Action Required: No

Date / Time Received: 9/7/2013 10:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: MV-25-17 LANDFARM 2 PAD SURFACE

Airbill #'s: Fedex

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smp'l Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	Infrared gun	
3. Cooler media:	Ice (bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1747-MB	5V29001.D	1	09/09/13	BD	n/a	n/a	V5V1747

The QC reported here applies to the following samples:

Method: SW846 8260B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	98% 64-130%
460-00-4	4-Bromofluorobenzene	87% 62-131%
17060-07-0	1,2-Dichloroethane-D4	106% 70-130%

Blank Spike Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1747-BS	5V29002.D	1	09/09/13	BD	n/a	n/a	V5V1747

The QC reported here applies to the following samples:

Method: SW846 8260B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2520	101	70-130
100-41-4	Ethylbenzene	2500	2560	102	70-130
108-88-3	Toluene	2500	2480	99	70-130
1330-20-7	Xylene (total)	7500	8100	108	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	98%	64-130%
460-00-4	4-Bromofluorobenzene	101%	62-131%
17060-07-0	1,2-Dichloroethane-D4	97%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D50287-1MS	5V29004.D	1	09/09/13	BD	n/a	n/a	V5V1747
D50287-1MSD	5V29005.D	1	09/09/13	BD	n/a	n/a	V5V1747
D50287-1	5V29003.D	1	09/09/13	BD	n/a	n/a	V5V1747

The QC reported here applies to the following samples:

Method: SW846 8260B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	D50287-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
71-43-2	Benzene	ND		3190	3310	104	3330	105	1	64-139/30
100-41-4	Ethylbenzene	51.1	J	3190	3160	98	3260	101	3	68-136/30
108-88-3	Toluene	114	J	3190	3030	92	3100	94	2	60-130/30
1330-20-7	Xylene (total)	136	J	9560	10200	105	10300	106	1	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D50287-1	Limits
2037-26-5	Toluene-D8	91%	92%	91%	64-130%
460-00-4	4-Bromofluorobenzene	110%	107%	99%	62-131%
17060-07-0	1,2-Dichloroethane-D4	98%	93%	97%	70-130%

* = Outside of Control Limits.

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8528-MB	3G16252.D	1	09/09/13	DC	09/07/13	OP8528	E3G801

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.3	4.3	ug/kg	
120-12-7	Anthracene	ND	8.3	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.3	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.3	4.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.3	4.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	46% 10-159%
321-60-8	2-Fluorobiphenyl	52% 19-131%
1718-51-0	Terphenyl-d14	70% 18-150%

7.1.1
7

Blank Spike Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8528-BS	3G16253.D	1	09/09/13	DC	09/07/13	OP8528	E3G801

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	51.6	62	55-130
120-12-7	Anthracene	83.3	61.8	74	60-130
56-55-3	Benzo(a)anthracene	83.3	69.6	84	62-130
205-99-2	Benzo(b)fluoranthene	83.3	62.1	75	55-130
207-08-9	Benzo(k)fluoranthene	83.3	54.4	65	59-130
50-32-8	Benzo(a)pyrene	83.3	61.9	74	64-130
218-01-9	Chrysene	83.3	61.6	74	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	62.3	75	56-130
206-44-0	Fluoranthene	83.3	61.6	74	59-130
86-73-7	Fluorene	83.3	60.4	72	58-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	64.1	77	60-130
91-20-3	Naphthalene	83.3	47.6	57	56-130
129-00-0	Pyrene	83.3	67.5	81	65-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	61%	10-175%
321-60-8	2-Fluorobiphenyl	61%	25-130%
1718-51-0	Terphenyl-d14	87%	41-133%

* = Outside of Control Limits.

7.2.1
 7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8528-MS	3G16255.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
OP8528-MSD	3G16256.D	1	09/09/13	DC	09/07/13	OP8528	E3G801
D50213-1	3G16254.D	1	09/09/13	DC	09/07/13	OP8528	E3G801

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	D50213-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		92.9	50.3	54	45.6	49	10	29-139/30
120-12-7	Anthracene	ND		92.9	70.7	76	67.3	72	5	10-182/30
56-55-3	Benzo(a)anthracene	ND		92.9	89.8	97	83.6	90	7	35-149/30
205-99-2	Benzo(b)fluoranthene	ND		92.9	80.1	86	77.8	84	3	22-174/30
207-08-9	Benzo(k)fluoranthene	ND		92.9	62.7	67	59.6	64	5	10-185/30
50-32-8	Benzo(a)pyrene	ND		92.9	78.3	84	75.1	81	4	10-168/30
218-01-9	Chrysene	5.1	J	92.9	76.1	76	71.1	71	7	10-168/30
53-70-3	Dibenzo(a,h)anthracene	ND		92.9	78.6	85	74.9	81	5	12-160/30
206-44-0	Fluoranthene	ND		92.9	89.4	96	84.7	91	5	20-156/30
86-73-7	Fluorene	11.5		92.9	82.5	76	75.2	69	9	10-164/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		92.9	79.4	85	75.3	81	5	29-136/30
91-20-3	Naphthalene	23.4		92.9	74.3	55	71.5	52	4	10-258/30
129-00-0	Pyrene	ND		92.9	83.9	90	79.6	86	5	10-196/30

CAS No.	Surrogate Recoveries	MS	MSD	D50213-1	Limits
4165-60-0	Nitrobenzene-d5	51%	48%	39%	10-175%
321-60-8	2-Fluorobiphenyl	49%	45%	54%	25-130%
1718-51-0	Terphenyl-d14	74%	74%	76%	41-133%

* = Outside of Control Limits.

7.3.1
 7

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1212-MB	GB22014.D	1	09/09/13	EV	n/a	n/a	GGB1212

The QC reported here applies to the following samples: Method: SW846 8015B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	89% 60-140%

8.1.1
8

Blank Spike Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1212-BS	GB22015.D	1	09/09/13	EV	n/a	n/a	GGB1212

The QC reported here applies to the following samples:

Method: SW846 8015B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	111	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	96%	60-140%

8.2.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D50287-1MS	GB22017.D	1	09/09/13	EV	n/a	n/a	GGB1212
D50287-1MSD	GB22018.D	1	09/09/13	EV	n/a	n/a	GGB1212
D50287-1	GB22016.D	1	09/09/13	EV	n/a	n/a	GGB1212

The QC reported here applies to the following samples:

Method: SW846 8015B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	D50287-1 mg/kg	Spike Q	mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	7.92	J	140	145	98	145	98	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D50287-1	Limits
120-82-1	1,2,4-Trichlorobenzene	99%	96%	86%	60-140%

8.3.1
8

* = Outside of Control Limits.

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8527-MB	FD28493.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382

The QC reported here applies to the following samples:

Method: SW846-8015B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	80% 35-130%

9.1.1
9

Blank Spike Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8527-BS	FD28495.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382

The QC reported here applies to the following samples:

Method: SW846-8015B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	864	130	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	74%	35-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D50289
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: MV 25-17 Landfarm 2 Pad Surface Follow-Up

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8527-MS	FD28497.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
OP8527-MSD	FD28499.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382
D50216-1	FD28501.D	1	09/08/13	TU	09/07/13	OP8527	GFD1382

The QC reported here applies to the following samples: Method: SW846-8015B

D50289-1, D50289-2, D50289-3, D50289-4

CAS No.	Compound	D50216-1 mg/kg	Spike Q	mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	52.9	729	732	93	981	127	29	20-168/30	

CAS No.	Surrogate Recoveries	MS	MSD	D50216-1	Limits
84-15-1	o-Terphenyl	75%	88%	65%	35-130%

9.3.1
9

* = Outside of Control Limits.