



SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee: _____

Spill Complaint
 Inspection NOAV

Tracking No: 400829125

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe): _____

GENERAL INFORMATION

OGCC Operator Number: 4680	Contact Name and Telephone
Name of Operator: <u>DCP Midstream LP</u>	Name: <u>Sam Wood</u>
Address: <u>370 17th Street, Suite 2500</u>	No: <u>(970) 590-6444</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80202</u>	Fax: _____
API/Facility No: _____	County: <u>Weld</u>
Facility Name: _____	Facility Number: <u>441639</u>
Well Name: _____	Well Number: _____
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>SWNE S29 T4N R68W</u>	Latitude: <u>40.284042</u> Longitude: <u>-105.02276</u>

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Condensate

Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Cultivated, residential

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Wiley-Colby complex, 1 to 3 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Surface water is located approximately 160' northwest of the release point, a residential building is approximately 65' north, and a permitted domestic well is located approximately 900' northeast.

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
<input checked="" type="checkbox"/> Soils	<u>Refer to the attached Figure 2 and Table 1</u>	<u>Soil sampling</u>
<input type="checkbox"/> Vegetation	_____	_____
<input checked="" type="checkbox"/> Groundwater	<u>Refer to the attached Figure 2 and Table 2</u>	<u>Groundwater sampling</u>
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

A Form 19 was previously submitted and the COGCC has issued a spill tracking number of 400829125 for the site. A topographic map of the site is included as Figure 1.

Describe how source is to be removed:

Hydrovacuum excavation activities were conducted to remove surface soil impacts and approximately 60 barrels of impacted slurry material was disposed of at the Republic Disposal Facility in Denver, CO. Subsequently, approximately 250 cubic yards of impacted soil within the source area was excavated, transported, and disposed of at the Waste Management Facility in Ault, CO. Additionally, approximately 7 barrels of groundwater was removed from the excavation with a vacuum truck prior to backfilling activities.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

Based on soil and groundwater samples that were collected between April 28 and 29, 2015 (Figure 2), impacted soils have been removed and groundwater remains the primary concern at the Site. Prior to backfilling the excavation, DCP installed two (2) horizontal perforated remediation wells within the water bearing zone of the excavation. Additionally, DCP plans to install a temporary monitoring/remediation well network at the Site consisting of four (4) proposed temporary monitoring well locations illustrated on Figure 3. Based on the analytical results for the groundwater sample collected on April 29, 2015 (GW01), DCP has initiated vacuum enhanced fluid recovery (EFR) and air sparge (AS) remediation activities utilizing the horizontal remediation wells currently installed at the Site.

State of Colorado Oil and Gas Conservation Commission

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



Tracking Number: 400829125
Name of Operator: DCP Midstream LP
OGCC Operator No: 4680
Received Date:
Well Name & No:
Facility Name & No.:

REMEDATION WORKPLAN (CONT.)

OGCC Employee:

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
DCP Midstream LP will gauge the proposed monitoring/remediation wells and sample the wells that have any measurable amount of groundwater on a quarterly basis to assess the dissolved phase petroleum hydrocarbon impacts in groundwater. Groundwater samples will be submitted for laboratory analysis of BTEX constituents using USEPA Method 8260.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.
The area where the excavation is located has been backfilled and compacted with clean material and flow fill material within the top three feet of the excavation and county road 40.5 has been restored to match pre-existing conditions. The county road right-of-way has also been backfilled and compacted to match pre-existing conditions. The downgradient oil absorbent booms and sediment waddles within the roadside drainage have been removed.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.
Is further site investigation required? [X] Y [] N If yes, describe:
The excavation extent and the soil and groundwater sample locations are illustrated on Figure 2. The proposed temporary monitoring well network is illustrated on Figure 3. The soil analytical results are summarized on Table 1 and the groundwater analytical result is summarized on Table 2. Laboratory analytical reports are included in Attachment A.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):
E&P waste that was generated from excavation activities was transported and disposed of at the Buffalo Ridge Waste Management Facility in Keenesburg, Colorado

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 4/24/2015 Date Site Investigation Completed: Remediation Plan Submitted:
Remediation Start Date: Anticipated Completion Date: Actual Completion Date:

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Stephen Weathers

Signed: [Signature] Title: Principal Env Specialist Date: 7/14/15

OGCC Approved: Title: Date:

FIGURES

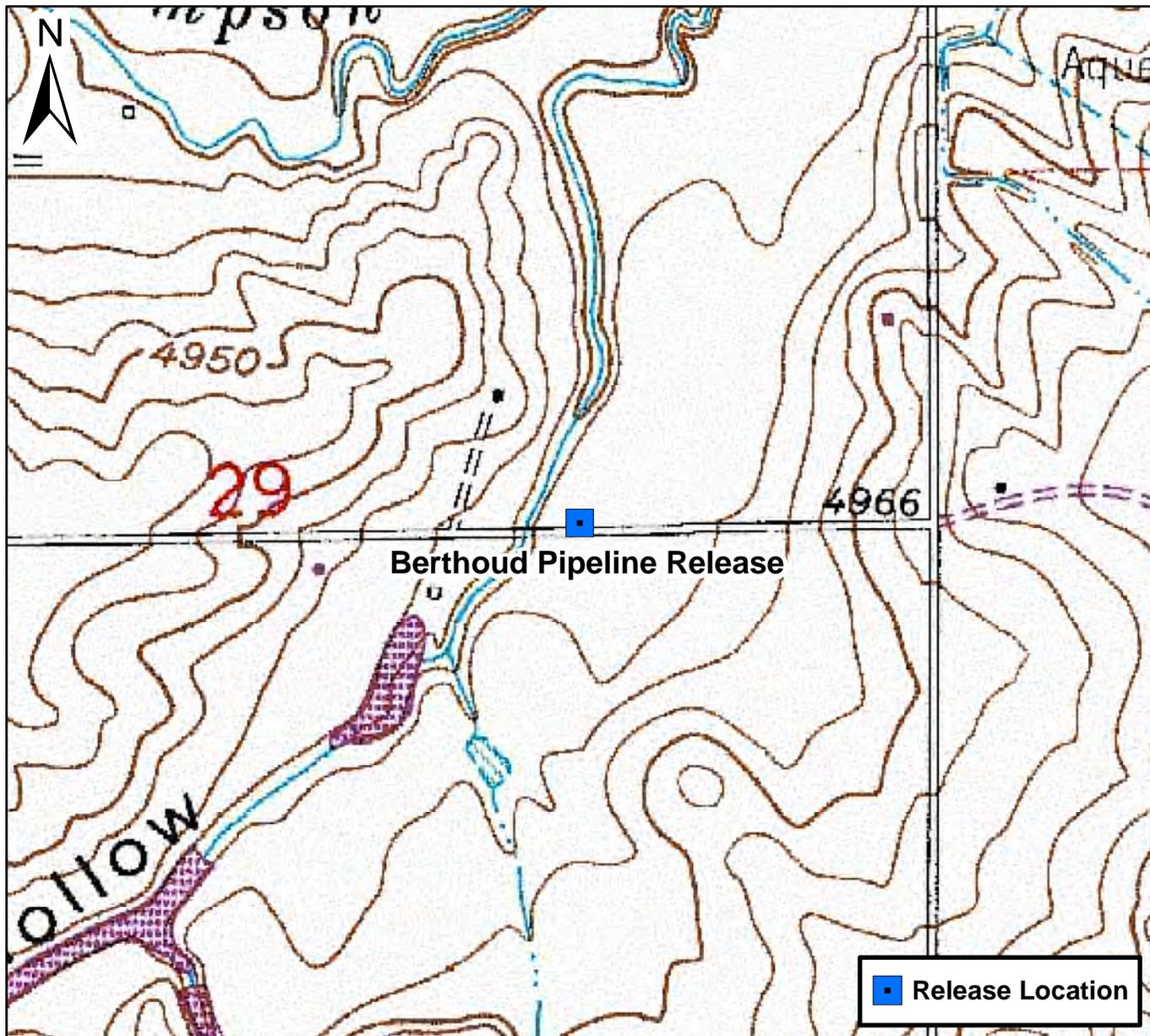
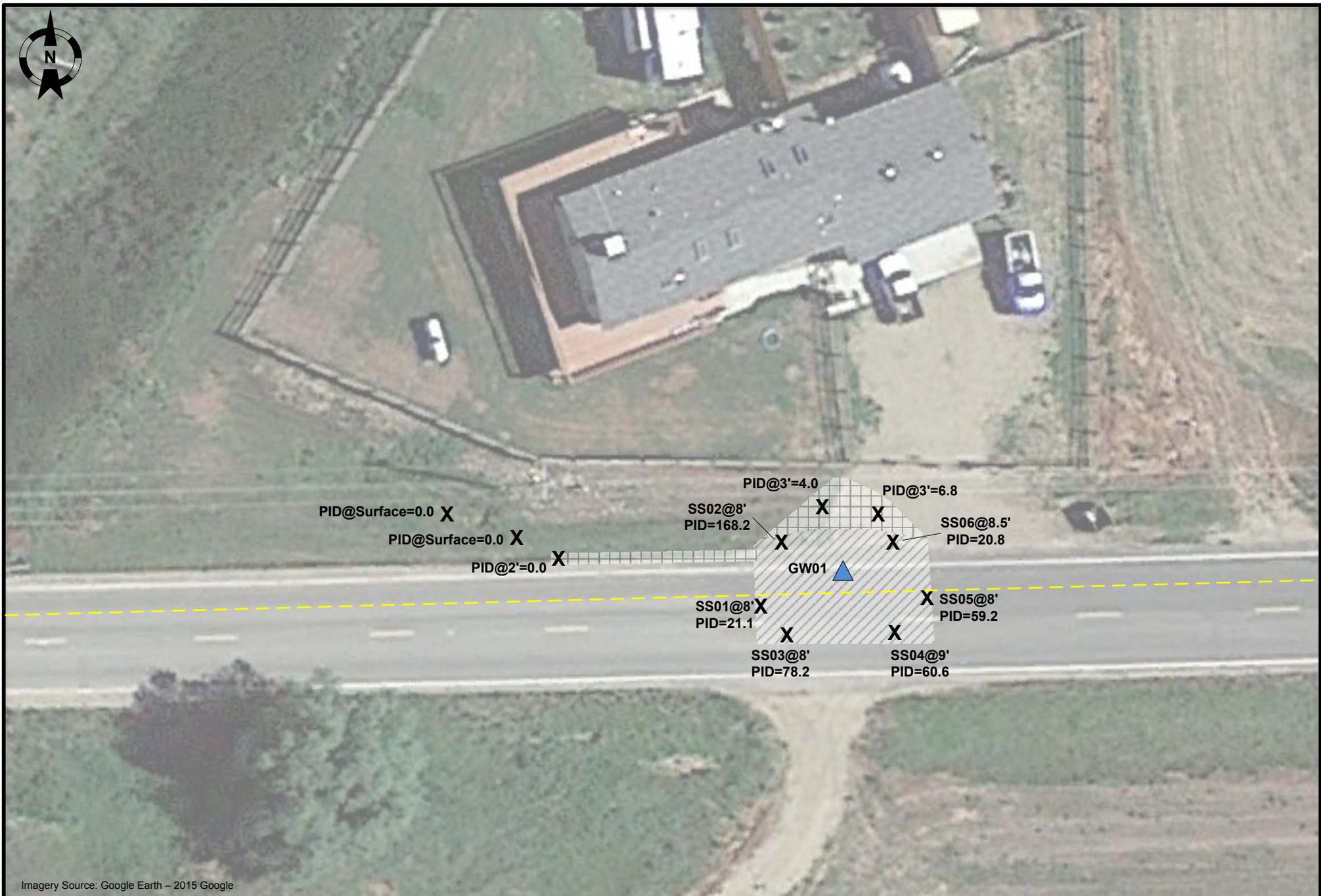


Figure 1

Site Location Map
 Berthoud Pipeline Release
 SWNE S29 T4N R68W
 Weld County, Colorado





Imagery Source: Google Earth – 2015 Google

PROJECT NO:	Berthoud Release
DRAWN BY:	BDH
DATE:	7/7/2015

Berthoud Release
 DCP Midstream
 SWNE S29 T4N R68W
 Weld County, CO



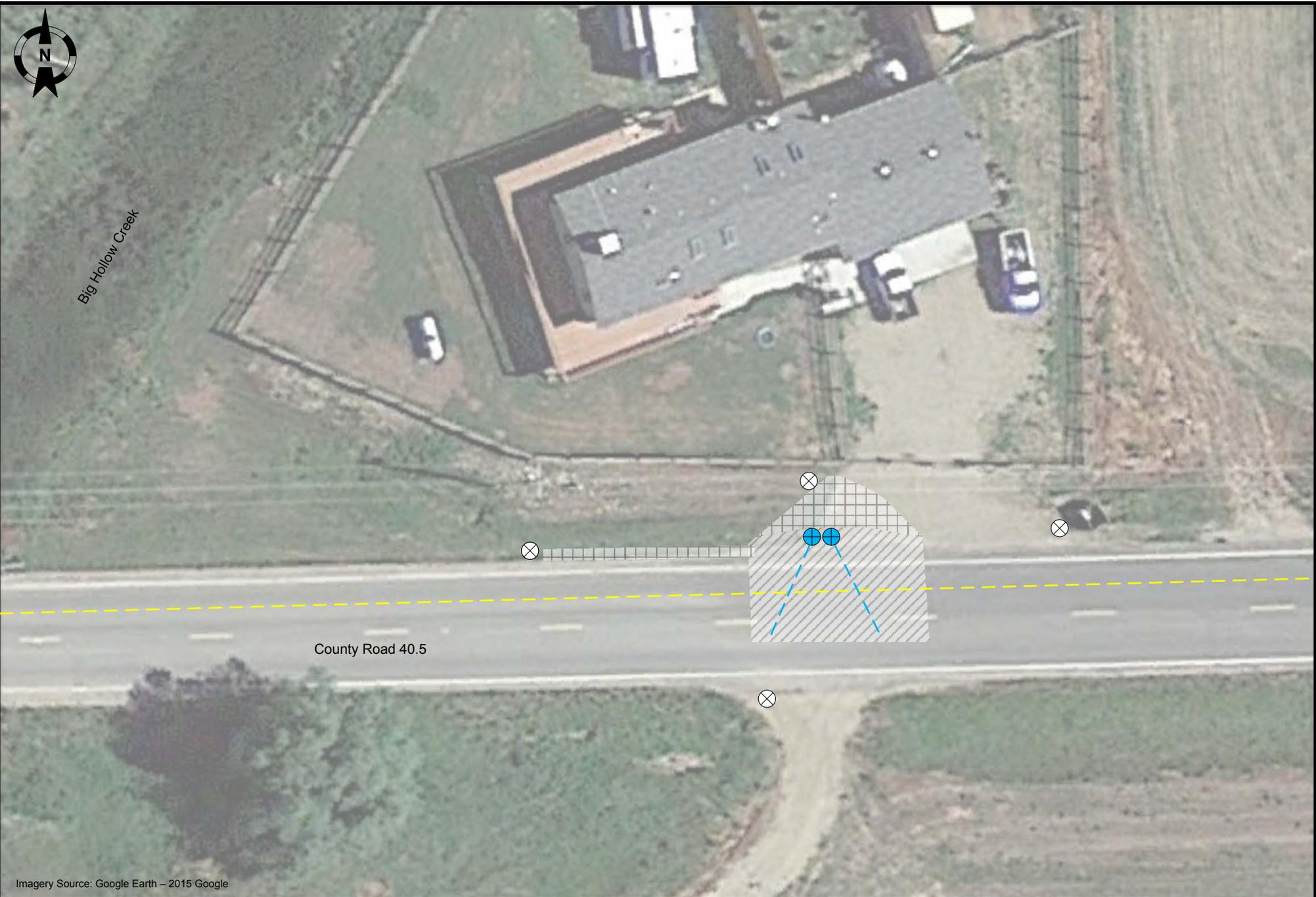
Tasman Geosciences
 6899 Pecos St., Unit C
 Denver CO 80221

LEGEND	
	Approximate Excavation Extents to 3' BGS
	Approximate Excavation Extents to 10' BGS
	Soil Sample and PID Location
	Groundwater Sampling Location
	DCP Flow Line

Figure 2
 Excavation and Sample Location Map
 Scale: 1" : 28'



Big Hollow Creek



County Road 40.5

Imagery Source: Google Earth – 2015 Google

PROJECT NO:	Berthoud Release
DRAWN BY:	BDH
DATE:	7/7/2015

Berthoud Release
 DCP Midstream
 SWNE S29 T4N R68W
 Weld County, CO



6899 Pecos St., Unit C
 Denver CO 80221

LEGEND	
	Approximate Excavation Extents to 3' BGS
	Approximate Excavation Extents to 10' BGS
	Proposed Monitoring Well Location
	Remediation Well Location
	DCP Flow Line

Figure 3
 Proposed Monitoring Well Location Figure
 Scale: 1" : 28'

TABLES

TABLE 1
DCP MIDSTREAM - BERTHOUD RELEASE
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (Feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH ⁽²⁾ (mg/kg)
SS01 @ 8'	4/28/2015	8	0.068	<0.005	<0.005	0.014	<50
SS02 @ 8'	4/28/2015	8	0.10	0.19	0.05	0.31	<50
SS03 @ 8'	4/28/2015	8	0.13	0.10	0.01	0.041	<50
SS04 @ 8'	4/28/2015	8	0.15	0.10	0.013	0.046	<50
SS05 @ 8'	4/28/2015	8	0.099	0.038	0.01	0.052	<50
SS06 @ 8.5'	4/28/2015	8.5	0.063	0.023	<0.005	0.026	<50
COGCC standards for Soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500

Notes:

1). Standards for Soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

2). TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

GRO - Gasoline range organics.

DRO - Diesel range organics.

mg/kg= Milligrams per kilogram.

bgs - Below ground surface.

ppm - Parts per million

TABLE 2
DCP MIDSTREAM - BERTHOUD RELEASE
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
GW01	4/29/2015	69	90	36	150
COGCC standards for Groundwater (ug/L) ⁽¹⁾		5	560	700	1,400

Notes:

1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

Bold red values indicate an exceedance of the COGCC soil 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

April 29, 2015

Brian Humphrey
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Berthoud Release

Enclosed are the results of analyses for samples received by Summit Scientific on 04/28/15 18:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@8'	1504276-01	Soil	04/28/15 09:00	04/28/15 18:30
SS02@8'	1504276-02	Soil	04/28/15 16:20	04/28/15 18:30
SS03@8'	1504276-03	Soil	04/28/15 16:30	04/28/15 18:30
SS04@8'	1504276-04	Soil	04/28/15 16:35	04/28/15 18:30
SS05@8'	1504276-05	Soil	04/28/15 16:50	04/28/15 18:30
SS06@8.5'	1504276-06	Soil	04/28/15 17:05	04/28/15 18:30

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

Summit Scientific 1504276

S₂

741 Corporate Circle, Suite J&K ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933

Client: Tasman /DCP Project Manager: Brian Humphrey Page 1 of 1
Address: _____ E-Mail: bhumphrey@tasman-geo.com
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: _____
Sampler Name: Brian Humphrey Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	8260 BTEX	9015 DRG			
1	SS01 @ 8'	4/29/15	0900	1			X			X			X	X			
2	SS02 @ 8'		1620														
3	SS03 @ 8'		1630														
4	SS04 @ 8'		1635														
5	SS05 @ 8'		1650														
6	SS06 @ 8.5'		1705														
7																	
8																	
9																	
10																	

Relinquished by: <u>[Signature]</u> Date/Time: <u>4-28-15 1742</u>	Received by: <u>[Signature]</u> Date/Time: <u>4/29/15 1742</u>	Turn Around Time (Check)	Notes: <u>on ice</u>
Relinquished by: <u>AO</u> Date/Time: <u>4/28/15 1830</u>	Received by: <u>[Signature]</u> Date/Time: <u>4-28-15 1830</u>	Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
		48 hours <input type="checkbox"/>	
		Sample Integrity: <u>19.6</u>	
		Temperature Upon Receipt: <u>19.6</u>	
		Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

www.s2scientific.com



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

SS01@8'
1504276-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/28/15 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504285	04/28/15	04/28/15	8015M	

Date Sampled: **04/28/15 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/28/15 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504284	04/28/15	04/28/15	EPA 8260B	
Benzene	0.068	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.014	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/28/15 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

SS02@8'
1504276-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 04/28/15 16:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504285	04/28/15	04/28/15	8015M	

Date Sampled: 04/28/15 16:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 04/28/15 16:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.052	0.010	mg/kg	1	1504284	04/28/15	04/28/15	EPA 8260B	
Benzene	0.10	0.0020	"	"	"	"	"	"	
Toluene	0.19	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.050	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.31	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	13	0.50	"	"	"	"	"	"	

Date Sampled: 04/28/15 16:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.1 %	21-167		"	"	"	"	

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

SS03@8'
1504276-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 04/28/15 16:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504285	04/28/15	04/28/15	8015M	

Date Sampled: 04/28/15 16:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		106 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 04/28/15 16:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.016	0.010	mg/kg	1	1504284	04/28/15	04/28/15	EPA 8260B	
Benzene	0.13	0.0020	"	"	"	"	"	"	
Toluene	0.10	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.010	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.041	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3.2	0.50	"	"	"	"	"	"	

Date Sampled: 04/28/15 16:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.3 %	21-167		"	"	"	"	

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6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

SS04@8'
1504276-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/28/15 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504285	04/28/15	04/28/15	8015M	

Date Sampled: **04/28/15 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		106 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/28/15 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504284	04/28/15	04/28/15	EPA 8260B	
Benzene	0.15	0.0020	"	"	"	"	"	"	
Toluene	0.10	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.013	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.046	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.85	0.50	"	"	"	"	"	"	

Date Sampled: **04/28/15 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

SS05@8'
1504276-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/28/15 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504285	04/28/15	04/28/15	8015M	

Date Sampled: **04/28/15 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/28/15 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504284	04/28/15	04/28/15	EPA 8260B	
Benzene	0.099	0.0020	"	"	"	"	"	"	
Toluene	0.038	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.010	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.052	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.70	0.50	"	"	"	"	"	"	

Date Sampled: **04/28/15 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

SS06@8.5'
1504276-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/28/15 17:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504285	04/28/15	04/28/15	8015M	

Date Sampled: **04/28/15 17:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		114 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/28/15 17:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504284	04/28/15	04/28/15	EPA 8260B	
Benzene	0.063	0.0020	"	"	"	"	"	"	
Toluene	0.023	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.026	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/28/15 17:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.2 %	21-167		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1504285 - EPA 3550A

Blank (1504285-BLK1)

Prepared & Analyzed: 04/28/15

C10-C28 (DRO)	ND	50	mg/kg								
Surrogate: <i>o</i> -Terphenyl	20.2		"	12.2		165	30-150				S-07

LCS (1504285-BS1)

Prepared & Analyzed: 04/28/15

C10-C28 (DRO)	672	50	mg/kg	501		134	73-134				
Surrogate: <i>o</i> -Terphenyl	15.0		"	12.2		123	30-150				

Matrix Spike (1504285-MS1)

Source: 1504276-01

Prepared & Analyzed: 04/28/15

C10-C28 (DRO)	594	50	mg/kg	450	12.4	129	50-148				
Surrogate: <i>o</i> -Terphenyl	13.5		"	11.0		123	30-150				

Matrix Spike Dup (1504285-MSD1)

Source: 1504276-01

Prepared & Analyzed: 04/28/15

C10-C28 (DRO)	542	50	mg/kg	454	12.4	117	50-148	9.12	13		
Surrogate: <i>o</i> -Terphenyl	12.1		"	11.1		110	30-150				

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

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 1504284 - EPA 5030 Soil MS

Blank (1504284-BLK1)

Prepared & Analyzed: 04/28/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0407</i>		<i>"</i>	<i>0.0396</i>		<i>103</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>96.0</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>		<i>21-167</i>		

LCS (1504284-BS1)

Prepared & Analyzed: 04/28/15

Naphthalene	ND	0.010	mg/kg					66-138		
Benzene	0.0848	0.0020	"	0.100		84.8		58-130		
Toluene	0.0909	0.0050	"	0.100		90.9		61-134		
Ethylbenzene	0.100	0.0050	"	0.0992		101		74-139		
m,p-Xylene	0.205	0.010	"	0.200		103		73-137		
o-Xylene	0.102	0.0050	"	0.0984		104		73-141		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0424</i>		<i>"</i>	<i>0.0396</i>		<i>107</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0386</i>		<i>"</i>	<i>0.0400</i>		<i>96.4</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>95.9</i>		<i>21-167</i>		

Matrix Spike (1504284-MS1)

Source: 1504276-01

Prepared & Analyzed: 04/28/15

Naphthalene	ND	0.010	mg/kg		ND			10-158		
Benzene	0.137	0.0020	"	0.0924	0.0681	74.2		30-131		
Toluene	0.0843	0.0050	"	0.0924	ND	91.2		30-134		
Ethylbenzene	0.0952	0.0050	"	0.0917	ND	104		22-153		
m,p-Xylene	0.199	0.010	"	0.184	0.0104	102		10-159		
o-Xylene	0.0985	0.0050	"	0.0909	0.00355	104		31-151		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0413</i>		<i>"</i>	<i>0.0366</i>		<i>113</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0359</i>		<i>"</i>	<i>0.0370</i>		<i>97.0</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0367</i>		<i>"</i>	<i>0.0370</i>		<i>99.2</i>		<i>21-167</i>		

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

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 1504284 - EPA 5030 Soil MS

Matrix Spike Dup (1504284-MSD1)	Source: 1504276-01			Prepared & Analyzed: 04/28/15						
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.136	0.0020	"	0.0935	0.0681	72.5	30-131	0.582	34	
Toluene	0.0859	0.0050	"	0.0935	ND	91.9	30-134	1.84	30	
Ethylbenzene	0.0945	0.0050	"	0.0927	ND	102	22-153	0.648	24	
m,p-Xylene	0.197	0.010	"	0.187	0.0104	100	10-159	1.02	68	
o-Xylene	0.0991	0.0050	"	0.0920	0.00355	104	31-151	0.636	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0416</i>		<i>"</i>	<i>0.0370</i>		<i>112</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0365</i>		<i>"</i>	<i>0.0374</i>		<i>97.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0365</i>		<i>"</i>	<i>0.0374</i>		<i>97.7</i>	<i>21-167</i>			

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
04/29/15 06:56

Notes and Definitions

- S-07 The surrogate recovery was outside acceptance limits indicating a potential high bias. The sample did not exhibit concentrations above reporting level for analytes represented by this surrogate. Data quality is not affected.
- 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

May 05, 2015

Brian Humphrey
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Berthoud Release

Enclosed are the results of analyses for samples received by Summit Scientific on 04/30/15 17:05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
05/05/15 16:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	1504297-01	Water	04/29/15 09:15	04/30/15 17:05

Summit Scientific

S₂

1504297

741 Corporate Circle, Suite J&K ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: TASMAN/DCP Project Manager: BRIAN HUMPHREY
 Address: _____ E-Mail: BHUMPHREY@TASMAN-GEO.COM
 City/State/Zip: _____
 Phone: _____ Fax: _____ Project Name: BERTHOUD RELEASE
 Sampler Name: DON BAGGINS Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BTx (8260)				
1	GW01	4/29/15	0915	2	✓				x								
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Relinquished by: <u>[Signature]</u> Date/Time: <u>4/30/15</u>	Received by: <u>[Signature]</u> Date/Time: <u>4/30/15 1705</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: <u>8.2°C</u> Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes: <u>on ice</u>
Relinquished by: <u>[Signature]</u> Date/Time: <u>4/30/15 1740</u>	Received by: _____ Date/Time: _____		
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____		

www.s2scientific.com

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
05/05/15 16:46

GW01
1504297-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/29/15 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	69	1.0	ug/l	1	1505041	05/05/15	05/05/15	EPA 8260B	
Toluene	90	1.0	"	"	"	"	"	"	
Ethylbenzene	36	1.0	"	"	"	"	"	"	
Xylenes (total)	150	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/15 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.6 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
05/05/15 16:46

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1505041 - EPA 5030 Water MS

Blank (1505041-BLK1)

Prepared & Analyzed: 05/04/15

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	1.0	"								
Surrogate: 1,2-Dichloroethane-d4	17.6		"	13.2		133		37-154			
Surrogate: Toluene-d8	13.4		"	13.3		101		45-149			
Surrogate: 4-Bromofluorobenzene	14.3		"	13.3		107		45-146			

LCS (1505041-BS1)

Prepared & Analyzed: 05/04/15

Benzene	32.8	1.0	ug/l	33.3		98.3		51-132			
Toluene	31.9	1.0	"	33.3		95.7		51-138			
Ethylbenzene	35.4	1.0	"	33.1		107		58-146			
m,p-Xylene	67.8	2.0	"	66.5		102		57-144			
o-Xylene	34.9	1.0	"	32.8		107		53-146			
Surrogate: 1,2-Dichloroethane-d4	17.7		"	13.2		134		37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100		45-149			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108		45-146			

Matrix Spike (1505041-MS1)

Source: 1504298-03

Prepared & Analyzed: 05/04/15

Benzene	32.7	1.0	ug/l	33.3	ND	98.2		34-141			
Toluene	31.6	1.0	"	33.3	ND	94.7		27-151			
Ethylbenzene	35.8	1.0	"	33.1	ND	108		29-160			
m,p-Xylene	68.3	2.0	"	66.5	ND	103		20-166			
o-Xylene	35.3	1.0	"	32.8	ND	108		33-159			
Surrogate: 1,2-Dichloroethane-d4	18.0		"	13.2		136		37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100		45-149			
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		104		45-146			

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
05/05/15 16:46

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 1505041 - EPA 5030 Water MS

Matrix Spike Dup (1505041-MSD1)	Source: 1504298-03			Prepared & Analyzed: 05/05/15						
Benzene	32.8	1.0	ug/l	33.3	ND	98.4	34-141	0.275	32	
Toluene	31.9	1.0	"	33.3	ND	95.6	27-151	0.946	25	
Ethylbenzene	35.5	1.0	"	33.1	ND	107	29-160	0.701	50	
m,p-Xylene	68.4	2.0	"	66.5	ND	103	20-166	0.0293	36	
o-Xylene	35.0	1.0	"	32.8	ND	107	33-159	0.654	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>18.7</i>		<i>"</i>	<i>13.2</i>		<i>142</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.7</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.9</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>45-146</i>			

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Berthoud Release

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
05/05/15 16:46

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

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.