

State of Colorado
Oil and Gas Conservation Commission

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



FOR OGCC USE ONLY

received 03/15/2016
Project 9558
Facility 445076
Document #: 2211946

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:

<input type="checkbox"/> Spill	<input type="checkbox"/> Complaint
<input type="checkbox"/> Inspection	<input type="checkbox"/> NOAV

Tracking No: _____

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

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

GENERAL INFORMATION

OGCC Operator Number: <u>47120</u>	Contact Name and Telephone
Name of Operator: <u>Kerr-McGee Oil and Gas Onshore, LP</u>	Name: <u>Phillip Hamlin</u>
Address: <u>1099 18th Street, Suite 1800</u>	No: <u>970-336-3500</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80202</u>	Fax: <u>970-336-3656</u>
API/Facility No: <u>318878</u>	County: <u>Weld</u>
Facility Name: <u>Ft St Vrain</u>	Facility Number: <u>63N67W9SESE</u>
Well Name: <u>Ft St Vrain</u>	Well Number: <u>2</u>
Location (Qtr, Sec, Twp, Rng, Meridian): <u>SESE S9 T3N R67W</u>	Latitude: <u>40.23557</u> Longitude: <u>-104.89112</u>

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Crude Oil and Produced Water

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.): Non-Crop Land

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Silt with Sand

Potential receptors (water wells within 1/4 mi, surface waters, etc.): The nearest surface water is located approximately 330' west of the site.
There are no water wells located within 1/4 mile of the release area.

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>16' (N-S) x 7' (E-W) x 4' bgs</u>	<u>Excavation, soil sampling, and laboratory analysis</u>
<input type="checkbox"/> Vegetation	_____	_____
<input checked="" type="checkbox"/> Groundwater	<u>See attached data</u>	<u>Groundwater sampling and laboratory analysis</u>
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

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

On February 18, 2014, historical hydrocarbon impacts were discovered beneath the separator during tank battery reconstruction activities at the Ft. St. Vrain 63N67W9SESE production facility. The volume of released material is unknown. The well was shut in, associated underground infrastructure removed, and excavation activities commenced. Groundwater was encountered in the excavation at approximately 4 feet below ground surface (bgs). A Form 19 was submitted to the COGCC on February 28, 2014. The COGCC has issued Spill Tracking Number 445076 for this release.

Describe how source is to be removed:

On February 18, 2014, excavation activities commenced and approximately 20 cubic yards of impacted material were excavated and transported to the Front Range Regional Landfill in Erie, Colorado for disposal. Excavation activities were guided in the field using a photoionization detector (PID) to measure volatile organic compound (VOC) concentrations in soil. Soil samples were collected from the sidewalls of the final extent of the excavation area at approximately 2 feet bgs. Soil samples were submitted to eAnalytics Laboratory in Loveland, Colorado for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by USEPA Method 8260, TPH - diesel range organics and oil range organics (DRO and ORO) by USEPA Method 8015. Laboratory results indicated that constituent concentrations in the soil samples collected from the final lateral extent of the excavation area were below the applicable COGCC Table 910-1 standards. Soils were excavated into the phreatic zone to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations. Groundwater was encountered in the excavation at approximately 4 feet bgs. A groundwater sample (GW01) was collected and submitted for laboratory analysis of BTEX. Analytical results received on February 19, 2014, indicated that the benzene concentration in sample GW01 was above the applicable COGCC Table 910-1 groundwater standard. Approximately 100 barrels of impacted groundwater were removed via vacuum truck and transported to a licensed injection facility for disposal. A second groundwater sample (GW02) was subsequently collected from the excavation area and submitted for laboratory analysis of BTEX. Analytical results received on February 19, 2014, indicated that the benzene concentration in sample GW02 remained above the applicable COGCC Table 910-1 groundwater standard. Soil analytical results are summarized in Table 1 and groundwater analytical results are summarized in Table 2. Soil and excavation groundwater sample locations are illustrated on Figure 1 and laboratory analytical reports are included as Attachment A.

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.:

Impacted soil was excavated and transported to the Front Range Regional Landfill in Erie, Colorado. Impacted groundwater was removed via a vacuum truck and transported to a licensed injection facility for disposal. Prior to backfilling the excavation, 100 pounds of Chemically Oxygenated Granular Activated Carbon (COGAC) were added to the groundwater table to mitigate remaining hydrocarbon impacts. Additional groundwater monitoring measures are described on the following page.



Tracking Number: Name of Operator: OGCC Operator No: Received Date: Well Name & No.: Facility Name & No.:

REMEDIATION WORKPLAN (CONT.)

OGCC Employee:

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.): On March 31, 2014, four temporary groundwater monitoring/remediation wells (BH01-BH04) were installed at the site to further assess the extent of groundwater impacts.

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 excavation has been backfilled with clean soil and graded to match the adjacent topography.

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? [] Y [X] N If yes, describe: Data indicate that impacted soil has been delineated and removed from the site.

Final disposition of E&P waste (land treated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.): Impacted soil was transported to the Front Range Regional Landfill in Erie, Colorado for disposal.

IMPLEMENTATION SCHEDULE

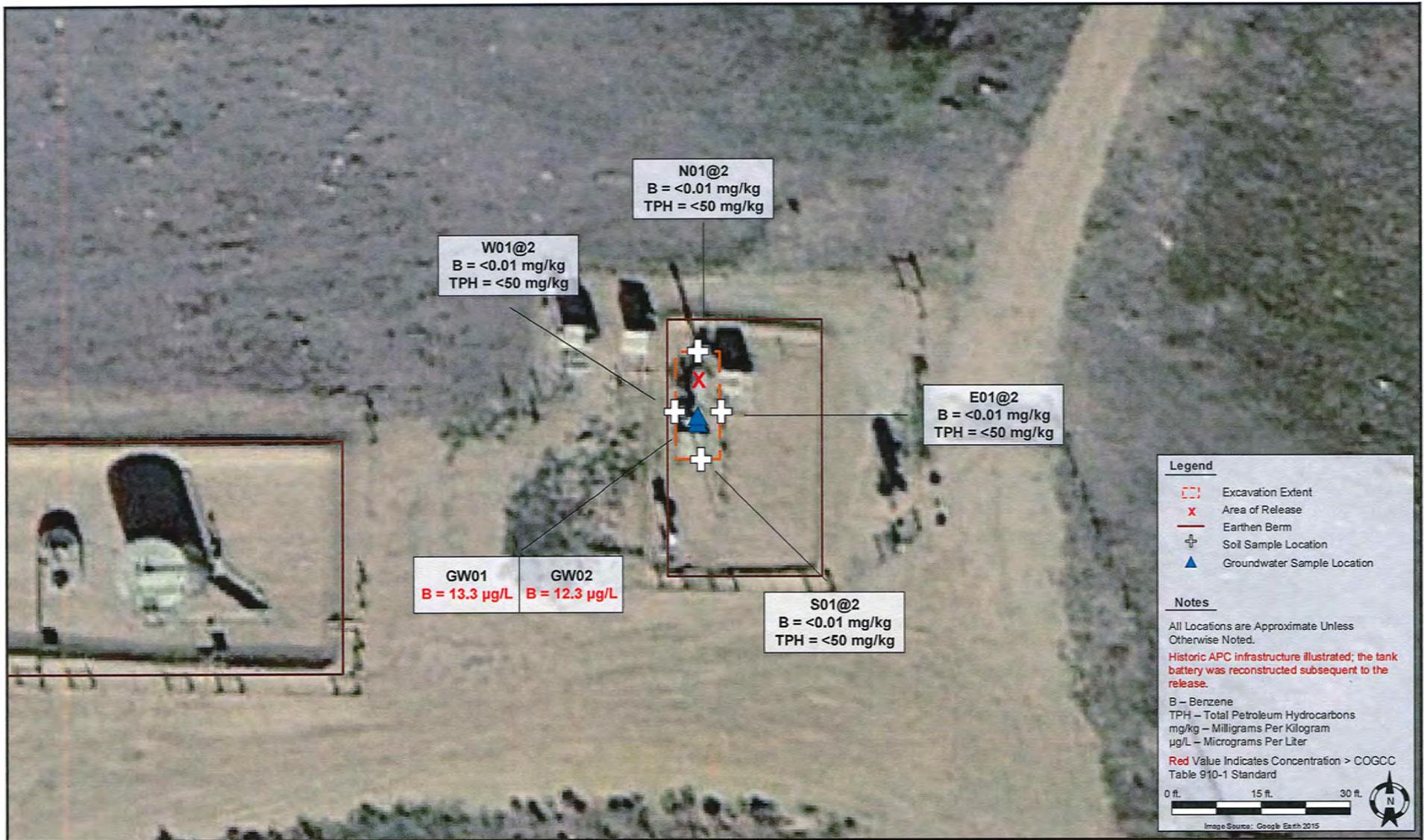
Date Site Investigation Began: 2/18/2014 Date Site Investigation Completed: 3/31/2014 Remediation Plan Submitted: 3-15-16 Remediation Start Date: 2/18/2014 Anticipated Completion Date: Actual Completion Date: 1/16/2015

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

Signed: [Signature] Title: Senior HSE Representative Date: 3-15-16

OGCC Approved: Title: Date:

FIGURES



DATE: January 5, 2016

DESIGNED BY: R. Bruner

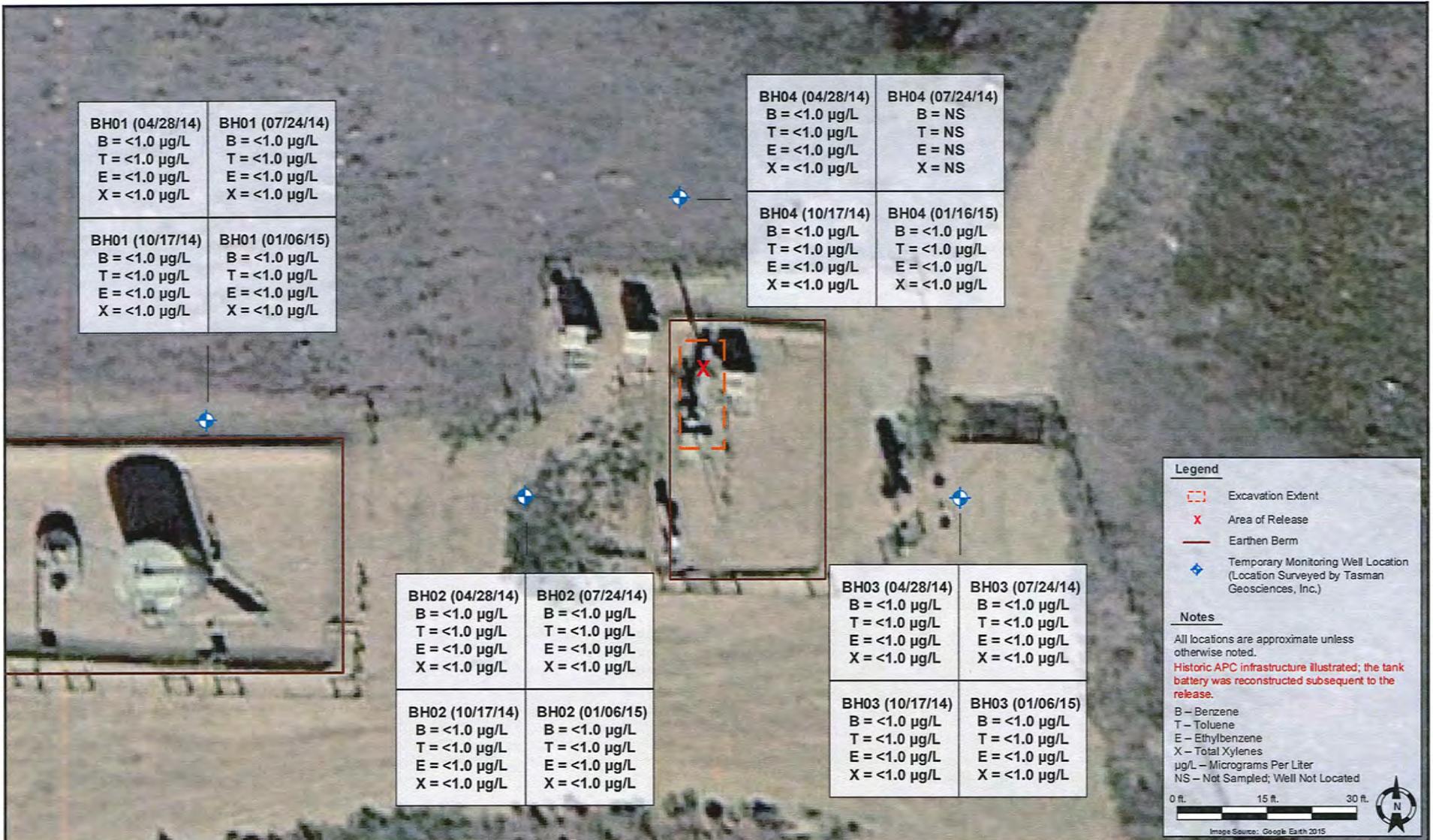
DRAWN BY: R. Bruner



Kerr-McGee Oil and Gas Onshore, LP
FT ST VRAIN 63N67W9SESE
SESE, Section 9, Township 3 North, Range 67 West
Weld County, Colorado

Sample Location
Map

FIGURE
1



DATE: January 5, 2016
DESIGNED BY: R. Bruner
DRAWN BY: R. Bruner



Kerr-McGee Oil and Gas Onshore, LP
FT ST VRAIN 63N67W9SESE
SESE, Section 9, Township 3 North, Range 67 West
Weld County, Colorado

Groundwater Sample Results
Map

FIGURE
2



DATE: February 3, 2016
 DESIGNED BY: R. Bruner
 DRAWN BY: R. Bruner



Kerr-McGee Oil and Gas Onshore, LP
 FT ST VRAIN 63N67W9SESE
 SESE, Section 9, Township 3 North, Range 67 West
 Weld County, Colorado

Groundwater Elevation Contour
 Map (04/28/2014)

FIGURE
 3



DATE: February 3, 2016

DESIGNED BY: R. Bruner

DRAWN BY: R. Bruner



Kerr-McGee Oil and Gas Onshore, LP
 FT ST VRRAIN 63N67W9SESE
 SESE, Section 9, Township 3 North, Range 67 West
 Weld County, Colorado

Groundwater Elevation Contour
 Map (07/24/2014)

FIGURE
 4



DATE: February 3, 2016

DESIGNED BY: R. Bruner

DRAWN BY: R. Bruner



Kerr-McGee Oil and Gas Onshore, LP
 FT ST VRAIN 63N67W9SESE
 SESE, Section 9, Township 3 North, Range 67 West
 Weld County, Colorado

Groundwater Elevation Contour
 Map (10/17/2014)

FIGURE
 5



- Legend**
- Excavation Extent
 - X Area of Release
 - Earthen Berm
 - ◆ Temporary Monitoring Well Location (Location Surveyed by Tasman Geosciences, Inc.)
 - Groundwater Elevation Contour (Dashed Where Inferred)
 - 5762.86 Groundwater Elevation (ft. AMSL)
 - Groundwater Flow Direction

Notes

All Locations are Approximate Unless Otherwise Noted.

Historic APC infrastructure illustrated; the tank battery was reconstructed subsequent to the release.

Ft. AMSL – Feet Above Mean Sea Level
 * - Depth to Water Gauged 1/16/15

0 ft. 15 ft. 30 ft.

Image Source: Google Earth 2015

DATE: February 3, 2016

DESIGNED BY: R. Bruner

DRAWN BY: R. Bruner



Kerr-McGee Oil and Gas Onshore, LP
FT ST VRAIN 63N67W9SESE
 SESE, Section 9, Township 3 North, Range 67 West
 Weld County, Colorado

Groundwater Elevation Contour
 Map (01/06/2015)

FIGURE
 6

**ANALYTICAL
TABLES**

TABLE 1
FT ST VRAIN 63N67W9SESE
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH-GRO (mg/kg)	TEPH-DRO (mg/kg)	TEPH-ORO (mg/kg)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500		
S01@2	02/18/14	2	<0.01	<0.01	<0.01	<0.01	<50	<50	<50
E01@2	02/18/14	2	<0.01	<0.01	<0.01	<0.01	<50	<50	<50
N01@2	02/18/14	2	<0.01	<0.01	<0.01	<0.01	<50	<50	<50
W01@2	02/18/14	2	<0.01	<0.01	<0.01	0.016	<50	<50	<50

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective January 1, 2015.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

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.

ft. bgs = Feet below ground surface.

BOLD = Analytical result is in exceedance of COGCC Table 910-1 soil standards.

TABLE 2
FT ST VRAIN 63N67W9SESE
GROUNDWATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth To Water (ft. BTOC)
COGCC Standards for groundwater (µg/L) ⁽¹⁾		5	560	700	1,400	
GW01	02/18/14	13.3	11.0	14.7	71.4	~4*
GW02	02/19/14	12.3	12.8	13.3	67.9	~4*
BH01	04/28/14	<1.0	<1.0	<1.0	<1.0	4.44
	07/24/14	<1.0	<1.0	<1.0	<1.0	5.10
	10/17/14	<1.0	<1.0	<1.0	<1.0	5.31
	01/06/15	<1.0	<1.0	<1.0	<1.0	5.00
BH02	04/28/14	<1.0	<1.0	<1.0	<1.0	4.26
	07/24/14	<1.0	<1.0	<1.0	<1.0	4.91
	10/17/14	<1.0	<1.0	<1.0	<1.0	5.11
	01/06/15	<1.0	<1.0	<1.0	<1.0	4.81
BH03	04/28/14	<1.0	<1.0	<1.0	<1.0	3.24
	07/24/14	<1.0	<1.0	<1.0	<1.0	3.91
	10/17/14	<1.0	<1.0	<1.0	<1.0	4.09
	01/06/15	<1.0	<1.0	<1.0	<1.0	3.79
BH04	04/28/14	<1.0	<1.0	<1.0	<1.0	2.95
	07/24/14	NS	NS	NS	NS	Well Not Located
	10/17/14	<1.0	<1.0	<1.0	<1.0	3.80
	01/16/15	<1.0	<1.0	<1.0	<1.0	3.82

Notes:

1. Standards for groundwater are taken from 2 CCR 404-1, Table 910-1, effective January 1, 2015.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

µg/L = Micrograms per liter.

ft. BTOC = Feet below top of casing.

NS = Not Sampled

NM = Not Measured

* feet below ground surface

BOLD = Analytical result is in exceedance of COGCC Table 910-1 groundwater standards.

**ATTACHMENT A
LABORATORY
ANALYTICAL REPORTS**

Test Report

eANALYTICS LABORATORY

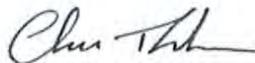
February 19, 2014

Client: Tasman Geosciences / Anadarko
Project: Ft St Vrain 2
Lab ID: 764
Date Samples Received: 2/18/2014
Number of Samples: 5
Sample Condition: Samples arrived intact and in appropriate sample containers
Sample Temperature: Within acceptable range of 2-6° C, or as specified in EPA Method

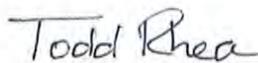
The quality control procedures associated with the requested analyses were satisfactorily passed before the samples were run.

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you.

Sincerely,



Christopher Dieken
Quality Assurance Manager



Todd Rhea
Laboratory Manager



Proudly certified by A2LA & The
United States Department of Defense
(DoD ELAP)

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538


 eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko

Lab ID: 764

Project: Ft St Vrain 2

Method: EPA8260

Sample Name	Dibromo- fluoromethane % Recovery	1,2 Dichloro- ethane-D4 % Recovery	Toluene-D8 % Recovery	Bromo- fluorobenzene % Recovery	Date Sampled	Date Analyzed	Lab ID
N01 @ 2'	107	102	86	90	02/18/14	02/18/14	764 1
E01 @ 2'	91	92	104	105	02/18/14	02/18/14	764 2
S01 @ 2'	91	90	100	107	02/18/14	02/18/14	764 3
W01 @ 2'	109	87	90	111	02/18/14	02/18/14	764 4

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538



Client: Tasman Geosciences / Anadarko

Lab ID: 764

Project: Ft St Vrain 2

Method: EPA8260

Sample Name	Dibromo- fluoromethane % Recovery	1,2 Dichloro- ethane-D4 % Recovery	Toluene-D8 % Recovery	Bromo- fluorobenzene % Recovery	Date Sampled	Date Analyzed	Lab ID
GW01	102	104	104	88	02/18/14	02/18/14	764 5

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

Test Report

eANALYTICS LABORATORY

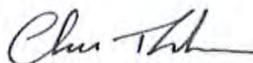
February 19, 2014

Client: Tasman Geosciences / Anadarko
Project: Ft St Vrain 2
Lab ID: 770
Date Samples Received: 2/19/2014
Number of Samples: 1
Sample Condition: Samples arrived intact and in appropriate sample containers
Sample Temperature: Within acceptable range of 2-6° C, or as specified in EPA Method

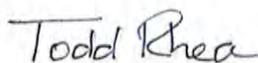
The quality control procedures associated with the requested analyses were satisfactorily passed before the samples were run.

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you.

Sincerely,



Christopher Dieken
Quality Assurance Manager



Todd Rhea
Laboratory Manager



Proudly certified by A2LA & The
United States Department of Defense
(DoD ELAP)

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko

Lab ID: 770

Project: Ft St Vrain 2

Method: EPA8260

Sample Name	Dibromo- fluoromethane % Recovery	1,2 Dichloro- ethane-D4 % Recovery	Toluene-D8 % Recovery	Bromo- fluorobenzene % Recovery	Date Sampled	Date Analyzed	Lab ID
GW02	91	103	101	93	02/19/14	02/19/14	770 1

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko

Lab ID: 770

Project: Ft St Vrain 2

Analysis: Volatile Organics

Method: EPA8260

Sample Name	Benzene % Rec	Toluene % Rec	Ethyl- benzene % Rec	Total Xylenes % Rec	Date Analyzed	Lab ID
Laboratory Control (70-130%)	90	101	95	89	02/19/14	LCS 770 1
Method Blank	< 1.0 ug/L	< 1.0 ug/L	< 1.0 ug/L	< 1.0 ug/L	02/19/14	MB 770 1

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

May 05, 2014

Tasman Geosciences

Jenna Barker

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Ft. St. Vrain 2, PSC 34-9

Project Number - [none]

Attached are your analytical results for KMG - Ft. St. Vrain 2, PSC 34-9 received by Origins Laboratory, Inc. April 30, 2014. This project is associated with Origins project number X404289-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Jenna Barker
Project Number: [none]
Project: KMG - Ft. St. Vrain 2, PSC 34-9

CROSS REFERENCE REPORT

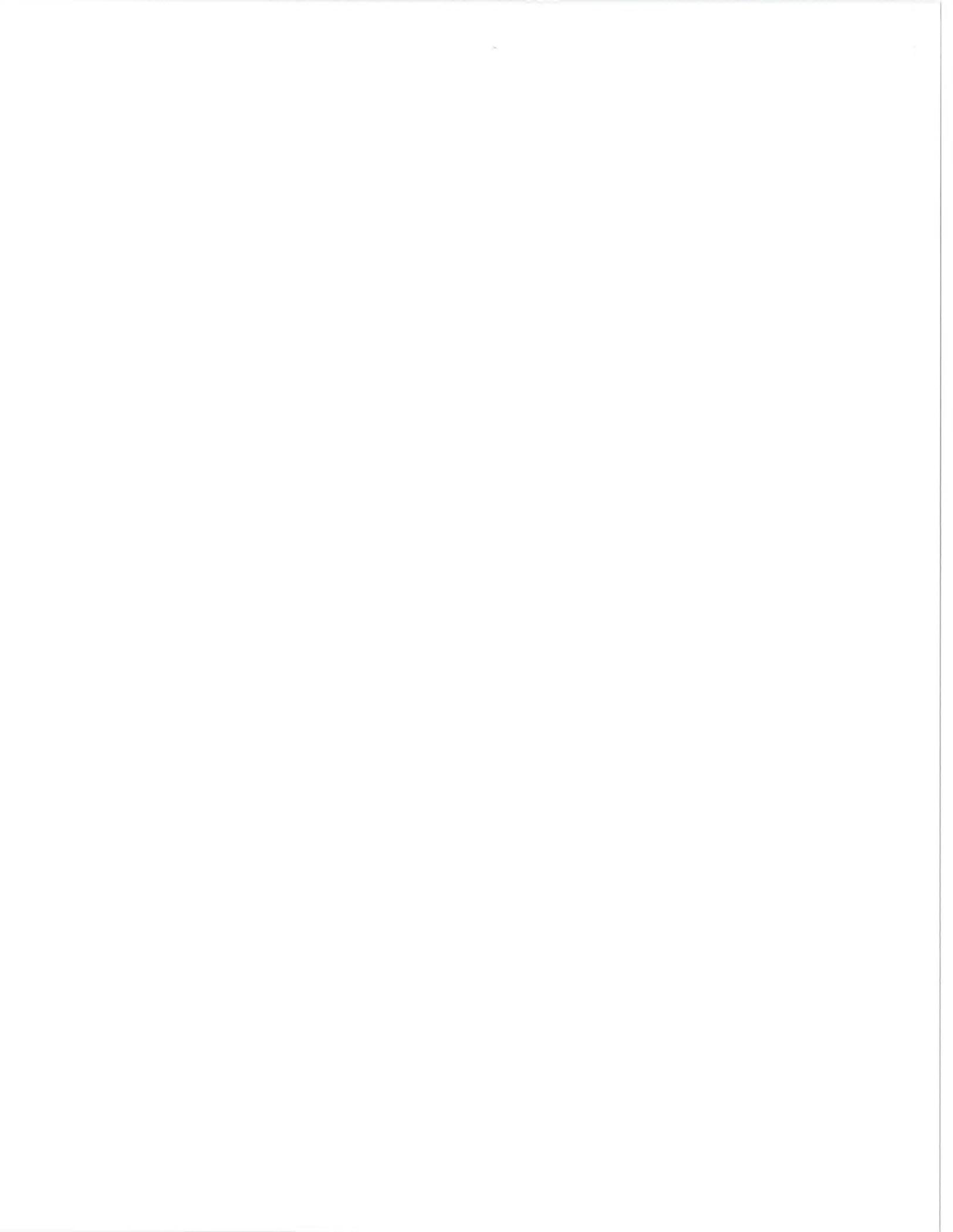
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	X404289-01	Water	April 28, 2014 13:15	04/30/2014 08:06
BH02	X404289-02	Water	April 28, 2014 13:30	04/30/2014 08:06
BH03	X404289-03	Water	April 28, 2014 13:40	04/30/2014 08:06
BH04	X404289-04	Water	April 28, 2014 13:45	04/30/2014 08:06

Origins Laboratory, Inc.



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.

Ross S Hutto For Noelle Doyle Mathis, President



Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order X404289

Client Tasman
 Client Project ID Ft St Vrain 2, PSC 34-9

Checklist Completed by Jeff Smith
 Date/time completed: 4/30/14 9:43

Shipped Via Pick Up
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill # 102

Matrix(s) Received (Check all that apply): Soil/Solid Water Other _____ (Describe)

Cooler Number/Temperature 12.4 °C / _____ °C / _____ °C

Thermometer ID: 3002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ¹¹ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ¹¹ ?	X			
Was adequate sample volume provided ¹¹ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ¹¹ ?		X		
Is a chain-of-custody (COC) present and filled out completely ¹¹ ?	X			
Does the COC agree with the number and type of sample bottles received ¹¹ ?	X			
Do the sample IDs on the bottle labels match the COC ¹¹ ?	X			
Is the COC properly relinquished by the client with date and time recorded ¹¹ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation and was it checked ¹¹ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) (pH < 2 for samples preserved with HNO ₃ , HCl, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ •NaOH, ZnAc•NaOH)	X			HCl
Additional Comments (if any):				

¹¹ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to be taken in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 05-05-14 11:39

Origins Laboratory, Inc.



Ross S Hutto For Noelle Doyle Mathis, President

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, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

BH01

4/28/2014 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
 X404289-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D30009	04/30/2014	05/01/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	96.7 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	104 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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.

Ross S Hutto For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

BH02

4/28/2014 1:30:00PM

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.
 X404289-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D30009	04/30/2014	05/01/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	96.2 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	99.8 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

BH03
4/28/2014 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X404289-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D30009	04/30/2014	05/01/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	97.8 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	104 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

BH04

4/28/2014 1:45:00PM

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.
 X404289-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D30009	04/30/2014	05/01/2014	
Toluene	ND	1.0	"	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"	"
Surrogate: 1,2-Dichloroethane-d4	98.3 %	87.3-113			"	"	"	"
Surrogate: Toluene-d8	91.8 %	90.9-108			"	"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	88.6-111			"	"	"	"

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4D30009 - EPA 5030B (Water)

Blank (4D30009-BLK1)

Prepared: 04/30/2014 Analyzed: 05/01/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		98.8	87.3-113			
Surrogate: Toluene-d8	59		"	62.5		93.7	90.9-108			
Surrogate: 4-Bromofluorobenzene	73		"	62.5		117	88.6-111			

Origins Laboratory, Inc.



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 6899 Pecos Street, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

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

Batch 4D30009 - EPA 5030B (Water)

LCS (4D30009-BS1)

Prepared: 04/30/2014 Analyzed: 05/01/2014

Benzene	48.5	1.0	ug/L	50.0		97.0	75-126			
Toluene	50.3	1.0	"	50.0		101	78.7-126			
Ethylbenzene	52.6	1.0	"	50.0		105	81-130			
m,p-Xylene	96.5	2.0	"	100		96.5	77.2-133			
o-Xylene	48.4	1.0	"	50.0		96.8	77.9-126			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.5	87.3-113			
Surrogate: Toluene-d8	66		"	62.5		105	90.9-108			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	88.6-111			

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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4D30009 - EPA 5030B (Water)										
Matrix Spike (4D30009-MS1)		Source: X404289-01			Prepared: 04/30/2014 Analyzed: 05/01/2014					
Benzene	65.7	1.0	ug/L	50.0	ND	131	74-130			QM-07
Toluene	45.2	1.0	"	50.0	ND	90.3	73-131			
Ethylbenzene	54.3	1.0	"	50.0	ND	109	76-132			
m,p-Xylene	109	2.0	"	100	ND	109	69-139			
o-Xylene	53.4	1.0	"	50.0	ND	107	74-131			
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		109	87.3-113			
Surrogate: Toluene-d8	54		"	62.5		86.0	90.9-108			QM-07
Surrogate: 4-Bromofluorobenzene	70		"	62.5		112	88.6-111			QM-07

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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Jenna Barker
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4D30009 - EPA 5030B (Water)										
Matrix Spike Dup (4D30009-MSD1)			Source: X404289-01			Prepared: 04/30/2014 Analyzed: 05/01/2014				
Benzene	60.0	1.0	ug/L	50.0	ND	120	74-130	9.05	20	
Toluene	51.1	1.0	"	50.0	ND	102	73-131	12.3	20	
Ethylbenzene	54.1	1.0	"	50.0	ND	108	76-132	0.461	20	
m,p-Xylene	110	2.0	"	100	ND	110	69-139	0.823	20	
o-Xylene	53.7	1.0	"	50.0	ND	107	74-131	0.485	20	
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	87.3-113			
Surrogate: Toluene-d8	55		"	62.5		88.0	90.9-108			QM-07
Surrogate: 4-Bromofluorobenzene	72		"	62.5		115	88.6-111			QM-07

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Jenna Barker
Project Number: [none]
Project: KMG - Ft. St. Vrain 2, PSC 34-9

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference

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Ross S Hutto For Noelle Doyle Malhis, President

August 04, 2014

Tasman Geosciences
Christine Wasko
6899 Pecos Street, Unit C
Denver CO 80211

Project Name - KMG - Ft. St. Vrain 2, PSC 34-9

Project Number - 8848739

Attached are your analytical results for KMG - Ft. St. Vrain 2, PSC 34-9 received by Origins Laboratory, Inc. July 25, 2014. This project is associated with Origins project number X407230-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: 8848739
Project: KMG - Ft. St. Vrain 2, PSC 34-9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	X407230-01	Water	July 24, 2014 11:00	07/25/2014 16:40
BH02	X407230-02	Water	July 24, 2014 11:12	07/25/2014 16:40
BH03	X407230-03	Water	July 24, 2014 11:21	07/25/2014 16:40

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

www.originslaboratory.com

X407230

ORIGINS
 LABORATORY, INC

page 1 of 1

Client: TASMAN
 Address: _____
 Telephone Number: _____
 Email Address: GWASKO@TASMAN-GEO.COM

Project Manager: Christine Wasko
 Project Name: Fort Saint Vrain 2, PSC 34-9
 Project Number: 8848739
 Samples Collected By: Brenda Maggiorini

1 225 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Asbestos			Other
B401	7/24/14	1100	3	X				X				BTEX	1
B402	7/24/14	1112	3	X				X				BTEX	2
B403	7/24/14	1121	3	X				X				BTEX	3
													4
													5
													6
													7
													8
													9
													10
Relinquished By: <u>[Signature]</u>	Date: 7/25/14	Time: 1040	Time: 1040	Received By: <u>[Signature]</u>	Date: 7/25/14	Time: 1040	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard						

Date Results Needed: _____

Origins Laboratory, Inc.

[Signature]

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 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: X407230

Client: Tasman

Client Project ID: Fort. Saint-Vrain 2

Checklist Completed by: Jeff Smith

Shipped Via: Pick Up

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 7/27/14

Airbill #: NA

Matrix(s) Received: (Check all that apply) Soil/Solid Water Other

Cooler Number/Temperature: 15.5 °C / 1 °C / 1 °C (Describe)

Thermometer ID: T002

Requirement Description	Yes	No	N/A	Comments (if any)
(If samples require cooling, was the temperature between 0°C to ≤ 6°C ¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)?	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly reinitiated by the client with date and time recorded ¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation and was it checked ¹⁾ ? (note ID of confirmation instrument used in comments) ? (preservation is not confirmed for sub-contracted analyses in order to ensure sample integrity/pH <2 for samples preserved with HNO3, HCl, H2SO4) / (pH >10 for samples preserved with Na4O2+NaOH, Zn(OH)2+NaOH)		<input checked="" type="checkbox"/>		Samples will be analyzed within 7 Days of collection
Additional Comments (if any):				

¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action in the additional comments (above) and the case narrative.

Reviewed by (Project Manager): Christine Wasko Date/Time Reviewed: 7/29/14/1348

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

BH01

7/24/2014 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X407230-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4G28011	07/28/2014	07/29/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.0 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	104 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.3 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

BH02

7/24/2014 11:12:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X407230-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4G28011	07/28/2014	07/29/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>95.2 %</i>	<i>87.3-113</i>			"	"	"	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>90.9-108</i>			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96.1 %</i>	<i>88.6-111</i>			"	"	"	

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: 8848739
Project: KMG - Ft. St. Vrain 2, PSC 34-9

BH03

7/24/2014 11:21:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X407230-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4G28011	07/28/2014	07/29/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	95.4 %	87.3-113			"	"	"	
<i>Surrogate: Toluene-d8</i>	104 %	90.9-108			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	97.0 %	88.6-111			"	"	"	

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Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4G28011 - EPA 5030B (Water)

Blank (4G28011-BLK1)

Prepared: 07/28/2014 Analyzed: 07/28/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5	95.8		87.3-113			
Surrogate: Toluene-d8	65		"	62.5	104		90.9-108			
Surrogate: 4-Bromofluorobenzene	60		"	62.5	95.4		88.6-111			

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 Denver CO 80211

Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4G28011 - EPA 5030B (Water)

LCS (4G28011-BS1)

Prepared: 07/28/2014 Analyzed: 07/28/2014

Benzene	52.9	1.0	ug/L	50.0		106	75-126			
Toluene	54.7	1.0	"	50.0		109	78.7-126			
Ethylbenzene	55.8	1.0	"	50.0		112	81-130			
m,p-Xylene	111	2.0	"	100		111	77.2-133			
o-Xylene	54.3	1.0	"	50.0		109	77.9-126			
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		90.7	87.3-113			
Surrogate: Toluene-d8	66		"	62.5		106	90.9-108			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.4	88.6-111			

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 Denver CO 80211

Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

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

Batch 4G28011 - EPA 5030B (Water)

Matrix Spike (4G28011-MS1)	Source: X407227-21			Prepared: 07/28/2014 Analyzed: 07/28/2014						
Benzene	55.1	1.0	ug/L	50.0	ND	110	74-130			
Toluene	59.0	1.0	"	50.0	ND	118	73-131			
Ethylbenzene	60.2	1.0	"	50.0	ND	120	76-132			
m,p-Xylene	119	2.0	"	100	ND	119	69-139			
o-Xylene	57.8	1.0	"	50.0	ND	116	74-131			
Surrogate: 1,2-Dichloroethane-d4	56		"	62.5		89.4	87.3-113			
Surrogate: Toluene-d8	66		"	62.5		106	90.9-108			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.4	88.6-111			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

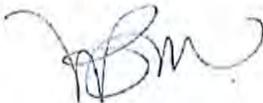
Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 8848739
 Project: KMG - Ft. St. Vrain 2, PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4G28011 - EPA 5030B (Water)										
Matrix Spike Dup (4G28011-MSD1)					Source: X407227-21					Prepared: 07/28/2014 Analyzed: 07/28/2014
Benzene	52.8	1.0	ug/L	50.0	ND	106	74-130	4.36	20	
Toluene	56.0	1.0	"	50.0	ND	112	73-131	5.11	20	
Ethylbenzene	57.1	1.0	"	50.0	ND	114	76-132	5.29	20	
m,p-Xylene	113	2.0	"	100	ND	113	69-139	5.02	20	
o-Xylene	55.2	1.0	"	50.0	ND	110	74-131	4.56	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>56</i>		<i>"</i>	<i>62.5</i>		<i>90.0</i>	<i>87.3-113</i>			
<i>Surrogate: Toluene-d8</i>	<i>66</i>		<i>"</i>	<i>62.5</i>		<i>106</i>	<i>90.9-108</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>60</i>		<i>"</i>	<i>62.5</i>		<i>96.1</i>	<i>88.6-111</i>			

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: 8848739
Project: KMG - Ft. St. Vrain 2, PSC 34-9

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

October 23, 2014

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Ft. St .Vrain 2

Project Number - [none]

Attached are your analytical results for KMG - Ft. St .Vrain 2 received by Origins Laboratory, Inc. October 17, 2014. This project is associated with Origins project number X410196-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



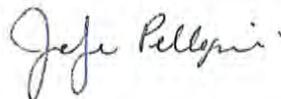
Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Ft. St. Vrain 2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01-101714	X410196-01	Water	October 17, 2014 14:30	10/17/2014 16:45
BH02-101714	X410196-02	Water	October 17, 2014 14:22	10/17/2014 16:45
BH03-101714	X410196-03	Water	October 17, 2014 14:12	10/17/2014 16:45
BH04-101714	X410196-04	Water	October 17, 2014 14:18	10/17/2014 16:45

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: X410196

Client: Tasman
 Client Project ID: Ft. St. Vrain 2

Checklist Completed by: Jen Pellegrini
 Date/time completed: 10-20-14

Shipped Via: Pickup
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____ (Describe)

Cooler Number/Temperature: 1 / 2.1 °C _____ °C _____ °C _____ °C

Thermometer ID: T003

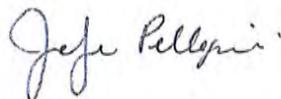
Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ¹⁾²⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ¹⁾²⁾ ?	Y			
Was adequate sample volume provided ¹⁾²⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ¹⁾²⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ¹⁾²⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ¹⁾²⁾ ?	Y			
Do the sample IDs on the bottle labels match the COC ¹⁾²⁾ ?	Y			
Is the COC properly relinquished by the client with date and time recorded ¹⁾²⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation and was it checked ¹⁾²⁾ (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)(pH <2 for samples preserved with HNO3, HCl, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)	X			HCL
Additional Comments (if any):				

¹⁾²⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Jen Pellegrini
 Reviewed by (Project Manager)

10/20/14
 Date/Time Reviewed

Origins Laboratory, Inc.



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, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Ft. St. Vrain 2

BH01-101714
10/17/2014 2:30:00PM

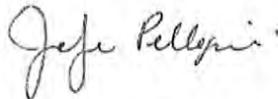
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410196-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4J21011	10/21/2014	10/22/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	107 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	99.2 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.4 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

BH02-101714

10/17/2014 2:22:00PM

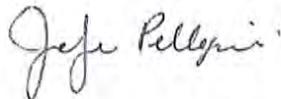
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410196-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4J21011	10/21/2014	10/22/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	109 %	87.3-113			"	"	"	
<i>Surrogate: Toluene-d8</i>	98.8 %	90.9-108			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	98.4 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

BH03-101714

10/17/2014 2:12:00PM

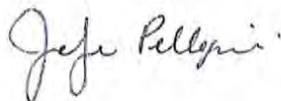
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410196-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4J21011	10/21/2014	10/22/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	109 %	87.3-113			"	"	"	
<i>Surrogate: Toluene-d8</i>	99.5 %	90.9-108			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	97.8 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

BH04-101714

10/17/2014 2:18:00PM

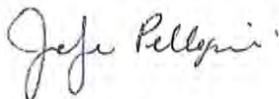
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410196-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4J21011	10/21/2014	10/22/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	109 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	98.7 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.0 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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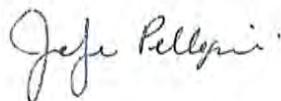
Batch 4J21011 - EPA 5030B (Water)

Blank (4J21011-BLK1)

Prepared: 10/21/2014 Analyzed: 10/22/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5	107		87.3-113			
Surrogate: Toluene-d8	64		"	62.5	102		90.9-108			
Surrogate: 4-Bromofluorobenzene	60		"	62.5	96.2		88.6-111			

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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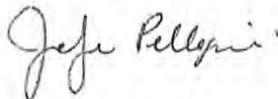
Batch 4J21011 - EPA 5030B (Water)

LCS (4J21011-BS1)

Prepared: 10/21/2014 Analyzed: 10/22/2014

Benzene	49.0	1.0	ug/L	50.0		98.0	75-126			
Toluene	51.0	1.0	"	50.0		102	78.7-126			
Ethylbenzene	52.9	1.0	"	50.0		106	81-130			
m,p-Xylene	105	2.0	"	100		105	77.2-133			
o-Xylene	51.7	1.0	"	50.0		103	77.9-126			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.9	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		102	90.9-108			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.4	88.6-111			

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

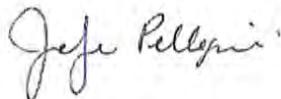
Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4J21011 - EPA 5030B (Water)

Matrix Spike (4J21011-MS1)	Source: X410194-01				Prepared: 10/21/2014 Analyzed: 10/22/2014					
Benzene	56.3	1.0	ug/L	50.0	ND	113	74-130			
Toluene	58.5	1.0	"	50.0	ND	117	73-131			
Ethylbenzene	60.9	1.0	"	50.0	ND	122	76-132			
m,p-Xylene	119	2.0	"	100	ND	119	69-139			
o-Xylene	57.4	1.0	"	50.0	ND	115	74-131			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.3	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		101	90.9-108			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.1	88.6-111			

Origins Laboratory, Inc.



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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Ft. St. Vrain 2

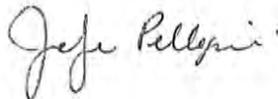
Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

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

Batch 4J21011 - EPA 5030B (Water)

Matrix Spike Dup (4J21011-MSD1)	Source: X410194-01				Prepared: 10/21/2014 Analyzed: 10/22/2014					
Benzene	53.8	1.0	ug/L	50.0	ND	108	74-130	4.47	20	
Toluene	56.3	1.0	"	50.0	ND	113	73-131	3.83	20	
Ethylbenzene	59.7	1.0	"	50.0	ND	119	76-132	2.01	20	
m,p-Xylene	116	2.0	"	100	ND	116	69-139	2.59	20	
o-Xylene	56.6	1.0	"	50.0	ND	113	74-131	1.35	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.8	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		101	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	88.6-111			

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Ft. St. Vrain 2

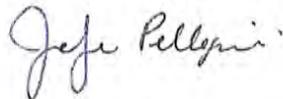
Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

January 13, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Fort St. Vrain 2 PSC 34-9 Project Number - [none]

Attached are your analytical results for KMG - Fort St. Vrain 2 PSC 34-9 received by Origins Laboratory, Inc. January 06, 2015. This project is associated with Origins project number X501030-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



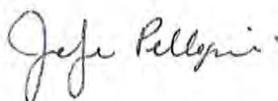
Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Fort St. Vrain 2 PSC 34-9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	X501030-01	Water	January 6, 2015 12:45	01/06/2015 16:30
BH02	X501030-02	Water	January 6, 2015 12:50	01/06/2015 16:30
BH03	X501030-03	Water	January 6, 2015 12:55	01/06/2015 16:30

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

www.originslaboratory.com

page 1 of 1

ORIGINS

LABORATORY, INC

X501030

Client: APC / Tasman Project Manager/Send Report To: C.Wasko@tasmanj20.com
 Address: 6899 Pecos st unit C Email Address: _____
Denver, 80221 Project Name/Number: Fort St Vrain 2 PSC 34-9
 Telephone Number: _____ Samples Collected By: EDH

Fax: 303.265.9645 | Phone: 303.433.1322 | Denver, CO 80211 | 1725 Elk Place

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ #		
BH01	11/6/15	12:45	3	X							BTEX S260	1
BH02	11/6/15	12:50	1									2
BH03	11/6/15	12:55	1									3
												4
												5
												6
												7
												8
												9
												10
Relinquished By: <u>[Signature]</u>	Date: <u>11/6/15</u>	Time: <u>16:30</u>	Received By: <u>[Signature]</u>	Date: <u>11/6/15</u>	Time: <u>16:30</u>	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 5.9						
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____							

Date Result Needed: _____

Comments: _____

Origins Laboratory, Inc.

Jefe Pellegrini

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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: XS01030

Client: Tasman
 Client Project ID: Fort St. Vrain 2 PSC 34-9

Checklist Completed by: Jeff Smith
 Date/time completed: 1/6/15

Shipped Via: Pickup
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____ (Describe)
 Cooler Number/Temperature: 1154 °C 1 °C 1 °C 1 °C
 Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / pH < 2 for samples preserved with HNO ₃ , HCl, H ₂ SO ₄ / (pH > 10 for samples preserved with Na ₂ O ₂ +NaOH, ZnAc+NaOH)	X			None
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature] Date/Time Reviewed 01-08-15

Origins Laboratory, Inc.

Jeff Pellegrini

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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

BH01
 1/6/2015 12:45:00PM

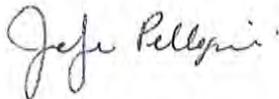
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
X501030-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	5A08009	01/08/2015	01/08/2015	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %	87.3-113			"	"	"	
<i>Surrogate: Toluene-d8</i>	98.4 %	90.9-108			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Fort St. Vrain 2 PSC 34-9

BH02
1/6/2015 12:50:00PM

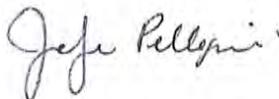
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X501030-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	5A08009	01/08/2015	01/08/2015	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	102 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	99.3 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

BH03

1/6/2015 12:55:00PM

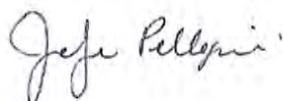
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X501030-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	5A08009	01/08/2015	01/08/2015	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	99.9 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	99.2 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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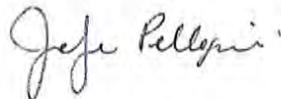
Batch 5A08009 - EPA 5030B (Water)

Blank (5A08009-BLK1)

Prepared: 01/08/2015 Analyzed: 01/08/2015

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	102		87.3-113			
Surrogate: Toluene-d8	63		"	62.5	100		90.9-108			
Surrogate: 4-Bromofluorobenzene	65		"	62.5	104		88.6-111			

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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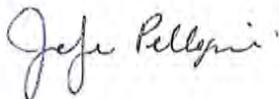
Batch 5A08009 - EPA 5030B (Water)

LCS (5A08009-BS1)

Prepared: 01/08/2015 Analyzed: 01/08/2015

Benzene	55.9	1.0	ug/L	50.0	112	75-126				
Toluene	56.2	1.0	"	50.0	112	78.7-126				
Ethylbenzene	56.4	1.0	"	50.0	113	80-130				
m,p-Xylene	114	2.0	"	100	114	77.2-133				
o-Xylene	56.0	1.0	"	50.0	112	77.9-126				
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5	105	87.3-113				
Surrogate: Toluene-d8	63		"	62.5	101	90.9-108				
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101	88.6-111				

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

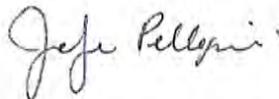
Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5A08009 - EPA 5030B (Water)

Matrix Spike (5A08009-MS1)	Source: X501054-01			Prepared: 01/08/2015 Analyzed: 01/08/2015						
Benzene	53.2	1.0	ug/L	50.0	ND	106	74-130			
Toluene	53.6	1.0	"	50.0	ND	107	73-131			
Ethylbenzene	57.6	1.0	"	50.0	0.7	114	76-132			
m,p-Xylene	113	2.0	"	100	ND	113	69-139			
o-Xylene	52.8	1.0	"	50.0	0.5	105	74-131			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.1	87.3-113			
Surrogate: Toluene-d8	62		"	62.5		98.7	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.5	88.6-111			

Origins Laboratory, Inc.



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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

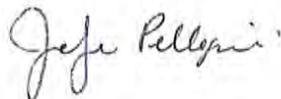
Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5A08009 - EPA 5030B (Water)

Matrix Spike Dup (5A08009-MSD1)	Source: X501054-01			Prepared: 01/08/2015 Analyzed: 01/08/2015						
Benzene	58.8	1.0	ug/L	50.0	ND	118	74-130	10.1	20	
Toluene	59.9	1.0	"	50.0	ND	120	73-131	11.0	20	
Ethylbenzene	64.2	1.0	"	50.0	0.7	127	76-132	10.9	20	
m,p-Xylene	128	2.0	"	100	ND	128	69-139	12.5	20	
o-Xylene	62.0	1.0	"	50.0	0.5	123	74-131	15.9	20	
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		91.7	87.3-113			
Surrogate: Toluene-d8	62		"	62.5		98.8	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.2	88.6-111			

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Fort St. Vrain 2 PSC 34-9

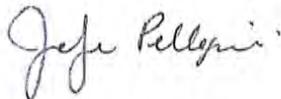
Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

January 22, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Fort St. Vrain 2 PSC 34-9 Project Number - [none]

Attached are your analytical results for KMG - Fort St. Vrain 2 PSC 34-9 received by Origins Laboratory, Inc. January 16, 2015. This project is associated with Origins project number X501166-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Fort St. Vrain 2 PSC 34-9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH04 - 011615	X501166-01	Water	January 16, 2015 11:25	01/16/2015 15:30

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: XS0116

Client: Tasman

Client Project ID: Fort St. Vrain 2, PSC 34-9

Checklist Completed by: Jen Pellegrini

Shipped Via: Pickup
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 01-19-13

Airbill #: N/A

Matrix(es) Received: (Check all that apply): Soil/Solid Water Other: _____ (Describe)

Cooler Number/Temperature: 1 / 0.1 °C / _____ °C / _____ °C / _____ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 5°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCl, H2SO4) / (pH >10 for samples preserved with NaOH/NaOH, ZnAc+NaOH)	X			HCL
Additional Comments (if any):				

⁽¹⁾if NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Jen Pellegrini
 Reviewed by (Project Manager)

1/19/13
 Date/Time Reviewed

Origins Laboratory, Inc.



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, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

BH04 - 011615
 1/16/2015 11:25:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X501166-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	5A20015	01/20/2015	01/21/2015	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %	87.3-113			"	"	"	
<i>Surrogate: Toluene-d8</i>	99.4 %	90.9-108			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	103 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

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

Batch 5A20015 - EPA 5030B (Water)

Blank (5A20015-BLK1)

Prepared: 01/20/2015 Analyzed: 01/21/2015

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5	101		87.3-113			
Surrogate: Toluene-d8	63		"	62.5	100		90.9-108			
Surrogate: 4-Bromofluorobenzene	64		"	62.5	102		88.6-111			

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

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

Batch 5A20015 - EPA 5030B (Water)

LCS (5A20015-BS1)

Prepared: 01/20/2015 Analyzed: 01/21/2015

Benzene	51.8	1.0	ug/L	50.0	104		75-126			
Toluene	50.2	1.0	"	50.0	100		78.7-126			
Ethylbenzene	51.6	1.0	"	50.0	103		80-130			
m,p-Xylene	104	2.0	"	100	104		77.2-133			
o-Xylene	51.0	1.0	"	50.0	102		77.9-126			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5	92.6		87.3-113			
Surrogate: Toluene-d8	62		"	62.5	99.8		90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5	99.5		88.6-111			

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

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

Batch 5A20015 - EPA 5030B (Water)

Matrix Spike (5A20015-MS1)	Source: X501168-03			Prepared: 01/20/2015 Analyzed: 01/21/2015						
Benzene	55.2	1.0	ug/L	50.0	ND	110	74-130			
Toluene	54.6	1.0	"	50.0	ND	109	73-131			
Ethylbenzene	55.8	1.0	"	50.0	ND	112	76-132			
m,p-Xylene	113	2.0	"	100	ND	113	69-139			
o-Xylene	54.2	1.0	"	50.0	ND	108	74-131			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		93.3	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		100	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		96.6	88.6-111			

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - Fort St. Vrain 2 PSC 34-9

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5A20015 - EPA 5030B (Water)

Matrix Spike Dup (5A20015-MSD1)	Source: X501168-03				Prepared: 01/20/2015 Analyzed: 01/21/2015					
Benzene	54.7	1.0	ug/L	50.0	ND	109	74-130	0.819	20	
Toluene	54.5	1.0	"	50.0	ND	109	73-131	0.293	20	
Ethylbenzene	56.4	1.0	"	50.0	ND	113	76-132	1.10	20	
m,p-Xylene	113	2.0	"	100	ND	113	69-139	0.0708	20	
o-Xylene	54.2	1.0	"	50.0	ND	108	74-131	0.0738	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		93.9	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		100	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		96.6	88.6-111			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Fort St. Vrain 2 PSC 34-9

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

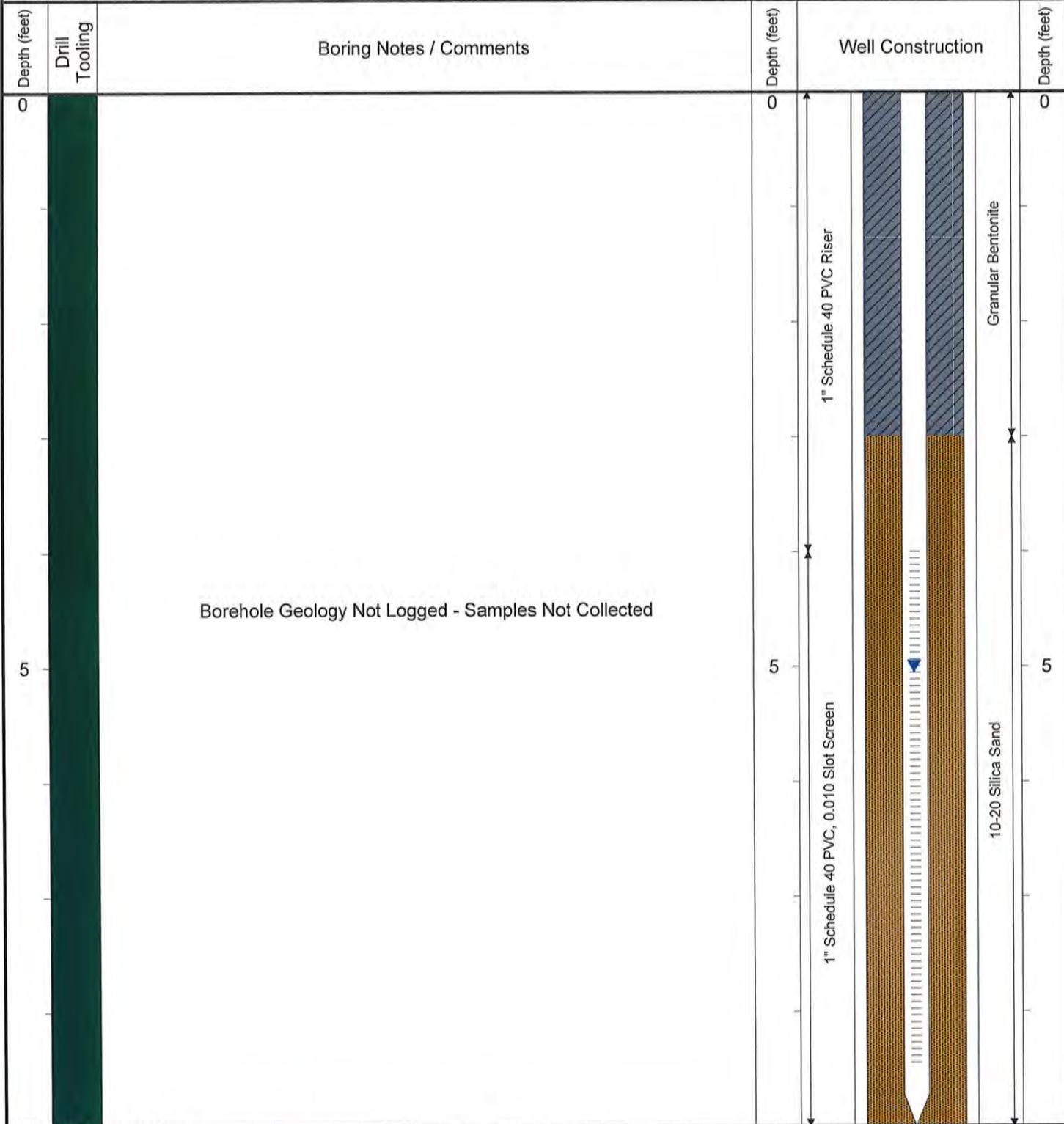
Noelle Doyle Mathis, President

**ATTACHMENT B
WELL COMPLETION
LOGS**



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP	Ft St Vrain 63N67W9SESE
DRILLED BY: Clayton Robertson	
PROJECT MANAGER: Robert Cornez	BORING / WELL ID: BH01
DRILLING CONTRACTOR: Tasman Geosciences, Inc.	
DRILLING EQUIPMENT: AMS PowerProbe	SURFACE COMPLETION: Stickup 12"
DRILL BIT SIZE (INCHES): 2-3/8"	LATITUDE (NAD 83): 40.233271
DATE STARTED - COMPLETED: 12/15/2014 - 12/15/2014	LONGITUDE (NAD 83): -104.894112
TOTAL WELL DEPTH (FT. BGS): 9	CASING ELEVATION (FT. AMSL): 5767.81
DEPTH TO WATER (FT. BGS): 5.00 (01/06/15) ▼	GROUND ELEVATION (FT. AMSL): Not Surveyed



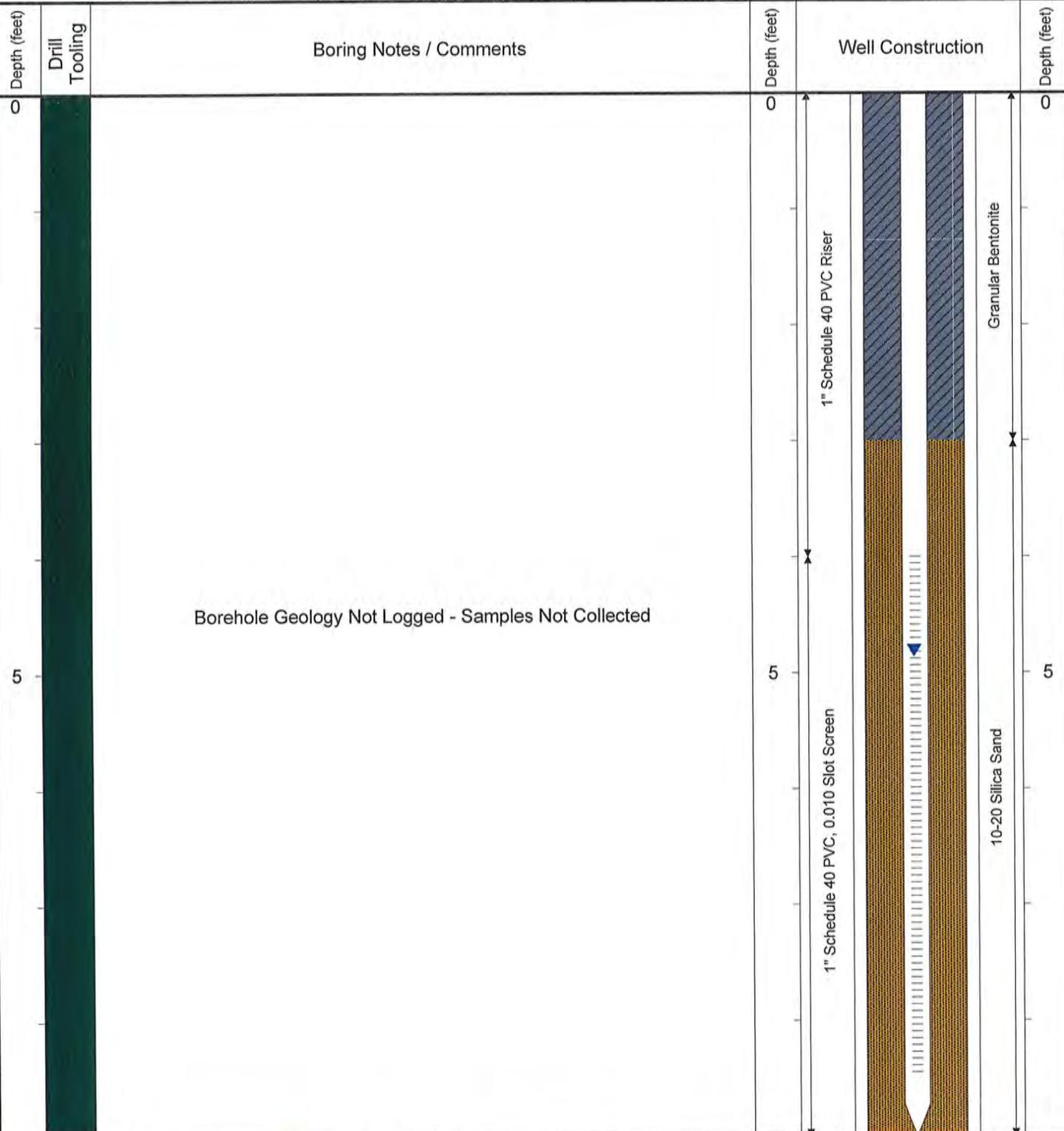
Drilling / Sample Method:

- Solid-Stem Auger
- Perforated Injection Tool
- Direct Push - Expendable Well Tip



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Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP	Ft St Vrain 63N67W9SESE
DRILLED BY: Clayton Robertson	
PROJECT MANAGER: Robert Cornez	BORING / WELL ID: BH02
DRILLING CONTRACTOR: Tasman Geosciences, Inc.	
DRILLING EQUIPMENT: AMS PowerProbe	SURFACE COMPLETION: Stickup 12"
DRILL BIT SIZE (INCHES): 2-3/8"	LATITUDE (NAD 83): 40.233237
DATE STARTED - COMPLETED: 12/15/2014 - 12/15/2014	LONGITUDE (NAD 83): -104.893927
TOTAL WELL DEPTH (FT. BGS): 9	CASING ELEVATION (FT. AMSL): 5767.65
DEPTH TO WATER (FT. BGS): 4.81 (01/06/15)	GROUND ELEVATION (FT. AMSL): Not Surveyed



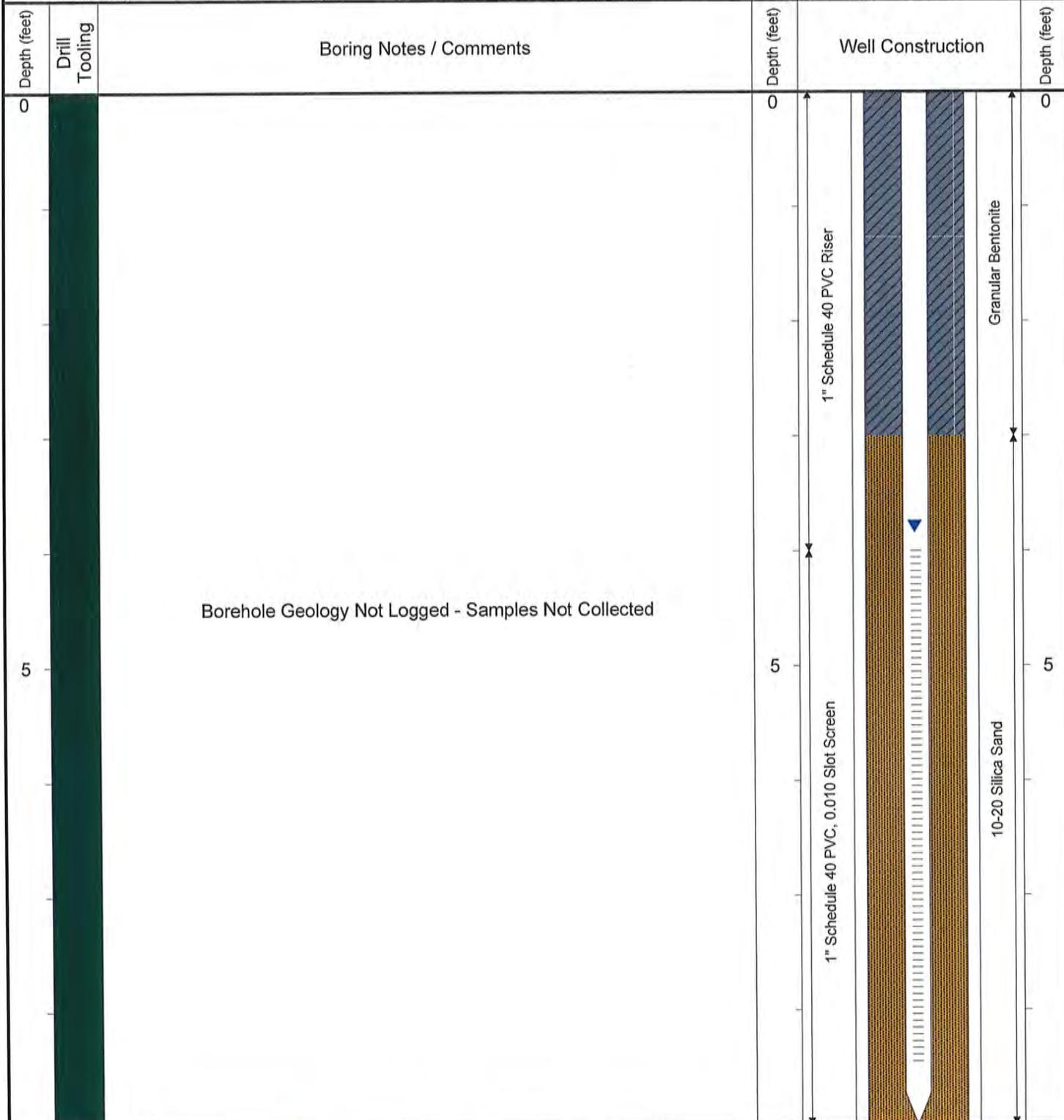
Drilling / Sample Method:

- Solid-Stem Auger
- Perforated Injection Tool
- Direct Push - Expendable Well Tip



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Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP	Ft St Vrain 63N67W9SESE
DRILLED BY: Clayton Robertson	
PROJECT MANAGER: Robert Cornez	BORING / WELL ID: BH03
DRILLING CONTRACTOR: Tasman Geosciences, Inc.	
DRILLING EQUIPMENT: AMS PowerProbe	SURFACE COMPLETION: Flush Mount
DRILL BIT SIZE (INCHES): 2-3/8"	LATITUDE (NAD 83): 40.233237
DATE STARTED - COMPLETED: 12/15/2014 - 12/15/2014	LONGITUDE (NAD 83): -104.893676
TOTAL WELL DEPTH (FT. BGS): 9	CASING ELEVATION (FT. AMSL): 5766.72
DEPTH TO WATER (FT. BGS): 3.79 (01/06/15)	GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

- Solid-Stem Auger
- Perforated Injection Tool
- Direct Push - Expendable Well Tip



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Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP

DRILLED BY: Clayton Robertson

PROJECT MANAGER: Robert Cornez

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS PowerProbe

DRILL BIT SIZE (INCHES): 2-3/8"

DATE STARTED - COMPLETED: 12/15/2014 - 12/15/2014

TOTAL WELL DEPTH (FT. BGS): 9

DEPTH TO WATER (FT. BGS): Not Measured

Ft St Vrain 63N67W9SESE

BORING / WELL ID: BH04

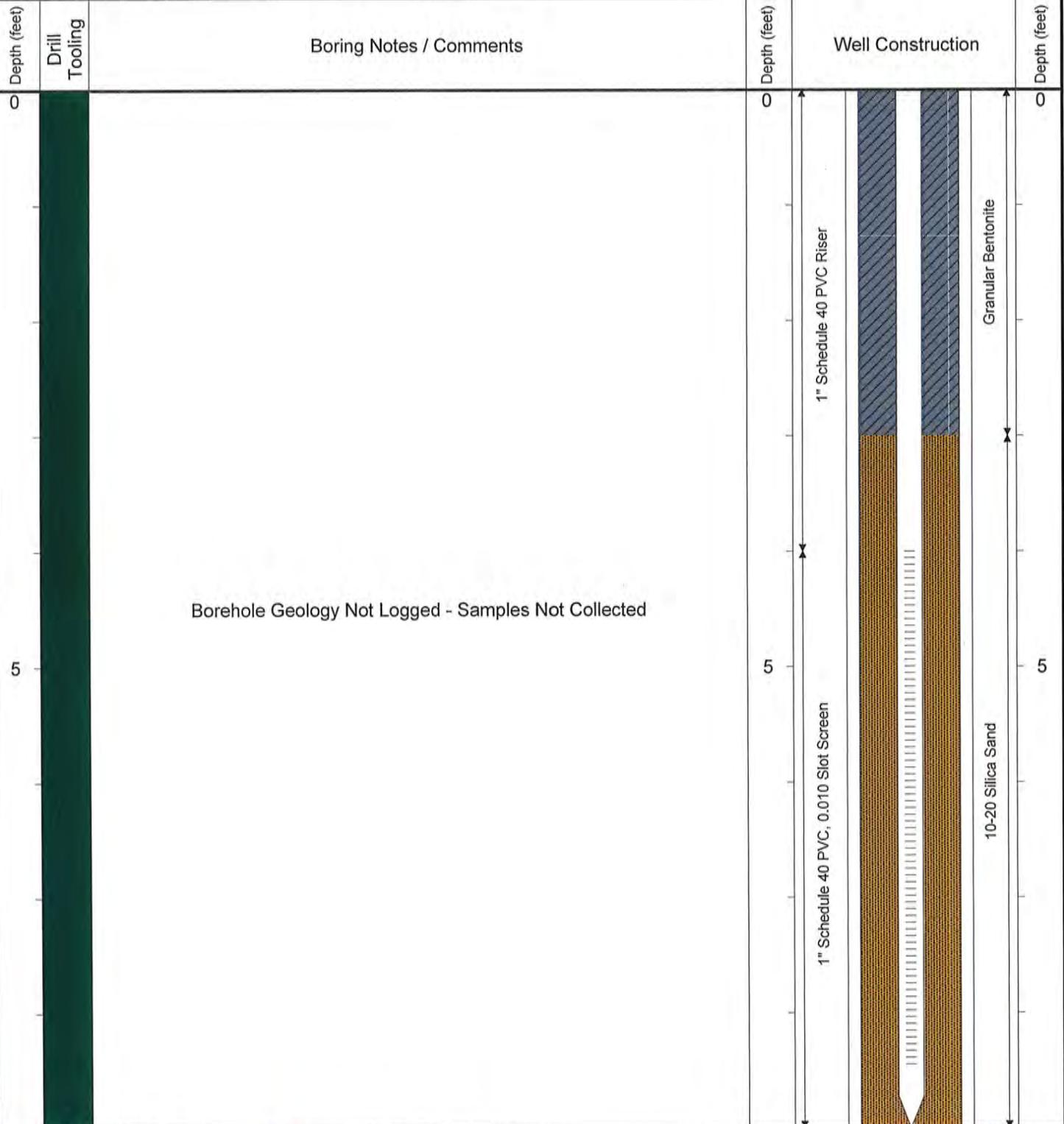
SURFACE COMPLETION: Flush Mount

LATITUDE (NAD 83): 40.233373

LONGITUDE (NAD 83): -104.893838

CASING ELEVATION (FT. AMSL): 5766.26

GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

■ Solid-Stem Auger

■ Perforated Injection Tool

■ Direct Push - Expendable Well Tip