

State of Colorado
Oil and Gas Conservation Commission

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



FOR OGCC USE ONLY

RECEIVED
7/31/2013

SPILL/RELEASE REPORT

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and

Spill report taken by:

FACILITY ID:

OPERATOR INFORMATION

Name of Operator: <u>Kerr-McGee Oil and Gas Onshore, LP</u> OGCC Operator No: <u>47120</u>	Phone Numbers
Address: <u>1099 18th Street, Suite 1800</u>	No: <u>720-929-6000</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80202</u>	Fax: <u>720-929-7726</u>
Contact Person: <u>Paul Schneider</u>	Email: <u>paul.schneider@anadarko.com</u>

DESCRIPTION OF SPILL OR RELEASE

Date of Incident: <u>7/21/2013</u> Facility Name & No: <u>Eisenach & Preston 8-1K, Eisenach & Preston 8-8K</u>	County: <u>Weld</u>
Type of Facility (well, tank battery, flow line, pit): <u>Production Facility</u>	QtrQtr: <u>NENE</u> Section: <u>8</u>
Well Name and Number: <u>Eisenach & Preston 8-1K</u>	Township: <u>3N</u> Range: <u>66W</u>
API Number: <u>05-123-15092</u>	Meridian: <u>6th</u>

Specify volume spilled and recovered (in bbls) for the following materials:

Oil spilled: Unknown Oil recov'd: 0 Water spilled: Unknown Water recov'd: 0 Other spilled: 0 Other recov'd: 0

Ground Water impacted? Yes No Surface Water impacted? Yes No

Contained within berm? Yes No Area and vertical extent of spill: 540 ft² x 4' bgs

Current land use: Pasture Weather conditions: High 80s

Soil/geology description: Sand and gravel to 4' bgs

IF LESS THAN A MILE, report distance IN FEET to nearest ... Surface water: ~420' SW Wetlands: NA Buildings: ~790' SE
Livestock: 20' N Water wells: ~815' N Depth to shallowest ground water: ~4' bgs

Cause of spill (e.g. equipment failure, human error, etc.): Historic Impacts

Detailed description of the spill/release incident:
On July 19, 2013, a historic release was discovered below the partially-buried sump during the abandonment of the tank battery. There was no indication of leaking tanks, dumlplines, or fittings. A topographic map of the site is included as Figure 1.

CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered):
Excavation activities of impacted material occurred between July 19, 2013 and July 24, 2013. Approximately 80 cubic yards (yd³) of impacted material was removed and transported to the Kerr-McGee land treatment facility in Weld County. The location and extent of the excavation is illustrated on Figure 2.

Describe any emergency pits constructed: NA

How was the extent of contamination determined?
On July 19, 2013, soil samples were collected from the sidewalls of the excavation and submitted to Summit Scientific Laboratories in Golden, Colorado for laboratory analysis of BTEX and TPH. Laboratory results from the confirmation soil samples indicate concentrations were below the COGCC Table 910-1 standards for all samples, with the exception of the eastern sidewall of the excavation (E01@3'). The excavation was extended to the east an additional 10 feet and a confirmation soil sample (E02@3') was collected from the east sidewall on July 24, 2013. Sample E02@3' indicated concentrations were below the Table 910-1 standards. A groundwater sample (GW01) was also collected July 19, 2013 and submitted to Summit Scientific Laboratories in Golden, Colorado for laboratory analysis of BTEX. GW01 contained concentrations of benzene at 1700 ug/L, exceeding the Colorado Groundwater Quality Standards (CGWQS). The groundwater was sampled again on July 24, 2013 after the excavation was expanded. Benzene concentrations in the second sample (GW02) were above the CGWQS with a concentration of 130 ug/L. A drain tile trending north-south was exposed within the excavation at a depth of 4 feet below ground surface. The end point of the drain is unknown, so as a precaution, a surface water sample (SW01) was collected from a pond approximately 600 feet northeast of the former sump location on July 24, 2013 and analyzed for BTEX. Surface water analytical results indicated that concentrations were below laboratory detection limits. A summary of soil sample analytical data is presented in Table 1 and a summary of water sample analytical data is presented in Table 2. The extent of the excavation and soil, groundwater, and surface water sample locations are illustrated on Figure 2.

Further remediation activities proposed (attach separate sheet if needed):
Will be provided in a Form 27.

Describe measures taken to prevent problem from reoccurring:
The new tank battery will be constructed with a geosynthetic liner and polyethylene dumlplines.

OTHER NOTIFICATIONS

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact	Phone	Response

Spill/Release Tracking No: **2145652**

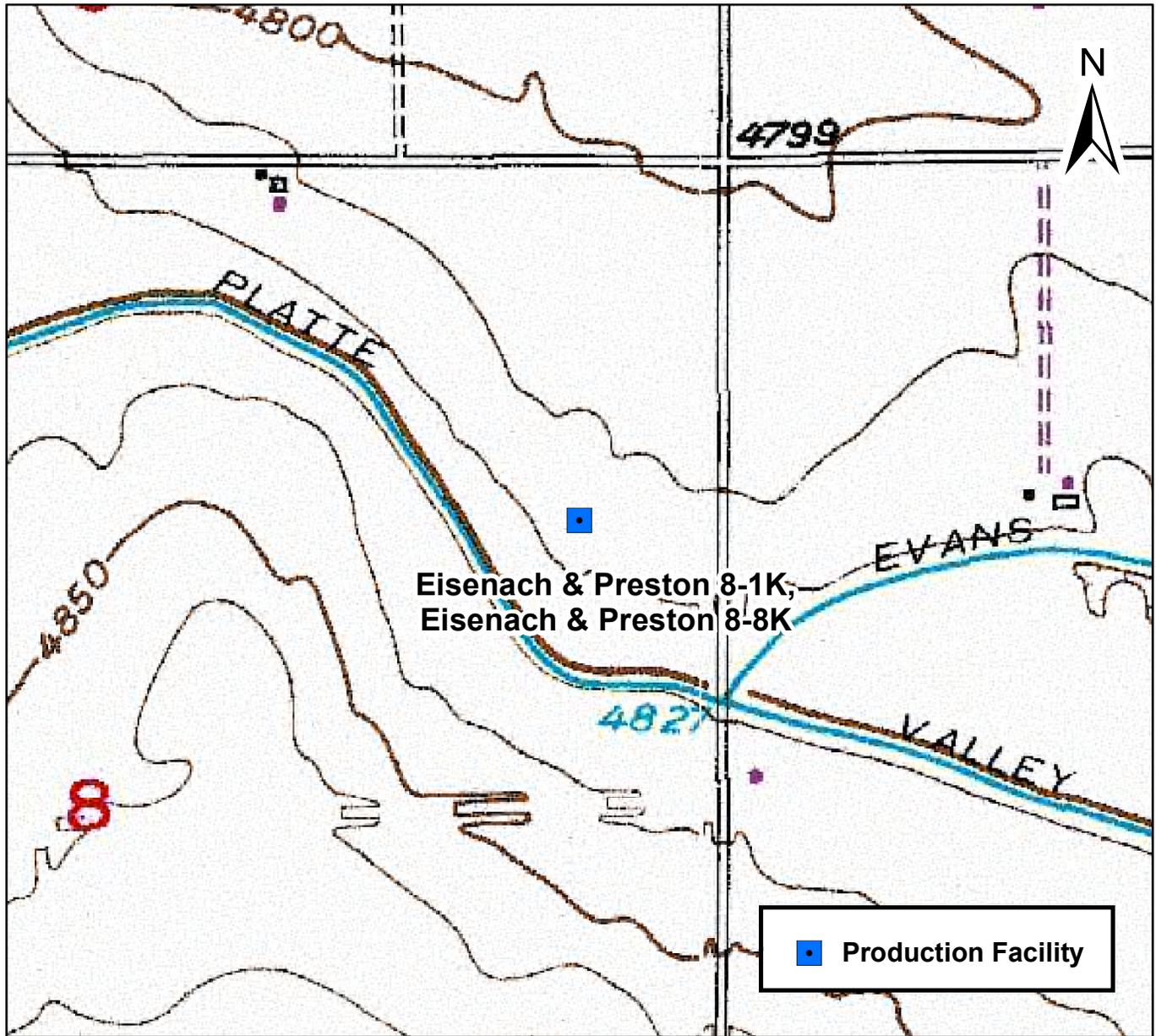
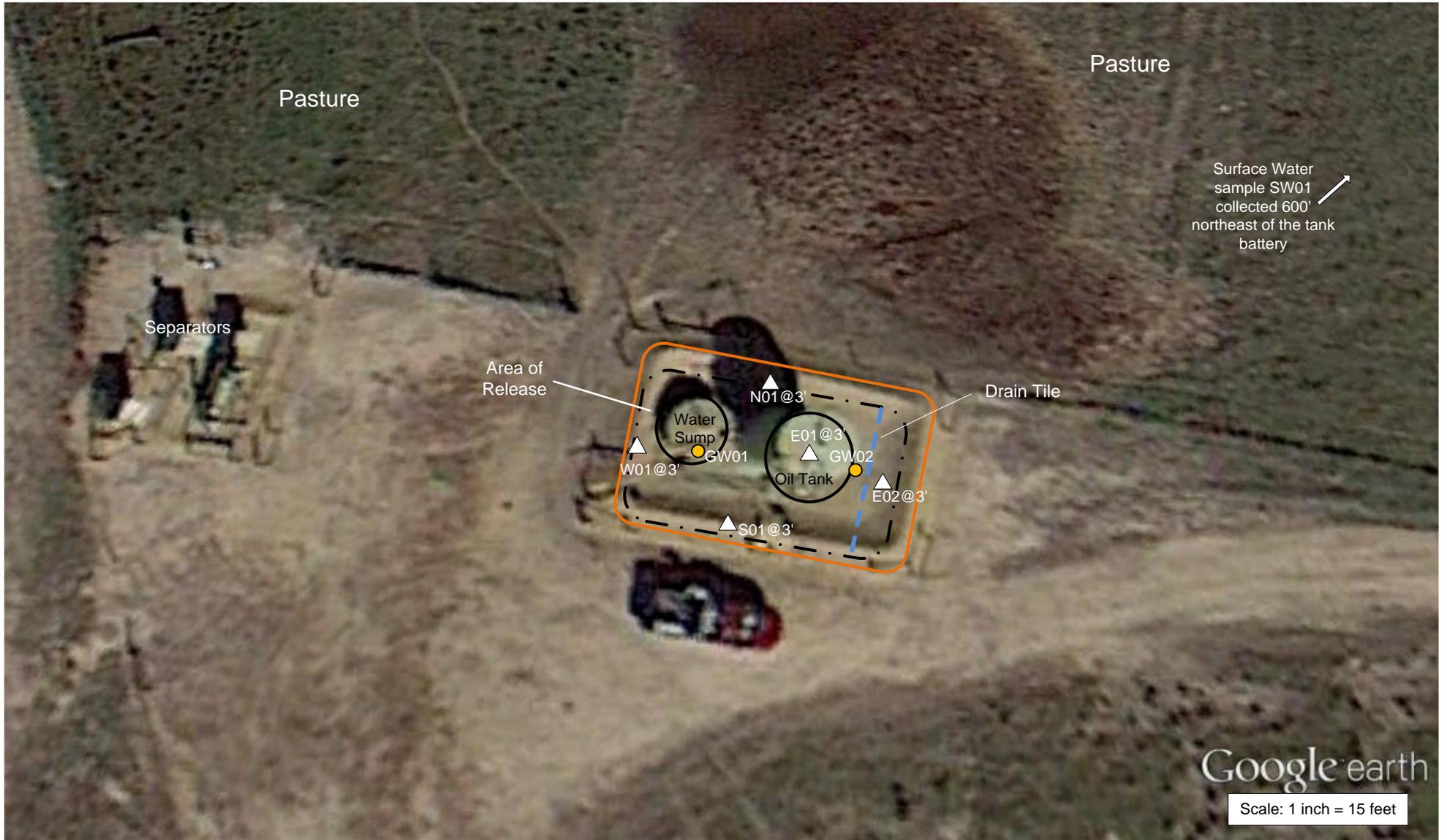


Figure 1

Site Location Map
 Eisenach & Preston 8-1K,
 Eisenach & Preston 8-8K
 NENE S8 T3N R66W
 Weld County, Colorado

Drawn By: CAW
 Date: 7/29/2013





PROJECT NO:	
DRAWN BY:	AMB
DATE:	7/29/13

Facility Diagram
 Kerr-McGee Oil and Gas Onshore, LP
 Eisenach & Preston 8-1K, Eisenach & Preston 8-8K
 NENE S8 T3N R66W
 Weld County, CO



6899 Pecos Street, Unit C
 Denver, CO 80221

LEGEND	
	Earthen Berm
	Approximate Extent of Excavation
	Excavation Soil Sample
	Groundwater Sample

Site Map
 Figure 2

TABLE 1
EISENACH & PRESTON 8-1K, EISENACH & PRESTON 8-8K
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Depth (Feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH - GRO (mg/kg)	TEPH - DRO + ORO (mg/kg)
N01@3'	7/19/2013	3	0.0088	<0.005	<0.005	0.21	6.4	<50
E01@3'	7/19/2013	3	0.65	<0.005	2.0	28	980	90
S01@3'	7/19/2013	3	<0.005	<0.005	<0.005	<0.005	1.8	<50
W01@3'	7/19/2013	3	0.053	<0.005	0.024	0.64	20	<50
E02@3'	7/24/2013	3	<0.005	<0.005	<0.005	<0.005	<0.50	<50
COGCC standards for soil (mg/kg)			0.17	85	100	175	500	

Notes:

TVPH - GRO: Total volatile petroleum hydrocarbons - Gasoline Range Organics
TEPH - DRO: Total extractable petroleum hydrocarbons - Diesel Range Organics
TEPH - ORO: Total extractable petroleum hydrocarbons - Oil Range Organics
mg/kg= Milligrams per kilogram. bgs - Below ground surface.
Bold values indicate an exceedance of the COGCC soil standards for the Site.

TABLE 2
EISENACH & PRESTON 8-1K, EISENACH & PRESTON 8-8K
WATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
GW01	7/19/2013	1,700	3.5	81.0	1,500
GW02	7/24/2013	130	<1.0	62.0	860
SW01	7/24/2013	<1.0	<1.0	<1.0	<1.0
CGWQS (ug/L)		5	560	700	1,400

Notes:

CGWQS = Colorado Groundwater Quality Standards

Bold values indicate an exceedance of the CGWQS groundwater standards for the Site.

ug/L= Micrograms per liter.

Attachment A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 21, 2013

Mike Dinkel

Anadarko - Denver

1099 18th St, Suite 1800

Denver, CO 80202

RE: Eisenach Preston 8-1K,8-8K

Enclosed are the results of analyses for samples received by Summit Scientific on 07/19/13 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
President / Laboratory Manager



Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	R307170-01	Water	07/19/13 14:00	07/19/13 16:45
N01@3'	R307170-02	Soil	07/19/13 14:10	07/19/13 16:45
E01@3'	R307170-03	Soil	07/19/13 14:15	07/19/13 16:45
S01@3'	R307170-04	Soil	07/19/13 14:20	07/19/13 16:45
W01@3'	R307170-05	Soil	07/19/13 14:25	07/19/13 16:45

Summit Scientific

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Anadarko - Denver
 1099 18th St, Suite 1800
 Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
 Project Manager: Mike Dinkel

Reported:
 07/21/13 16:00

GW01
R307170-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/13 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	1700	100	ug/l	100	3071909	07/19/13	07/19/13	EPA 8260B	
Toluene	3.5	1.0	"	1	"	"	07/19/13	"	
Ethylbenzene	81	1.0	"	"	"	"	"	"	
Xylenes (total)	1500	100	"	100	"	"	07/19/13	"	

Date Sampled: **07/19/13 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		104 %	37-154		"	"	07/19/13	"	
<i>Surrogate: Toluene-d8</i>		99.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.4 %	45-146		"	"	"	"	

Summit Scientific

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Anadarko - Denver
 1099 18th St, Suite 1800
 Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
 Project Manager: Mike Dinkel

Reported:
 07/21/13 16:00

N01@3'
R307170-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/19/13 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	3071911	07/19/13	07/19/13	8015M	
C28-C36 (TEPH-ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/13 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		71.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/13 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.0088	0.0050	mg/kg	1	3071910	07/19/13	07/20/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.21	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	6.4	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/13 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Summit Scientific

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

E01@3'
R307170-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/19/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	90	50	mg/kg	1	3071911	07/19/13	07/19/13	8015M	
C28-C36 (TEPH-ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		77.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.65	0.0050	mg/kg	1	3071910	07/19/13	07/20/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	2.0	0.050	"	10	"	"	07/19/13	"	
Xylenes (total)	28	0.050	"	"	"	"	"	"	E
Gasoline Range Hydrocarbons	980	5.0	"	"	"	"	"	"	E

Date Sampled: **07/19/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	07/20/13	"	
Surrogate: Toluene-d8		168 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		144 %	21-167		"	"	"	"	

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Anadarko - Denver
 1099 18th St, Suite 1800
 Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
 Project Manager: Mike Dinkel

Reported:
 07/21/13 16:00

S01@3'
R307170-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/19/13 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	3071911	07/19/13	07/19/13	8015M	
C28-C36 (TEPH-ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/13 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		70.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/13 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3071910	07/19/13	07/20/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.8	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/13 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

W01@3'
R307170-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/19/13 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	3071911	07/19/13	07/19/13	8015M	
C28-C36 (TEPH-ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/13 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		74.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/13 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.053	0.0050	mg/kg	1	3071910	07/19/13	07/20/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.024	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.64	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	20	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/13 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		119 %	21-167		"	"	"	"	

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Anadarko - Denver
 1099 18th St, Suite 1800
 Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
 Project Manager: Mike Dinkel

Reported:
 07/21/13 16:00

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike Level	Source		%REC		RPD		Notes
	Result	Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch 3071911 - EPA 3550A

Blank (3071911-BLK1)				Prepared & Analyzed: 07/19/13							
C10-C28 (TEPH-DRO)	ND	50	mg/kg								
C28-C36 (TEPH-ORO)	ND	50	"								
LCS (3071911-BS1)				Prepared & Analyzed: 07/19/13							
C10-C28 (TEPH-DRO)	478	50	mg/kg	501		95.5	73-134				
LCS Dup (3071911-BSD1)				Prepared & Analyzed: 07/19/13							
C10-C28 (TEPH-DRO)	475	50	mg/kg	501		94.9	73-134	0.606		11	
Matrix Spike (3071911-MS1)				Source: R307172-01		Prepared & Analyzed: 07/19/13					
C10-C28 (TEPH-DRO)	488	50	mg/kg	501	ND	97.4	50-148				
Matrix Spike Dup (3071911-MSD1)				Source: R307172-01		Prepared & Analyzed: 07/19/13					
C10-C28 (TEPH-DRO)	512	50	mg/kg	501	ND	102	50-148	4.80		13	

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3071909 - EPA 5030 Water MS

Blank (3071909-BLK1)

Prepared & Analyzed: 07/20/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.8</i>		<i>"</i>	<i>13.2</i>		<i>104</i>		<i>37-154</i>		
<i>Surrogate: Toluene-d8</i>	<i>12.4</i>		<i>"</i>	<i>13.3</i>		<i>93.3</i>		<i>45-149</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.9</i>		<i>45-146</i>		

Blank (3071909-BLK2)

Prepared & Analyzed: 07/20/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.1</i>		<i>"</i>	<i>13.2</i>		<i>106</i>		<i>37-154</i>		
<i>Surrogate: Toluene-d8</i>	<i>12.4</i>		<i>"</i>	<i>13.3</i>		<i>92.8</i>		<i>45-149</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.4</i>		<i>45-146</i>		

LCS (3071909-BS1)

Prepared & Analyzed: 07/20/13

Benzene	25.4	1.0	ug/l	33.3		76.2		51-132		
Toluene	27.1	1.0	"	33.3		81.3		51-138		
Ethylbenzene	29.8	1.0	"	33.3		89.3		58-146		
m,p-Xylene	62.0	2.0	"	66.7		93.0		57-144		
o-Xylene	30.1	1.0	"	33.3		90.4		53-146		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.8</i>		<i>"</i>	<i>13.2</i>		<i>104</i>		<i>37-154</i>		
<i>Surrogate: Toluene-d8</i>	<i>12.9</i>		<i>"</i>	<i>13.3</i>		<i>96.6</i>		<i>45-149</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.4</i>		<i>45-146</i>		

LCS (3071909-BS2)

Prepared & Analyzed: 07/20/13

Benzene	25.1	1.0	ug/l	33.3		75.3		51-132		
Toluene	26.8	1.0	"	33.3		80.5		51-138		
Ethylbenzene	28.8	1.0	"	33.3		86.5		58-146		
m,p-Xylene	59.8	2.0	"	66.7		89.8		57-144		
o-Xylene	29.6	1.0	"	33.3		88.7		53-146		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>108</i>		<i>37-154</i>		
<i>Surrogate: Toluene-d8</i>	<i>12.5</i>		<i>"</i>	<i>13.3</i>		<i>94.1</i>		<i>45-149</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.8</i>		<i>45-146</i>		

Summit Scientific

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3071909 - EPA 5030 Water MS

LCS Dup (3071909-BSD1)

Prepared & Analyzed: 07/20/13

Benzene	25.8	1.0	ug/l	33.3		77.5	51-132	1.68	17	
Toluene	27.2	1.0	"	33.3		81.7	51-138	0.478	17	
Ethylbenzene	28.7	1.0	"	33.3		86.1	58-146	3.69	16	
m,p-Xylene	55.6	2.0	"	66.7		83.4	57-144	10.9	16	
o-Xylene	28.0	1.0	"	33.3		84.1	53-146	7.26	15	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.7</i>		<i>"</i>	<i>13.2</i>		<i>104</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.5</i>		<i>"</i>	<i>13.3</i>		<i>94.0</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.6</i>	<i>45-146</i>			

LCS Dup (3071909-BSD2)

Prepared & Analyzed: 07/20/13

Benzene	25.4	1.0	ug/l	33.3		76.2	51-132	1.11	17	
Toluene	26.9	1.0	"	33.3		80.7	51-138	0.261	17	
Ethylbenzene	29.9	1.0	"	33.3		89.7	58-146	3.71	16	
m,p-Xylene	61.9	2.0	"	66.7		92.9	57-144	3.42	16	
o-Xylene	29.9	1.0	"	33.3		89.8	53-146	1.24	15	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.6</i>		<i>"</i>	<i>13.2</i>		<i>102</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.2</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>95.6</i>	<i>45-146</i>			

Matrix Spike (3071909-MS1)

Source: R307159-02

Prepared & Analyzed: 07/20/13

Benzene	22.3	1.0	ug/l	33.3	ND	66.9	34-141			
Toluene	23.4	1.0	"	33.3	ND	70.3	27-151			
Ethylbenzene	25.6	1.0	"	33.3	ND	76.9	29-160			
m,p-Xylene	54.0	2.0	"	66.7	ND	81.1	20-166			
o-Xylene	26.1	1.0	"	33.3	ND	78.2	33-159			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>108</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.5</i>		<i>"</i>	<i>13.3</i>		<i>93.5</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.3</i>	<i>45-146</i>			

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3071909 - EPA 5030 Water MS

Matrix Spike (3071909-MS2)

Source: R307159-03

Prepared & Analyzed: 07/20/13

Benzene	25.4	1.0	ug/l	33.3	ND	76.1	34-141			
Toluene	26.8	1.0	"	33.3	ND	80.5	27-151			
Ethylbenzene	29.6	1.0	"	33.3	ND	88.9	29-160			
m,p-Xylene	61.7	2.0	"	66.7	ND	92.5	20-166			
o-Xylene	30.0	1.0	"	33.3	ND	90.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.2		103	37-154			
Surrogate: Toluene-d8	12.4		"	13.3		92.8	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.2	45-146			

Matrix Spike Dup (3071909-MSD1)

Source: R307159-02

Prepared & Analyzed: 07/20/13

Benzene	25.0	1.0	ug/l	33.3	ND	75.0	34-141	11.5	32	
Toluene	26.5	1.0	"	33.3	ND	79.6	27-151	12.4	25	
Ethylbenzene	28.7	1.0	"	33.3	ND	86.2	29-160	11.4	50	
m,p-Xylene	59.3	2.0	"	66.7	ND	88.9	20-166	9.21	36	
o-Xylene	29.0	1.0	"	33.3	ND	86.9	33-159	10.5	26	
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.2		105	37-154			
Surrogate: Toluene-d8	12.4		"	13.3		93.4	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9	45-146			

Matrix Spike Dup (3071909-MSD2)

Source: R307159-03

Prepared & Analyzed: 07/20/13

Benzene	20.8	1.0	ug/l	33.3	ND	62.3	34-141	20.0	32	
Toluene	21.8	1.0	"	33.3	ND	65.4	27-151	20.7	25	
Ethylbenzene	23.5	1.0	"	33.3	ND	70.6	29-160	23.0	50	
m,p-Xylene	49.3	2.0	"	66.7	ND	74.0	20-166	22.3	36	
o-Xylene	24.1	1.0	"	33.3	ND	72.2	33-159	22.0	26	
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.2		107	37-154			
Surrogate: Toluene-d8	12.5		"	13.3		93.8	45-149			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.9	45-146			

Summit Scientific

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3071910 - EPA 5030 Soil MS

Blank (3071910-BLK1)

Prepared: 07/19/13 Analyzed: 07/20/13

Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0387</i>		<i>"</i>	<i>0.0397</i>		<i>97.4</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0365</i>		<i>"</i>	<i>0.0400</i>		<i>91.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0429</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>21-167</i>			

LCS (3071910-BS1)

Prepared: 07/19/13 Analyzed: 07/20/13

Benzene	0.0821	0.0050	mg/kg	0.100		82.1	58-130			
Toluene	0.0892	0.0050	"	0.100		89.2	61-134			
Ethylbenzene	0.123	0.0050	"	0.100		123	74-139			
m,p-Xylene	0.231	0.010	"	0.200		115	73-137			
o-Xylene	0.120	0.0050	"	0.100		120	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0368</i>		<i>"</i>	<i>0.0397</i>		<i>92.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0358</i>		<i>"</i>	<i>0.0400</i>		<i>89.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0410</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>21-167</i>			

LCS Dup (3071910-BSD1)

Prepared: 07/19/13 Analyzed: 07/20/13

Benzene	0.0846	0.0050	mg/kg	0.100		84.6	58-130	2.99	13	
Toluene	0.0925	0.0050	"	0.100		92.5	61-134	3.63	16	
Ethylbenzene	0.124	0.0050	"	0.100		124	74-139	1.46	12	
m,p-Xylene	0.233	0.010	"	0.200		117	73-137	1.03	14	
o-Xylene	0.120	0.0050	"	0.100		120	73-141	0.326	12	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0369</i>		<i>"</i>	<i>0.0397</i>		<i>92.9</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>93.9</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0402</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>21-167</i>			

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 3071910 - EPA 5030 Soil MS

Matrix Spike (3071910-MS1)

Source: R307172-01

Prepared: 07/19/13 Analyzed: 07/20/13

Benzene	0.0857	0.0050	mg/kg	0.100	ND	85.7	30-131			
Toluene	0.0912	0.0050	"	0.100	ND	91.2	30-134			
Ethylbenzene	0.124	0.0050	"	0.100	ND	124	22-153			
m,p-Xylene	0.231	0.010	"	0.200	ND	116	10-159			
o-Xylene	0.119	0.0050	"	0.100	ND	119	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0381		"	0.0397		96.0	23-173			
Surrogate: Toluene-d8	0.0377		"	0.0400		94.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		101	21-167			

Matrix Spike Dup (3071910-MSD1)

Source: R307172-01

Prepared: 07/19/13 Analyzed: 07/20/13

Benzene	0.0933	0.0050	mg/kg	0.100	ND	93.3	30-131	8.45	34	
Toluene	0.0908	0.0050	"	0.100	ND	90.8	30-134	0.494	30	
Ethylbenzene	0.123	0.0050	"	0.100	ND	123	22-153	0.267	24	
m,p-Xylene	0.230	0.010	"	0.200	ND	115	10-159	0.351	68	
o-Xylene	0.120	0.0050	"	0.100	ND	120	31-151	1.13	38	
Surrogate: 1,2-Dichloroethane-d4	0.0396		"	0.0397		99.7	23-173			
Surrogate: Toluene-d8	0.0365		"	0.0400		91.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0414		"	0.0400		103	21-167			

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: [none]
Project Manager: Mike Dinkel

Reported:
07/21/13 16:00

Notes and Definitions

- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 26, 2013

Mike Dinkel

Anadarko - Denver

1099 18th St, Suite 1800

Denver, CO 80202

RE: Eisenach Preston 8-1K,8-8K

Enclosed are the results of analyses for samples received by Summit Scientific on 07/24/13 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV For Ben Shrewsbury
President / Laboratory Manager

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW02	R307202-01	Water	07/24/13 11:45	07/24/13 16:45
SW01	R307202-02	Water	07/24/13 12:15	07/24/13 16:45
E02@3'	R307202-03	Soil	07/24/13 12:00	07/24/13 16:45



Anadarko - Denver
 1099 18th St, Suite 1800
 Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
 Project Manager: Mike Dinkel

Reported:
 07/26/13 09:41

GW02

R307202-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/24/13 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	130	1.0	ug/l	1	3072314	07/24/13	07/24/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	62	1.0	"	"	"	"	"	"	
Xylenes (total)	860	1.0	"	"	"	"	"	"	

Date Sampled: **07/24/13 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		108 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.9 %	45-146		"	"	"	"	

Summit Scientific

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Anadarko - Denver
 1099 18th St, Suite 1800
 Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
 Project Manager: Mike Dinkel

Reported:
 07/26/13 09:41

SW01
R307202-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/24/13 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	3072314	07/24/13	07/24/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/24/13 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98,6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	45-146		"	"	"	"	

Summit Scientific

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

E02@3'
R307202-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/24/13 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	3072419	07/24/13	07/24/13	8015M	
C28-C36 (TEPH-ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/24/13 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		77.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/24/13 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3072418	07/24/13	07/24/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/24/13 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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Anadarko - Denver
 1099 18th St, Suite 1800
 Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
 Project Manager: Mike Dinkel

Reported:
 07/26/13 09:41

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3072419 - EPA 3550A

Blank (3072419-BLK1)

Prepared: 07/24/13 Analyzed: 07/25/13

C10-C28 (TEPH-DRO)	ND	50	mg/kg							
C28-C36 (TEPH-ORO)	ND	50	"							

LCS (3072419-BS1)

Prepared: 07/24/13 Analyzed: 07/25/13

C10-C28 (TEPH-DRO)	510	50	mg/kg	501		102	73-134			
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LCS Dup (3072419-BSD1)

Prepared: 07/24/13 Analyzed: 07/25/13

C10-C28 (TEPH-DRO)	491	50	mg/kg	501		98.1	73-134	3.64	11	
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Matrix Spike (3072419-MS1)

Source: R307201-02

Prepared: 07/24/13 Analyzed: 07/25/13

C10-C28 (TEPH-DRO)	506	50	mg/kg	501	ND	101	50-148			
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Matrix Spike Dup (3072419-MSD1)

Source: R307201-02

Prepared: 07/24/13 Analyzed: 07/25/13

C10-C28 (TEPH-DRO)	477	50	mg/kg	501	ND	95.2	50-148	5.93	13	
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Summit Scientific

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3072314 - EPA 5030 Water MS

Blank (3072314-BLK1)

Prepared & Analyzed: 07/24/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>108</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.2</i>		<i>"</i>	<i>13.3</i>		<i>99.2</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-146</i>			

Blank (3072314-BLK2)

Prepared & Analyzed: 07/24/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.6</i>		<i>"</i>	<i>13.2</i>		<i>110</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.8</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>45-146</i>			

LCS (3072314-BS1)

Prepared & Analyzed: 07/25/13

Benzene	31.5	1.0	ug/l	33.3		94.4	51-132			
Toluene	31.6	1.0	"	33.3		94.9	51-138			
Ethylbenzene	31.7	1.0	"	33.3		95.0	58-146			
m,p-Xylene	65.3	2.0	"	66.7		98.0	57-144			
o-Xylene	32.2	1.0	"	33.3		96.5	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.9</i>		<i>"</i>	<i>13.2</i>		<i>112</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>103</i>	<i>45-146</i>			

LCS (3072314-BS2)

Prepared & Analyzed: 07/25/13

Benzene	29.3	1.0	ug/l	33.3		88.0	51-132			
Toluene	29.0	1.0	"	33.3		86.9	51-138			
Ethylbenzene	30.6	1.0	"	33.3		91.8	58-146			
m,p-Xylene	62.4	2.0	"	66.7		93.6	57-144			
o-Xylene	31.2	1.0	"	33.3		93.6	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.7</i>		<i>"</i>	<i>13.2</i>		<i>111</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.2</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>45-146</i>			

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3072314 - EPA 5030 Water MS

LCS Dup (3072314-BSD1)

Prepared & Analyzed: 07/25/13

Benzene	27.1	1.0	ug/l	33.3	81.3	51-132	14.9	17	
Toluene	27.3	1.0	"	33.3	82.0	51-138	14.6	17	
Ethylbenzene	28.3	1.0	"	33.3	84.9	58-146	11.3	16	
m,p-Xylene	58.7	2.0	"	66.7	88.0	57-144	10.7	16	
o-Xylene	27.3	1.0	"	33.3	82.0	53-146	16.2	15	
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.2	111	37-154			
Surrogate: Toluene-d8	13.4		"	13.3	100	45-149			
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3	94.1	45-146			

LCS Dup (3072314-BSD2)

Prepared & Analyzed: 07/25/13

Benzene	30.4	1.0	ug/l	33.3	91.1	51-132	3.38	17	
Toluene	30.2	1.0	"	33.3	90.7	51-138	4.19	17	
Ethylbenzene	32.0	1.0	"	33.3	96.0	58-146	4.47	16	
m,p-Xylene	64.3	2.0	"	66.7	96.4	57-144	3.00	16	
o-Xylene	30.7	1.0	"	33.3	92.1	53-146	1.65	15	
Surrogate: 1,2-Dichloroethane-d4	15.0		"	13.2	113	37-154			
Surrogate: Toluene-d8	13.5		"	13.3	101	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3	105	45-146			

Matrix Spike (3072314-MS1)

Source: R307182-01

Prepared & Analyzed: 07/25/13

Benzene	28.1	1.0	ug/l	33.3	ND	84.3	34-141		
Toluene	27.7	1.0	"	33.3	ND	83.0	27-151		
Ethylbenzene	29.8	1.0	"	33.3	ND	89.5	29-160		
m,p-Xylene	61.2	2.0	"	66.7	ND	91.8	20-166		
o-Xylene	28.5	1.0	"	33.3	ND	85.6	33-159		
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.2		109	37-154		
Surrogate: Toluene-d8	12.7		"	13.3		95.4	45-149		
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	45-146		

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Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3072314 - EPA 5030 Water MS

Matrix Spike (3072314-MS2)	Source: R307182-02			Prepared & Analyzed: 07/25/13								
Benzene	30.8	1.0	ug/l	33.3	ND	92.3	34-141					
Toluene	31.3	1.0	"	33.3	ND	93.8	27-151					
Ethylbenzene	33.4	1.0	"	33.3	ND	100	29-160					
m,p-Xylene	67.5	2.0	"	66.7	ND	101	20-166					
o-Xylene	32.2	1.0	"	33.3	ND	96.5	33-159					
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.8</i>		<i>"</i>	<i>13.2</i>		<i>104</i>	<i>37-154</i>					
<i>Surrogate: Toluene-d8</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.7</i>	<i>45-149</i>					
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.0</i>	<i>45-146</i>					

Matrix Spike Dup (3072314-MSD1)	Source: R307182-01			Prepared & Analyzed: 07/25/13								
Benzene	30.4	1.0	ug/l	33.3	ND	91.1	34-141	7.80	32			
Toluene	30.6	1.0	"	33.3	ND	91.9	27-151	10.2	25			
Ethylbenzene	31.4	1.0	"	33.3	ND	94.2	29-160	5.13	50			
m,p-Xylene	64.7	2.0	"	66.7	ND	97.0	20-166	5.50	36			
o-Xylene	31.0	1.0	"	33.3	ND	93.0	33-159	8.27	26			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.7</i>		<i>"</i>	<i>13.2</i>		<i>111</i>	<i>37-154</i>					
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>100</i>	<i>45-149</i>					
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.8</i>	<i>45-146</i>					

Matrix Spike Dup (3072314-MSD2)	Source: R307182-02			Prepared & Analyzed: 07/25/13								
Benzene	26.1	1.0	ug/l	33.3	ND	78.4	34-141	16.4	32			
Toluene	27.2	1.0	"	33.3	ND	81.5	27-151	14.1	25			
Ethylbenzene	27.8	1.0	"	33.3	ND	83.3	29-160	18.3	50			
m,p-Xylene	57.0	2.0	"	66.7	ND	85.6	20-166	16.8	36			
o-Xylene	27.3	1.0	"	33.3	ND	81.9	33-159	16.4	26			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.8</i>		<i>"</i>	<i>13.2</i>		<i>104</i>	<i>37-154</i>					
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>45-149</i>					
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.5</i>	<i>45-146</i>					

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Anadarko - Denver
1099 18th St, Suite 1800
Denver CO, 80202

Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3072418 - EPA 5030 Soil MS

Blank (3072418-BLK1)

Prepared & Analyzed: 07/24/13

Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0437		"	0.0397	110	23-173				
Surrogate: Toluene-d8	0.0399		"	0.0400	99.8	20-170				
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400	104	21-167				

LCS (3072418-BS1)

Prepared & Analyzed: 07/24/13

Benzene	0.105	0.0050	mg/kg	0.100	105	58-130				
Toluene	0.107	0.0050	"	0.100	107	61-134				
Ethylbenzene	0.134	0.0050	"	0.100	134	74-139				
m,p-Xylene	0.251	0.010	"	0.200	126	73-137				
o-Xylene	0.127	0.0050	"	0.100	127	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0452		"	0.0397	114	23-173				
Surrogate: Toluene-d8	0.0376		"	0.0400	94.0	20-170				
Surrogate: 4-Bromofluorobenzene	0.0422		"	0.0400	105	21-167				

LCS Dup (3072418-BSD1)

Prepared & Analyzed: 07/24/13

Benzene	0.102	0.0050	mg/kg	0.100	102	58-130	2.29	13		
Toluene	0.116	0.0050	"	0.100	116	61-134	8.16	16		
Ethylbenzene	0.131	0.0050	"	0.100	131	74-139	2.28	12		
m,p-Xylene	0.249	0.010	"	0.200	125	73-137	0.887	14		
o-Xylene	0.126	0.0050	"	0.100	126	73-141	0.998	12		
Surrogate: 1,2-Dichloroethane-d4	0.0443		"	0.0397	112	23-173				
Surrogate: Toluene-d8	0.0399		"	0.0400	99.8	20-170				
Surrogate: 4-Bromofluorobenzene	0.0419		"	0.0400	105	21-167				

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Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 3072418 - EPA 5030 Soil MS

Matrix Spike (3072418-MS1)	Source: R307201-02			Prepared & Analyzed: 07/24/13							
Benzene	0.103	0.0050	mg/kg	0.100	ND	103	30-131				
Toluene	0.103	0.0050	"	0.100	ND	103	30-134				
Ethylbenzene	0.132	0.0050	"	0.100	ND	132	22-153				
m,p-Xylene	0.248	0.010	"	0.200	ND	124	10-159				
o-Xylene	0.125	0.0050	"	0.100	ND	125	31-151				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0449</i>		<i>"</i>	<i>0.0397</i>		<i>113</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0353</i>		<i>"</i>	<i>0.0400</i>		<i>88.4</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0424</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>21-167</i>				

Matrix Spike Dup (3072418-MSD1)	Source: R307201-02			Prepared: 07/24/13 Analyzed: 07/25/13							
Benzene	0.106	0.0050	mg/kg	0.100	ND	106	30-131	2.21	34		
Toluene	0.114	0.0050	"	0.100	ND	114	30-134	10.1	30		
Ethylbenzene	0.128	0.0050	"	0.100	ND	128	22-153	2.47	24		
m,p-Xylene	0.242	0.010	"	0.200	ND	121	10-159	2.29	68		
o-Xylene	0.123	0.0050	"	0.100	ND	123	31-151	1.26	38		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0466</i>		<i>"</i>	<i>0.0397</i>		<i>117</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.5</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0418</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>21-167</i>				

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Project: Eisenach Preston 8-1K,8-8K

Project Number: 88396172
Project Manager: Mike Dinkel

Reported:
07/26/13 09:41

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference