

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

## 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.

## CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☒ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☐ Other (describe): \_\_\_\_\_

OGCC Employee:

☐ Spill ☐ Complaint  
☐ Inspection ☐ NOAV

Tracking No:

## GENERAL INFORMATION

<b>OGCC Operator Number:</b> 47120	Contact Name and Telephone
Name of Operator: <u>Kerr McGee Oil &amp; Gas Onshore LP</u>	<u>Phil Hamlin</u>
Address: <u>PO Box 173779</u>	No: <u>970-336-3500</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80217-3779</u>	Fax: <u>970-336-3656</u>
API/Facility No: <u>328564</u>	County: <u>Weld</u>
Facility Name: <u>UPRC</u>	Facility Number: <u>61N68W/25NWSW</u>
Well Name: <u>UPRC</u>	Well Number: <u>25-12V</u>
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWSW S25 1N 68W</u>	Latitude: <u>40.019389</u> Longitude: <u>-104.957882</u>

## TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.):	<u>Crude oil</u>
Site Conditions: Is location within a sensitive area (according to Rule 901e)?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N If yes, attach evaluation.
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.):	<u>Non-crop land</u>
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan:	<u>Sandy Clay</u>
Potential receptors (water wells within 1/4 mi, surface waters, etc.):	The nearest surface water (an un-named intermittent stream) is located 935 feet northeast of the site. The nearest water well is located 445 feet southeast of the site.
Description of Impact (if previously provided, refer to that form or document):	
Impacted Media (check):	Extent of Impact:
<input checked="" type="checkbox"/> Soils	<u>66' (E-W) x 52' (N-S) x 20' bgs</u>
<input type="checkbox"/> Vegetation	
<input checked="" type="checkbox"/> Groundwater	<u>See attached data.</u>
<input type="checkbox"/> Surface water	
How Determined:	<u>Soil excavation, soil sampling, and laboratory analysis.</u>
	<u>Groundwater sampling and laboratory analysis.</u>

## REMEDIALATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
On February 13, 2016, an operator discovered a release from a dumphine during routine activities at the UPRC-61N68W/25NWSW production facility. Between one and five barrels of oil were released outside the secondary containment but remained on the lease property. The facility was shut in, affected infrastructure removed, and excavation activities were initiated. Groundwater was encountered in the excavation area at approximately 20 feet below ground surface (bgs.) An initial Form 19 was submitted to the COGCC on February 15, 2016 (Document #400989031) and a Supplemental Form 19 was submitted to the COGCC on February 23, 2016 (Document #400993526). The COGCC has issued Spill Tracking # 444878 for this release.
Describe how source is to be removed:
On March 22, 2016, excavation activities commenced and approximately 2,350 cubic yards of impacted material were excavated and transported to the Front Range Regional Landfill in Weld County, 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 and base of the final extent of the excavation area at approximately 16 to 17 feet and 20 feet bgs, respectively. Soil samples were submitted to Origins Laboratory in Denver, 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, electrical conductivity (EC), and pH. Laboratory results indicated constituent concentrations in soil samples collected from the final extent of the excavation area were below the applicable COGCC Table 910-1 standards. Groundwater was encountered at approximately 20 feet bgs within the excavation; however, a representative sample could not be collected due to insufficient volume and accessibility. On June 1, 2016, temporary monitoring well BH01 was installed in the vicinity of the area of release. A groundwater sample (BH01) was collected and submitted to Origins Laboratory for analysis of BTEX. Analytical results received on June 3, 2016, indicated that BTEX concentrations in sample BH01 were above the applicable COGCC Table 910-1 groundwater standards. Soil and groundwater analytical results are summarized in Tables 1 and 2, respectively. Soil and groundwater sample locations are illustrated on Figures 1 and 2, respectively. 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 Weld County, Colorado. Additional proposed groundwater assessment measures are described on the following page.

State of Colorado  
Oil and Gas Conservation Commission1120 Lincoln Street, Suite 801, Denver, Colorado  
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Page 2

## REMEDIATION WORKPLAN (CONT.)

OGCC Employee: \_\_\_\_\_

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

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

On June 1, 2016, one temporary groundwater monitoring well (BH01) was installed in the vicinity of the release area to assess potential groundwater impacts. On July 28, 2016, four additional temporary groundwater monitoring wells (BH02 - BH05) were installed to further assess the extent of groundwater impacts. The five wells (BH01 - BH05) will be sampled on a quarterly basis and submitted for laboratory analysis of BTEX until concentrations remain below COGCC groundwater standards for four consecutive quarters. Temporary well locations are illustrated on Figure 2 and temporary monitoring well completion logs are included as Attachment B.

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. The dumpline was replaced and Kerr-McGee's production facility remains operational. Reclamation activities at the site will be compliant with COGCC regulations.

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 ☐ N If yes, describe:

Data indicate that impacted soil has been delineated and removed from the site. Five temporary monitoring wells were installed to further assess groundwater impacts. Pending receipt of groundwater analytical data, additional point-of-compliance wells may be installed, if necessary. Soil and groundwater analytical results are summarized in Tables 1 and 2, respectively. Soil and groundwater sample locations are presented on Figures 1 and 2, respectively. Analytical laboratory reports are included as Attachment A and temporary monitoring well completion logs are included as Attachment B.

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 Weld County, Colorado for disposal.

## IMPLEMENTATION SCHEDULE

Date Site Investigation Began:	2/13/2016	Date Site Investigation Completed:	TBD	Remediation Plan Submitted:	
Remediation Start Date:	3/22/2016	Anticipated Completion Date:	7/15/2018	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: Phillip Hamlin

Signed:  Title: Senior HSE Representative Date: 9/7/2016

OGCC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

## FIGURES









DATE:	August 2, 2016
DESIGNED BY:	M. Jahn
DRAWN BY:	M. Jahn



**Kerr-McGee Oil and Gas Onshore, LP**  
**UPRC – 61N68W/25NWSW**  
NWSW, Section 25, Township 1 North, Range 68 West  
Weld County, Colorado

Temporary Monitoring Well  
Location Map

**FIGURE**  
**2**

## **ANALYTICAL TABLES**



**TABLE 1**  
**UPRC 61N68W/25NWSW**  
**SOIL SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

Sample Location	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)	EC (mmhos/cm)	pH (units)
COGCC standards for soil (mg/kg) <sup>(1)</sup>			0.17	85	100	175	500			4 mmhos/cm or 2x BG	6-9
B01@20'	03/29/16	20	0.002	0.003	<0.002	<0.002	<0.200	<50	<200	0.180	7.86
B02@20'	03/29/16	20	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	0.185	8.13
E01@17'	03/29/16	17	<b>2.90</b>	3.39	1.52	15.5	281	210	<200	0.246	7.91
E02@17'a	03/29/16	17	<0.050	<0.050	<0.050	<0.050	10.7	<50	<200	0.119	8.24
S01@17'	03/29/16	17	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.117	8.02
S02@17'	03/29/16	17	0.016	<0.002	<0.002	<0.002	<0.200	<50	<200	0.167	7.90
W02@17'	03/29/16	17	<b>1.61</b>	16.6	1.42	22.1	383	<50	<200	0.197	7.72
B03@20'	05/05/16	20	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.216	8.02
W03@17'	05/05/16	17	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.235	7.42
B04@20'	05/06/16	20	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.182	8.02
E02@17'b	05/06/16	17	<b>0.30</b>	0.24	0.08	0.46	43	180	<200	0.0982	8.12
B05@20'	05/12/16	20	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.0886	7.64
E03@17'	05/12/16	17	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.143	7.78
N03@17'	05/12/16	17	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.234	7.66
S03@17'	05/12/16	17	<b>2.70</b>	8.2	0.81	14	150	65	<200	0.101	7.74
E04@16'	05/13/16	16	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.282	7.63
S03@16'	05/13/16	16	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.202	7.27

**Notes:**

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective January 30, 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

EC = Electrical conductivity

mmhos/cm = Millimhos per centimeter

mg/kg = Milligrams per kilogram.

BG = Background concentration.

ft. bgs = Feet below ground surface.

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

**TABLE 2**  
**UPRC 61N68W/25NWSW**  
**GROUNDWATER SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

Sample Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth To Water (ft. BTOC)
<b>COGCC Standards for groundwater (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
BH01	06/01/16	<b>153,000</b>	<b>1,090,000</b>	<b>140,000</b>	<b>2,260,000</b>	19.25

**Notes:**

1. Standards for groundwater are taken from 2 CCR 404-1, Table 910-1, effective January 30, 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.

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



**ATTACHMENT A  
LABORATORY  
ANALYTICAL REPORTS**



August 08, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - UPRC 25-12V**

**Project Number - [none]**

Attached are your analytical results for KMG - UPRC 25-12V received by Origins Laboratory, Inc. March 29, 2016. This project is associated with Origins project number X603329-01.

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



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E01 @ 17	X603329-01	Soil	March 29, 2016 14:45	03/29/2016 16:55
E02 @ 17a	X603329-02	Soil	March 29, 2016 14:50	03/29/2016 16:55
S01 @ 17	X603329-03	Soil	March 29, 2016 14:55	03/29/2016 16:55
B01 @ 20	X603329-04	Soil	March 29, 2016 15:10	03/29/2016 16:55
S02 @ 17	X603329-05	Soil	March 29, 2016 15:15	03/29/2016 16:55
W02 @ 17	X603329-06	Soil	March 29, 2016 15:25	03/29/2016 16:55
B02 @ 20	X603329-07	Soil	March 29, 2016 15:30	03/29/2016 16:55

Per the email from Mike Jahn on 08/05/16, sample E02@17' was changed to E02@17'a.

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

www.originslaboratory.com

page 1 of 1

X603329

**ORIGINS**  
LABORATORY, INC

Client: Tasman Geosciences

Address:

Project Manager: Bob Cornez



Project Name: UPRC 25-12V

Project Number:

Samples Collected By: Kate Forsmark

Telephone Number: 352 262 9910

Email Address: kcornez@tasman-geo.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Alk Surfaces		
E01217	3/29/16	1445	1	X				X			GOREX S260 TPH-D201000-8015 pH EC SAR (FEC)	1
E02217	3/29/16	1450	1	X				X				2
S01217	3/29/16	1455	1	X				X				3
B01220	3/29/16	1510	1	X				X				4
S02217	3/29/16	1515	1	X				X				5
W02217	3/29/16	1525	1	X				X				6
B02220	3/29/16	1530	1	X				X				7
												8
												9
												10
Relinquished By: 	Date: 3/29/16	Time: 1455										Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr
Relinquished By: 	Date: 3/29/16	Time: 1455										Standard <input checked="" type="checkbox"/>

Date Results Needed: 3/29/16

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X603329

Client: Tasman

Client Project ID: UPRC 25-12V

Checklist Completed by: Jeff Smith

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

Date/time completed: 3/29/16

Airbill #: NA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 5.0 °C 1 / \_\_\_\_\_ °C 1 / \_\_\_\_\_ °C (Describe)

Thermometer ID: TD03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>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)

3/29/16  
Date/Time Reviewed

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

E01 @ 17  
3/29/2016 2:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X603329-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	210	50.0	mg/kg	1	B6C2804	03/29/2016	03/29/2016	
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl	84.5 %	59-131			"	"	"	
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**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	281	5.00	mg/kg	25	B6C2901	03/29/2016	03/30/2016	
Benzene	2.90	0.050	"	"	"	"	"	
Toluene	3.39	0.050	"	"	"	"	"	
Ethylbenzene	1.52	0.050	"	"	"	"	"	
Xylenes, total	15.5	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"	"	
Surrogate: Toluene-d8	110 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	112 %	70-130			"	"	"	

**pH in Soil by EPA 9045D**

pH	7.91		pH Units	1	B6C2904	03/29/2016	03/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.246		mmhos/cm	"	B6C2905	"	03/29/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

E02 @ 17a  
3/29/2016 2:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X603329-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6C2804	03/29/2016	03/29/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.8 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	10.7	5.00	mg/kg	25	B6C2901	03/29/2016	03/30/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 95.8 % 70-130 " " "  
Surrogate: Toluene-d8 101 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.24		pH Units	1	B6C2904	03/29/2016	03/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.119		mmhos/cm	"	B6C2905	"	03/29/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

S01 @ 17  
3/29/2016 2:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X603329-03 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6C2804	03/29/2016	03/29/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 87.6 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6C2901	03/29/2016	03/30/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 94.2 % 70-130 " " "  
Surrogate: Toluene-d8 101 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.02		pH Units	1	B6C2904	03/29/2016	03/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.117		mmhos/cm	"	B6C2905	"	03/29/2016	
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**B01 @ 20**  
**3/29/2016 3:10:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X603329-04 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6C2804	03/29/2016	03/30/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl	88.5 %	59-131			"	"	"	
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**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6C2901	03/29/2016	03/30/2016	U
Benzene	<b>0.002</b>	0.002	"	"	"	"	"	
Toluene	<b>0.003</b>	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	100 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.0 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	

**pH in Soil by EPA 9045D**

pH	7.86		pH Units	1	B6C2904	03/29/2016	03/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.180		mmhos/cm	"	B6C2905	"	03/29/2016	
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

S02 @ 17  
3/29/2016 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X603329-05 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6C2804	03/29/2016	03/30/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 89.6 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6C2901	03/29/2016	03/30/2016	U
Benzene	0.016	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "  
Surrogate: Toluene-d8 98.6 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 105 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.90		pH Units	1	B6C2904	03/29/2016	03/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.167		mmhos/cm	"	B6C2905	"	03/29/2016	
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

W02 @ 17  
3/29/2016 3:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X603329-06 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6C2804	03/29/2016	03/30/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 69.4 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	383	5.00	mg/kg	25	B6C2901	03/29/2016	03/30/2016	
Benzene	1.61	0.050	"	"	"	"	"	
Toluene	16.6	0.498	"	250	"	"	03/30/2016	
Ethylbenzene	1.42	0.050	"	25	"	"	03/30/2016	
Xylenes, total	22.1	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 93.2 % 70-130 " " "  
Surrogate: Toluene-d8 113 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 114 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.72		pH Units	1	B6C2904	03/29/2016	03/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.197		mmhos/cm	"	B6C2905	"	03/29/2016	
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**B02 @ 20**  
**3/29/2016 3:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X603329-07 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6C2804	03/29/2016	03/30/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 79.8 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6C2901	03/29/2016	03/30/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 104 % 70-130 " " "  
*Surrogate: Toluene-d8* 97.9 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 104 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.13		pH Units	1	B6C2904	03/29/2016	03/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.185		mmhos/cm	"	B6C2905	"	"	
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6C2901 - EPA 5030 (soil)</b>										
<b>Blank (B6C2901-BLK1)</b>					Prepared: 03/29/2016 Analyzed: 03/29/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	70-130			

Origins Laboratory, Inc.



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Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6C2901 - EPA 5030 (soil)</b>										
<b>Blank (B6C2901-BLK2)</b>					Prepared: 03/29/2016 Analyzed: 03/29/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		95.5	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	70-130			

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 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - UPRC 25-12V

**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
<b>Batch B6C2901 - EPA 5030 (soil)</b>										
<b>LCS (B6C2901-BS1)</b>					Prepared: 03/29/2016 Analyzed: 03/29/2016					
Benzene	0.104	0.002	mg/kg	0.100		104	77.1-124			
Toluene	0.101	0.002	"	0.100		101	74.5-128			
Ethylbenzene	0.108	0.002	"	0.100		108	66.4-127			
m,p-Xylene	0.214	0.004	"	0.200		107	76.6-124			
o-Xylene	0.106	0.002	"	0.100		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		95.0	70-130			
Surrogate: Toluene-d8	62		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6C2901 - EPA 5030 (soil)</b>										
<b>LCS (B6C2901-BS2)</b>					Prepared: 03/29/2016 Analyzed: 03/29/2016					
Benzene	0.099	0.002	mg/kg	0.100		98.7	77.1-124			
Toluene	0.096	0.002	"	0.100		96.1	74.5-128			
Ethylbenzene	0.102	0.002	"	0.100		102	66.4-127			
m,p-Xylene	0.198	0.004	"	0.200		99.2	76.6-124			
o-Xylene	0.109	0.002	"	0.100		109	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		99.4	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	70-130			

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Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6C2901 - EPA 5030 (soil)**

Matrix Spike (B6C2901-MS1)		Source: X603320-01			Prepared: 03/29/2016 Analyzed: 03/29/2016					
Benzene	0.114	0.002	mg/kg	0.100	ND	114	71.8-126			
Toluene	0.114	0.002	"	0.100	ND	114	65.1-130			
Ethylbenzene	0.123	0.002	"	0.100	ND	123	62.2-130			
m,p-Xylene	0.247	0.004	"	0.200	ND	124	46.5-137			
o-Xylene	0.119	0.002	"	0.100	ND	119	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.7	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6C2901 - EPA 5030 (soil)**

Matrix Spike (B6C2901-MS2)		Source: X603320-01			Prepared: 03/29/2016 Analyzed: 03/29/2016					
Benzene	0.111	0.002	mg/kg	0.100	ND	111	71.8-126			
Toluene	0.112	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.121	0.002	"	0.100	ND	121	62.2-130			
m,p-Xylene	0.242	0.004	"	0.200	ND	121	46.5-137			
o-Xylene	0.116	0.002	"	0.100	ND	116	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		93.2	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6C2901 - EPA 5030 (soil)**

Matrix Spike Dup (B6C2901-MSD1)		Source: X603320-01			Prepared: 03/29/2016 Analyzed: 03/29/2016					
Benzene	0.114	0.002	mg/kg	0.100	ND	114	71.8-126	0.193	11.3	
Toluene	0.113	0.002	"	0.100	ND	113	65.1-130	0.530	15.4	
Ethylbenzene	0.122	0.002	"	0.100	ND	122	62.2-130	0.473	19.6	
m,p-Xylene	0.244	0.004	"	0.200	ND	122	46.5-137	1.11	19.2	
o-Xylene	0.118	0.002	"	0.100	ND	118	54.2-134	0.893	17.9	
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		93.5	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6C2901 - EPA 5030 (soil)**

Matrix Spike Dup (B6C2901-MSD2)		Source: X603320-01			Prepared: 03/29/2016 Analyzed: 03/29/2016					
Benzene	0.105	0.002	mg/kg	0.100	ND	105	71.8-126	5.72	11.3	
Toluene	0.104	0.002	"	0.100	ND	104	65.1-130	8.04	15.4	
Ethylbenzene	0.114	0.002	"	0.100	ND	114	62.2-130	5.92	19.6	
m,p-Xylene	0.220	0.004	"	0.200	ND	110	46.5-137	9.21	19.2	
o-Xylene	0.121	0.002	"	0.100	ND	121	54.2-134	3.81	17.9	
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		97.0	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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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**Extractable Petroleum Hydrocarbons by 8015C - 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 B6C2804 - EPA 3580**

**Blank (B6C2804-BLK1)**

Prepared: 03/28/2016 Analyzed: 03/29/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	36		"	50.0		72.9	59-131			

**Blank (B6C2804-BLK2)**

Prepared: 03/28/2016 Analyzed: 03/29/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		88.8	59-131			

**LCS (B6C2804-BS1)**

Prepared: 03/28/2016 Analyzed: 03/29/2016

Diesel (C10-C28)	923	50.0	mg/kg	1000		92.3	64-121			
Residual Range Organics (C28-C40)	893	200	"	1000		89.3	58-124			
Surrogate: o-Terphenyl	48		"	50.0		95.2	59-131			

**Matrix Spike (B6C2804-MS1)**

**Source: X603309-01**

Prepared: 03/28/2016 Analyzed: 03/29/2016

Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	53-125			
Residual Range Organics (C28-C40)	1000	200	"	1000	ND	100	47-133			
Surrogate: o-Terphenyl	48		"	50.0		95.6	59-131			

**Matrix Spike (B6C2804-MS2)**

**Source: X603326-02**

Prepared: 03/28/2016 Analyzed: 03/29/2016

Diesel (C10-C28)	1000	50.0	mg/kg	1000	ND	100	53-125			
Residual Range Organics (C28-C40)	973	200	"	1000	ND	97.3	47-133			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**Extractable Petroleum Hydrocarbons by 8015C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6C2804 - EPA 3580</b>										
<b>Matrix Spike (B6C2804-MS2)</b>		<b>Source: X603326-02</b>			Prepared: 03/28/2016 Analyzed: 03/29/2016					
Surrogate: o-Terphenyl	49		mg/kg	50.0		97.4	59-131			
<b>Matrix Spike Dup (B6C2804-MSD1)</b>		<b>Source: X603309-01</b>			Prepared: 03/28/2016 Analyzed: 03/29/2016					
Diesel (C10-C28)	898	50.0	mg/kg	1000	ND	89.8	53-125	13.8	20	
Residual Range Organics (C28-C40)	857	200	"	1000	ND	85.7	47-133	15.5	20	
Surrogate: o-Terphenyl	47		"	50.0		94.9	59-131			
<b>Matrix Spike Dup (B6C2804-MSD2)</b>		<b>Source: X603326-02</b>			Prepared: 03/28/2016 Analyzed: 03/29/2016					
Diesel (C10-C28)	925	50.0	mg/kg	1000	ND	92.5	53-125	8.03	20	
Residual Range Organics (C28-C40)	871	200	"	1000	ND	87.1	47-133	11.1	20	
Surrogate: o-Terphenyl	48		"	50.0		95.2	59-131			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6C2904 - NO PREP</b>										
<b>Duplicate (B6C2904-DUP1)</b>		<b>Source: X603329-01</b>			Prepared: 03/29/2016 Analyzed: 03/29/2016					
pH	8.35		pH Units		7.91			5.41	25	
<b>Batch B6C2905 - NO PREP</b>										
<b>Blank (B6C2905-BLK1)</b>		Prepared: 03/29/2016 Analyzed: 03/29/2016								
Specific Conductance (EC)	0.00300		mmhos/cm							
<b>Duplicate (B6C2905-DUP1)</b>		<b>Source: X603329-01</b>			Prepared: 03/29/2016 Analyzed: 03/29/2016					
Specific Conductance (EC)	0.195		mmhos/cm		0.246			23.2	25	

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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - UPRC 25-12V

### Notes and Definitions

U Sample is Non-Detect.

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.



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Jen Pellegrini For Noelle Doyle Mathis, President



May 06, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - UPRC 25-12V**

**Project Number - [none]**

Attached are your analytical results for KMG - UPRC 25-12V received by Origins Laboratory, Inc. May 05, 2016. This project is associated with Origins project number X605073-01.

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



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

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - UPRC 25-12V

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W03 @ 17'	X605073-01	Soil	May 5, 2016 15:35	05/05/2016 16:50
B03 @ 20'	X605073-02	Soil	May 5, 2016 15:41	05/05/2016 16:50

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**ORIGINS**  
LABORATORY, INC

www.originslaboratory.com

page 1 of 1

Client: Tasman Geosciences for APC  
Address: [blank]  
Telephone Number: (352) 262-9910  
Email Address: (352) 262-9910  
Project Manager: Bob Cornez  
Project Name: UPRC 25-12V  
Project Number: [blank]  
Samples Collected By: Kalk Folsom

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summation		
W03a17	5/5/16	1535	2	X					X		GISTEX 8200 TPH, DRY, 80% pH, EC, SAR, P-EC (740)	1
B03a20	5/5/16	1341	2	X					X			2
												3
												4
												5
												6
												7
												8
												9
												10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
[Signature]	5/11/16	1650	[Signature]	5/16	1650	Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>

Date Results Needed

5/16

Origins Laboratory, Inc.

*Jefe Pellegrini*

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X1605073

Client: Tasman Geosciences

Client Project ID: KMG-UPRC 25-12V

Checklist Completed by: Joe Henderson

Shipped Via: Pickup

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

Date/time completed: 5/5/16 1721

Airbill #: NA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 5.4 °C 1 / \_\_\_\_\_ °C 1 / \_\_\_\_\_ °C (Describe)

Thermometer ID: 1603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			pH
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>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)

5/5/16 1948  
Date/Time Reviewed

Origins Laboratory, Inc.

*Joe Pellegrini*

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

W03 @ 17'  
5/5/2016 3:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605073-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 77.8 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
Surrogate: Toluene-d8 101 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 94.6 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.42	pH Units	1	B6E0504	05/05/2016	05/05/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.235	mmhos/cm	"	B6E0505	05/05/2016	05/05/2016
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Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**B03 @ 20'**  
**5/5/2016 3:41:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605073-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 61.9 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 108 % 70-130 " " "  
*Surrogate: Toluene-d8* 98.3 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 96.6 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.02		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.216		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E0501 - EPA 5030 (soil)</b>										
<b>Blank (B6E0501-BLK1)</b>					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E0501 - EPA 5030 (soil)</b>										
<b>Blank (B6E0501-BLK2)</b>					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E0501 - EPA 5030 (soil)</b>										
<b>LCS (B6E0501-BS1)</b>					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100		102	77.1-124			
Toluene	0.10	0.002	"	0.100		96.4	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		101	66.4-127			
m,p-Xylene	0.21	0.004	"	0.200		104	76.6-124			
o-Xylene	0.10	0.002	"	0.100		97.7	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E0501 - EPA 5030 (soil)</b>										
<b>LCS (B6E0501-BS2)</b>					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100		101	77.1-124			
Toluene	0.11	0.002	"	0.100		110	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		103	66.4-127			
m,p-Xylene	0.23	0.004	"	0.200		115	76.6-124			
o-Xylene	0.12	0.002	"	0.100		117	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.7	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6E0501 - EPA 5030 (soil)**

Matrix Spike (B6E0501-MS1)		Source: X605070-01			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	108	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	103	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	106	62.2-130			
m,p-Xylene	0.22	0.004	"	0.200	ND	109	46.5-137			
o-Xylene	0.10	0.002	"	0.100	ND	102	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6E0501 - EPA 5030 (soil)**

Matrix Spike (B6E0501-MS2)		Source: X605070-02			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	96.4	71.8-126			
Toluene	0.09	0.002	"	0.100	ND	91.5	65.1-130			
Ethylbenzene	0.09	0.002	"	0.100	ND	91.6	62.2-130			
m,p-Xylene	0.19	0.004	"	0.200	ND	93.2	46.5-137			
o-Xylene	0.09	0.002	"	0.100	ND	89.4	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E0501 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B6E0501-MSD1)</b>		<b>Source: X605070-01</b>			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.07	0.002	mg/kg	0.100	ND	65.3	71.8-126	48.9	11.3	QM-07
Toluene	0.06	0.002	"	0.100	ND	59.5	65.1-130	53.7	15.4	QM-07
Ethylbenzene	0.06	0.002	"	0.100	ND	58.4	62.2-130	57.8	19.6	QM-07
m,p-Xylene	0.12	0.004	"	0.200	ND	59.2	46.5-137	58.9	19.2	QM-07
o-Xylene	0.06	0.002	"	0.100	ND	57.7	54.2-134	55.7	17.9	QM-07
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		115	70-130			QM-07
Surrogate: Toluene-d8	62		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6E0501 - EPA 5030 (soil)**

Matrix Spike Dup (B6E0501-MSD2)		Source: X605070-02			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	105	71.8-126	8.48	11.3	
Toluene	0.10	0.002	"	0.100	ND	97.9	65.1-130	6.67	15.4	
Ethylbenzene	0.10	0.002	"	0.100	ND	102	62.2-130	11.1	19.6	
m,p-Xylene	0.21	0.004	"	0.200	ND	106	46.5-137	12.9	19.2	
o-Xylene	0.10	0.002	"	0.100	ND	99.3	54.2-134	10.4	17.9	
Surrogate: 1,2-Dichloroethane-d4	74		ug/kg	62.5		118	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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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**Extractable Petroleum Hydrocarbons by 8015C - 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 B6E0502 - EPA 3580**

**Blank (B6E0502-BLK1)**

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	41		"	50.0		81.6	59-131			

**Blank (B6E0502-BLK2)**

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	40		"	50.0		79.5	59-131			

**LCS (B6E0502-BS1)**

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	930	50	mg/kg	1000		92.7	64-121			
Residual Range Organics (C28-C40)	1100	200	"	1000		114	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.2	59-131			

**LCS (B6E0502-BS2)**

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	960	50	mg/kg	1000		95.6	64-121			
Residual Range Organics (C28-C40)	1100	200	"	1000		114	58-124			
Surrogate: o-Terphenyl	49		"	50.0		98.4	59-131			

**Matrix Spike (B6E0502-MS1)**

**Source: X605020-01**

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	900	50	mg/kg	1000	ND	89.7	53-125			
Residual Range Organics (C28-C40)	1100	200	"	1000	29	107	47-133			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

## Extractable Petroleum Hydrocarbons by 8015C - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E0502 - EPA 3580</b>										
<b>Matrix Spike (B6E0502-MS1)</b>		<b>Source: X605020-01</b>			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Surrogate: o-Terphenyl	44		mg/kg	50.0		88.2	59-131			
<b>Matrix Spike (B6E0502-MS2)</b>		<b>Source: X605020-02</b>			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Diesel (C10-C28)	930	50	mg/kg	1000	ND	92.6	53-125			
Residual Range Organics (C28-C40)	1000	200	"	1000	24	98.9	47-133			
Surrogate: o-Terphenyl	43		"	50.0		85.4	59-131			
<b>Matrix Spike Dup (B6E0502-MSD1)</b>		<b>Source: X605020-01</b>			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Diesel (C10-C28)	810	50	mg/kg	1000	ND	80.8	53-125	10.4	20	
Residual Range Organics (C28-C40)	880	200	"	1000	29	85.4	47-133	22.6	20	QR-02
Surrogate: o-Terphenyl	41		"	50.0		83.0	59-131			
<b>Matrix Spike Dup (B6E0502-MSD2)</b>		<b>Source: X605020-02</b>			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Diesel (C10-C28)	1100	50	mg/kg	1000	ND	114	53-125	20.4	20	QR-02
Residual Range Organics (C28-C40)	1300	200	"	1000	24	132	47-133	28.8	20	QR-02
Surrogate: o-Terphenyl	53		"	50.0		106	59-131			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E0504 - NO PREP</b>										
<b>Duplicate (B6E0504-DUP1)</b>		<b>Source: X605072-01</b>			Prepared: 05/05/2016 Analyzed: 05/05/2016					
pH	7.53		pH Units		7.50			0.399	25	
<b>Batch B6E0505 - NO PREP</b>										
<b>Blank (B6E0505-BLK1)</b>		Prepared: 05/05/2016 Analyzed: 05/05/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
<b>Duplicate (B6E0505-DUP1)</b>		<b>Source: X605072-01</b>			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Specific Conductance (EC)	0.0670		mmhos/cm		0.0596			11.7	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - UPRC 25-12V

## Notes and Definitions

U Sample is Non-Detect.

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

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

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





August 08, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - UPRC 25-12V**

**Project Number - 89015218**

Attached are your analytical results for KMG - UPRC 25-12V received by Origins Laboratory, Inc. May 06, 2016. This project is associated with Origins project number X605098-01.

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



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

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: 89015218

Project: KMG - UPRC 25-12V

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E02@17'b	X605098-01	Soil	May 6, 2016 15:20	05/06/2016 17:00
B04@20'	X605098-02	Soil	May 6, 2016 15:35	05/06/2016 17:00

Per the email from Mike Jahn on 08/05/16, sample E02@17' was changed to E02@17'b.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: XL05098

Client: Tasman Geosciences

Client Project ID: UPRC 25-12

Checklist Completed by: Joe Henderson

Shipped Via: DrKup

Date/time completed: 5/6/16 1722

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

Airbill #: NA

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

Cooler Number/Temperature: 1 13.8 °C 1 °C 1 °C (Describe)

Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	✓			
Is there ice present (document if blue ice is used)	✓			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	✓			PH
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			✓	
Additional Comments (if any):				

<sup>(1)</sup> 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)

Date/Time Reviewed 5/6/16

Origins Laboratory, Inc.

*Joe 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

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

E02@17'b  
5/6/2016 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605098-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	181	50.0	mg/kg	1	B6E0603	05/06/2016	05/06/2016	
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl	91.5 %	59-131			"	"	"	
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**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	43.2	5.00	mg/kg	25	B6E0602	05/06/2016	05/06/2016	
Benzene	0.300	0.050	"	"	"	"	"	
Toluene	0.244	0.050	"	"	"	"	"	
Ethylbenzene	0.078	0.050	"	"	"	"	"	
Xylenes, total	0.464	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	110 %	70-130			"	"	"	
Surrogate: Toluene-d8	95.7 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.5 %	70-130			"	"	"	

**pH in Soil by EPA 9045D**

pH	8.12		pH Units	1	B6E0604	05/06/2016	05/06/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0982		mmhos/cm	"	B6E0605	"	05/06/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**B04@20'**

**5/6/2016 3:35:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605098-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6E0603	05/06/2016	05/06/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 64.4 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6E0602	05/06/2016	05/06/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 108 % 70-130 " " "  
Surrogate: Toluene-d8 95.3 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 93.8 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.02		pH Units	1	B6E0604	05/06/2016	05/06/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.182		mmhos/cm	"	B6E0605	"	05/06/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E0602 - EPA 5030 (soil)</b>										
<b>Blank (B6E0602-BLK1)</b>					Prepared: 05/06/2016 Analyzed: 05/06/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	60		"	62.5		95.5	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: 89015218  
 Project: KMG - UPRC 25-12V

**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
<b>Batch B6E0602 - EPA 5030 (soil)</b>										
<b>LCS (B6E0602-BS1)</b>					Prepared: 05/06/2016 Analyzed: 05/06/2016					
Benzene	0.091	0.002	mg/kg	0.100		91.0	77.1-124			
Toluene	0.101	0.002	"	0.100		101	74.5-128			
Ethylbenzene	0.097	0.002	"	0.100		97.0	66.4-127			
m,p-Xylene	0.214	0.004	"	0.200		107	76.6-124			
o-Xylene	0.105	0.002	"	0.100		105	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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 B6E0602 - EPA 5030 (soil)**

Matrix Spike (B6E0602-MS1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Benzene	0.098	0.002	mg/kg	0.100	ND	98.4	71.8-126			
Toluene	0.108	0.002	"	0.100	ND	108	65.1-130			
Ethylbenzene	0.111	0.002	"	0.100	ND	111	62.2-130			
m,p-Xylene	0.243	0.004	"	0.200	ND	122	46.5-137			
o-Xylene	0.117	0.002	"	0.100	ND	117	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.6	70-130			

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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 B6E0602 - EPA 5030 (soil)**

Matrix Spike Dup (B6E0602-MSD1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Benzene	0.091	0.002	mg/kg	0.100	ND	90.9	71.8-126	7.95	11.3	
Toluene	0.100	0.002	"	0.100	ND	99.8	65.1-130	8.28	15.4	
Ethylbenzene	0.099	0.002	"	0.100	ND	99.2	62.2-130	11.2	19.6	
m,p-Xylene	0.222	0.004	"	0.200	ND	111	46.5-137	9.32	19.2	
o-Xylene	0.110	0.002	"	0.100	ND	110	54.2-134	6.02	17.9	
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.1	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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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**Extractable Petroleum Hydrocarbons by 8015C - 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 B6E0603 - EPA 3580**

**Blank (B6E0603-BLK1)**

Prepared: 05/06/2016 Analyzed: 05/06/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		77.9	59-131			

**LCS (B6E0603-BS1)**

Prepared: 05/06/2016 Analyzed: 05/06/2016

Diesel (C10-C28)	863	50.0	mg/kg	1000		86.3	64-121			
Residual Range Organics (C28-C40)	927	200	"	1000		92.7	58-124			
Surrogate: o-Terphenyl	41		"	50.0		82.3	59-131			

**Matrix Spike (B6E0603-MS1)**

**Source: X605072-10**

Prepared: 05/06/2016 Analyzed: 05/06/2016

Diesel (C10-C28)	973	50.0	mg/kg	1000	ND	97.3	53-125			
Residual Range Organics (C28-C40)	1140	200	"	1000	26.4	112	47-133			
Surrogate: o-Terphenyl	48		"	50.0		95.2	59-131			

**Matrix Spike Dup (B6E0603-MSD1)**

**Source: X605072-10**

Prepared: 05/06/2016 Analyzed: 05/06/2016

Diesel (C10-C28)	907	50.0	mg/kg	1000	ND	90.7	53-125	7.09	20	
Residual Range Organics (C28-C40)	1050	200	"	1000	26.4	103	47-133	8.40	20	
Surrogate: o-Terphenyl	44		"	50.0		88.1	59-131			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E0604 - NO PREP</b>										
<b>Duplicate (B6E0604-DUP1)</b>		<b>Source: X605072-10</b>			Prepared: 05/06/2016 Analyzed: 05/06/2016					
pH	7.61		pH Units		8.17			7.10	25	
<b>Batch B6E0605 - NO PREP</b>										
<b>Blank (B6E0605-BLK1)</b>		Prepared: 05/06/2016 Analyzed: 05/06/2016								
Specific Conductance (EC)	0.00300		mmhos/cm							
<b>Duplicate (B6E0605-DUP1)</b>		<b>Source: X605072-10</b>			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Specific Conductance (EC)	0.0601		mmhos/cm		0.0697			14.8	25	

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

Bob Cornez

Project Number: 89015218

Project: KMG - UPRC 25-12V

### Notes and Definitions

U Sample is Non-Detect.

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



May 13, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - UPRC 25-12V**

**Project Number - [none]**

Attached are your analytical results for KMG - UPRC 25-12V received by Origins Laboratory, Inc. May 12, 2016. This project is associated with Origins project number X605172-01.

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



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

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - UPRC 25-12V

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E03@17	X605172-01	Soil	May 12, 2016 12:30	05/12/2016 17:30
B05@20	X605172-02	Soil	May 12, 2016 12:45	05/12/2016 17:30
N03@17	X605172-03	Soil	May 12, 2016 12:55	05/12/2016 17:30
S03@17	X605172-04	Soil	May 12, 2016 17:05	05/12/2016 17:30

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.*

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

ORIGINS  
LABORATORY, INC

www.originslaboratory.com

page 1 of 1

1605712-1/12

Client: Tasman Geosciences for APC  
Address:  
Telephone Number: (352) 262-9910  
Email Address: cornez@tasman-geo.com

Project Manager: Bob Cornez  
Project Name: UPRC 25-12V  
Project Number:  
Samples Collected By: Kalk Fogmark

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Contaminant		
E03017	5/12/16	1230	2	X				X			GISTEX 8260 TPH-D8Q80 8015 pH, EC, SAR, IPEC (H <sub>2</sub> O)	1
B05020	5/12/16	1245	2	X				X				2
N05017	5/12/16	1255	2	X				X				3
S05017	5/12/16	1705	2	X				X				4
												5
												6
												7
												8
												9
												10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
[Signature]	5/12/16	1730	[Signature]	5.12.16	1730	Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/> 12-4
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	

Date Results Needed

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

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: XL05172

Client: Tasman Geosciences

Client Project ID: UPRC 25-12V

Checklist Completed by: Jeff Henderson

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

Date/time completed: 5/12/16 1755

Airbill #: 119

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 12.4 °C 1 / \_\_\_\_\_ °C 1 / \_\_\_\_\_ °C (Describe)

Thermometer ID: TC03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		X		Sampled Sunday
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)		^		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	X			PH
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

<sup>(1)</sup>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)

5/12/16 1922  
Date/Time Reviewed

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

E03@17

5/12/2016 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605172-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50	mg/kg	1	B6E1204	05/12/2016	05/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 86.6 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E1203	05/12/2016	05/12/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 100 % 70-130 " " "  
Surrogate: Toluene-d8 99.2 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 94.6 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.78	pH Units	1	B6E1207	05/12/2016	05/12/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.143	mmhos/cm	"	B6E1205	05/12/2016	"
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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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

B05@20

5/12/2016 12:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605172-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50	mg/kg	1	B6E1204	05/12/2016	05/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 73.5 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E1203	05/12/2016	05/12/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 100 % 70-130 " " "  
Surrogate: Toluene-d8 101 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 97.6 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.64	pH Units	1	B6E1207	05/12/2016	05/12/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0886	mmhos/cm	"	B6E1205	05/12/2016	"
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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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

N03@17

5/12/2016 12:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605172-03 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50	mg/kg	1	B6E1204	05/12/2016	05/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 80.3 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E1203	05/12/2016	05/12/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 98.3 % 70-130 " " "  
Surrogate: Toluene-d8 100 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 96.5 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.66	pH Units	1	B6E1207	05/12/2016	05/12/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.234	mmhos/cm	"	B6E1205	05/12/2016	"
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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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

S03@17

5/12/2016 5:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605172-04 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	65	50	mg/kg	1	B6E1204	05/12/2016	05/12/2016	
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 88.4 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	150	5.0	mg/kg	25	B6E1203	05/12/2016	05/12/2016	
Benzene	2.7	0.05	"	"	"	"	"	
Toluene	8.2	0.05	"	"	"	"	"	
Ethylbenzene	0.81	0.05	"	"	"	"	"	
Xylenes, total	14	0.05	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "

Surrogate: Toluene-d8 108 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 99.7 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.74		pH Units	1	B6E1207	05/12/2016	05/12/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.101		mmhos/cm	"	B6E1205	05/12/2016	"	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E1203 - EPA 5030 (soil)</b>										
<b>Blank (B6E1203-BLK1)</b>					Prepared: 05/12/2016 Analyzed: 05/12/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.2	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E1203 - EPA 5030 (soil)</b>										
<b>LCS (B6E1203-BS1)</b>					Prepared: 05/12/2016 Analyzed: 05/12/2016					
Benzene	0.10	0.002	mg/kg	0.100		98.5	77.1-124			
Toluene	0.10	0.002	"	0.100		104	74.5-128			
Ethylbenzene	0.11	0.002	"	0.100		106	66.4-127			
m,p-Xylene	0.21	0.004	"	0.200		107	76.6-124			
o-Xylene	0.11	0.002	"	0.100		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.4	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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 B6E1203 - EPA 5030 (soil)**

Matrix Spike (B6E1203-MS1)		Source: X605169-01			Prepared: 05/12/2016 Analyzed: 05/12/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	113	71.8-126			
Toluene	0.12	0.002	"	0.100	ND	116	65.1-130			
Ethylbenzene	0.12	0.002	"	0.100	ND	119	62.2-130			
m,p-Xylene	0.24	0.004	"	0.200	ND	120	46.5-137			
o-Xylene	0.12	0.002	"	0.100	ND	118	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.5	70-130			

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E1203 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B6E1203-MSD1)</b>		<b>Source: X605169-01</b>			Prepared: 05/12/2016 Analyzed: 05/12/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	109	71.8-126	3.35	11.3	
Toluene	0.11	0.002	"	0.100	ND	114	65.1-130	1.92	15.4	
Ethylbenzene	0.12	0.002	"	0.100	ND	117	62.2-130	2.05	19.6	
m,p-Xylene	0.24	0.004	"	0.200	ND	118	46.5-137	1.78	19.2	
o-Xylene	0.12	0.002	"	0.100	ND	115	54.2-134	2.47	17.9	
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.6	70-130			

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

**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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**Extractable Petroleum Hydrocarbons by 8015C - 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 B6E1204 - EPA 3580**

**Blank (B6E1204-BLK1)**

Prepared: 05/12/2016 Analyzed: 05/12/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		77.0	59-131			

**LCS (B6E1204-BS1)**

Prepared: 05/12/2016 Analyzed: 05/12/2016

Diesel (C10-C28)	760	50	mg/kg	1000		76.5	64-121			
Residual Range Organics (C28-C40)	910	200	"	1000		90.7	58-124			
Surrogate: o-Terphenyl	38		"	50.0		76.1	59-131			

**Matrix Spike (B6E1204-MS1)**

**Source: X605169-01**

Prepared: 05/12/2016 Analyzed: 05/12/2016

Diesel (C10-C28)	790	50	mg/kg	1000	ND	79.0	53-125			
Residual Range Organics (C28-C40)	900	200	"	1000	19	88.5	47-133			
Surrogate: o-Terphenyl	38		"	50.0		76.1	59-131			

**Matrix Spike Dup (B6E1204-MSD1)**

**Source: X605169-01**

Prepared: 05/12/2016 Analyzed: 05/12/2016

Diesel (C10-C28)	770	50	mg/kg	1000	ND	77.4	53-125	2.01	20	
Residual Range Organics (C28-C40)	880	200	"	1000	19	85.6	47-133	3.31	20	
Surrogate: o-Terphenyl	40		"	50.0		80.0	59-131			

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

Bob Cornez  
Project Number: [none]  
Project: KMG - UPRC 25-12V

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E1205 - NO PREP</b>										
<b>Blank (B6E1205-BLK1)</b>					Prepared: 05/12/2016 Analyzed: 05/12/2016					
Specific Conductance (EC)	0.00220		mmhos/cm							
<b>Duplicate (B6E1205-DUP1)</b>					<b>Source: X605169-01</b> Prepared: 05/12/2016 Analyzed: 05/12/2016					
Specific Conductance (EC)	0.0355		mmhos/cm		0.0347			2.28	25	
<b>Batch B6E1207 - NO PREP</b>										
<b>Duplicate (B6E1207-DUP1)</b>					<b>Source: X605169-01</b> Prepared: 05/12/2016 Analyzed: 05/12/2016					
pH	7.60		pH Units		7.62			0.263	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - UPRC 25-12V

### Notes and Definitions

U Sample is Non-Detect.

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



May 16, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - UPRC 25-12V**

**Project Number - 89015218**

Attached are your analytical results for KMG - UPRC 25-12V received by Origins Laboratory, Inc. May 13, 2016. This project is associated with Origins project number X605181-01.

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



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



Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: 89015218

Project: KMG - UPRC 25-12V

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S03@16'	X605181-01	Soil	May 13, 2016 15:47	05/13/2016 17:58
E04@16'	X605181-02	Soil	May 13, 2016 15:41	05/13/2016 17:58

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 89015218

Client: Tasman Geosciences

Client Project ID: UPRC 25-12V

Checklist Completed by: Joe Henderson

Shipped Via: H/D  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 5/13/16 1801

Airbill #: 125

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 08 °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C (Describe)

Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			PH
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>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)

Date/Time Reviewed

Origins Laboratory, Inc.

*Joe Pellegrini*

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**S03@16'**  
**5/13/2016 3:47:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605181-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50	mg/kg	1	B6E1305	05/13/2016	05/13/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 64.1 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E1304	05/13/2016	05/13/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 99.3 % 70-130 " " "  
*Surrogate: Toluene-d8* 101 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 102 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.27		pH Units	1	B6E1306	05/13/2016	05/13/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.202		mmhos/cm	"	B6E1307	05/13/2016	05/13/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**E04@16'**  
**5/13/2016 3:41:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605181-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	50	mg/kg	1	B6E1305	05/13/2016	05/13/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 80.3 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E1304	05/13/2016	05/13/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 101 % 70-130 " " "  
*Surrogate: Toluene-d8* 99.5 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 97.9 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.63		pH Units	1	B6E1306	05/13/2016	05/13/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.282		mmhos/cm	"	B6E1307	05/13/2016	05/13/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E1304 - EPA 5030 (soil)</b>										
<b>Blank (B6E1304-BLK1)</b>					Prepared: 05/13/2016 Analyzed: 05/13/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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
<b>Batch B6E1304 - EPA 5030 (soil)</b>										
<b>LCS (B6E1304-BS1)</b>					Prepared: 05/13/2016 Analyzed: 05/13/2016					
Benzene	0.09	0.002	mg/kg	0.100		93.9	77.1-124			
Toluene	0.09	0.002	"	0.100		93.3	74.5-128			
Ethylbenzene	0.09	0.002	"	0.100		92.7	66.4-127			
m,p-Xylene	0.19	0.004	"	0.200		95.0	76.6-124			
o-Xylene	0.09	0.002	"	0.100		92.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.5	70-130			

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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 B6E1304 - EPA 5030 (soil)**

Matrix Spike (B6E1304-MS1)		Source: X605178-06			Prepared: 05/13/2016 Analyzed: 05/13/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	105	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	104	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	111	62.2-130			
m,p-Xylene	0.23	0.004	"	0.200	ND	113	46.5-137			
o-Xylene	0.11	0.002	"	0.100	ND	108	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	70-130			

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

**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 B6E1304 - EPA 5030 (soil)**

Matrix Spike Dup (B6E1304-MSD1)		Source: X605178-06			Prepared: 05/13/2016 Analyzed: 05/13/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	110	71.8-126	5.19	11.3	
Toluene	0.11	0.002	"	0.100	ND	107	65.1-130	2.74	15.4	
Ethylbenzene	0.11	0.002	"	0.100	ND	108	62.2-130	2.39	19.6	
m,p-Xylene	0.22	0.004	"	0.200	ND	110	46.5-137	2.92	19.2	
o-Xylene	0.11	0.002	"	0.100	ND	107	54.2-134	1.19	17.9	
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.9	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

## 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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## Extractable Petroleum Hydrocarbons by 8015C - 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 B6E1305 - EPA 3580

##### Blank (B6E1305-BLK1)

Prepared: 05/13/2016 Analyzed: 05/13/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	36		"	50.0		71.9	59-131			

##### LCS (B6E1305-BS1)

Prepared: 05/13/2016 Analyzed: 05/13/2016

Diesel (C10-C28)	940	50	mg/kg	1000		94.3	64-121			
Residual Range Organics (C28-C40)	1100	200	"	1000		107	58-124			
Surrogate: o-Terphenyl	28		"	50.0		56.5	59-131			

##### Matrix Spike (B6E1305-MS1)

Source: X605179-01

Prepared: 05/13/2016 Analyzed: 05/13/2016

Diesel (C10-C28)	970	50	mg/kg	1000	29	94.1	53-125			
Residual Range Organics (C28-C40)	1100	200	"	1000	21	112	47-133			
Surrogate: o-Terphenyl	53		"	50.0		105	59-131			

##### Matrix Spike Dup (B6E1305-MSD1)

Source: X605179-01

Prepared: 05/13/2016 Analyzed: 05/13/2016

Diesel (C10-C28)	850	50	mg/kg	1000	29	82.3	53-125	13.3	20	
Residual Range Organics (C28-C40)	950	200	"	1000	21	93.0	47-133	18.9	20	
Surrogate: o-Terphenyl	40		"	50.0		79.0	59-131			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: 89015218  
Project: KMG - UPRC 25-12V

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E1306 - NO PREP</b>										
<b>Duplicate (B6E1306-DUP1)</b>		<b>Source: X605178-06</b>			Prepared: 05/13/2016 Analyzed: 05/13/2016					
pH	7.68		pH Units		7.76			1.04	25	
<b>Batch B6E1307 - NO PREP</b>										
<b>Blank (B6E1307-BLK1)</b>		Prepared: 05/13/2016 Analyzed: 05/13/2016								
Specific Conductance (EC)	0.00290		mmhos/cm							
<b>Duplicate (B6E1307-DUP1)</b>		<b>Source: X605178-06</b>			Prepared: 05/13/2016 Analyzed: 05/13/2016					
Specific Conductance (EC)	0.0657		mmhos/cm		0.0600			9.07	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: 89015218

Project: KMG - UPRC 25-12V

### Notes and Definitions

U Sample is Non-Detect.

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.



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Jen Pellegrini For Noelle Doyle Mathis, President

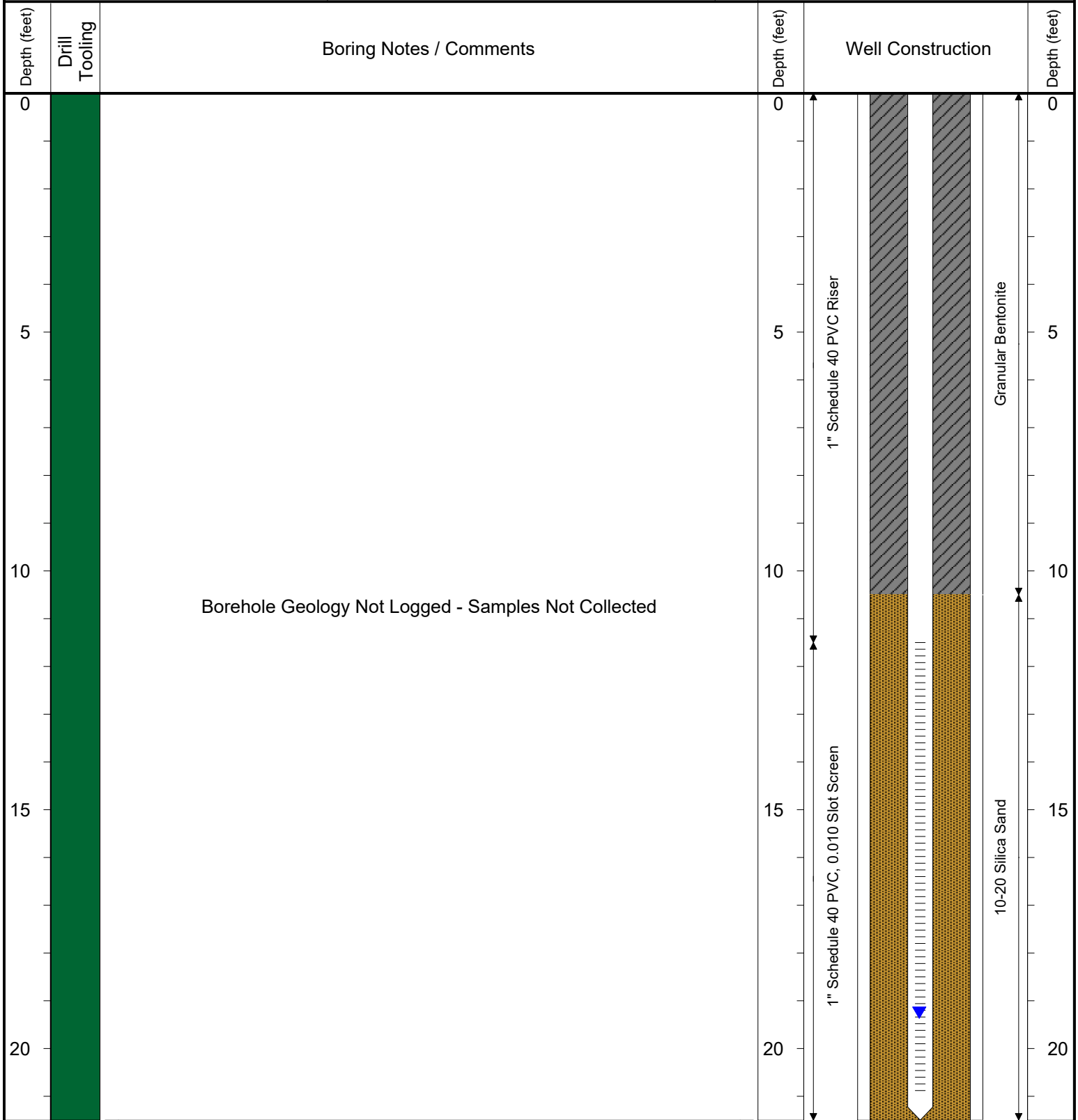


**ATTACHMENT A  
BOREHOLE LOGS**



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP	UPRC - 61N68W/25NWSW
DRILLED BY: Brandon LaVasseur	
PROJECT MANAGER: Robert Cornez	BORING / WELL ID: BH01
DRILLING CONTRACTOR: Tasman Geosciences, Inc.	
DRILLING EQUIPMENT: AMS PowerProbe	SURFACE COMPLETION: Flush Mount
DRILL BIT SIZE (INCHES): 2-3/8"	LATITUDE (NAD 83): Not Surveyed
DATE STARTED - COMPLETED: 06/01/16 - 06/01/16	LONGITUDE (NAD 83): Not Surveyed
TOTAL WELL DEPTH (FT. BGS): 21.5	CASING ELEVATION (FT. AMSL): Not Surveyed
DEPTH TO WATER (FT. BGS): 19.25 (06/01/16) ▼	GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

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



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP

DRILLED BY: Brandon LaVasseur

PROJECT MANAGER: Robert Cornez

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS PowerProbe

DRILL BIT SIZE (INCHES): 3-1/2"

DATE STARTED - COMPLETED: 07/27/16 -07/27/16

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 16.07 (07/27/16) ▼

UPRC - 61N68W/25NWSW

BORING / WELL ID: BH02

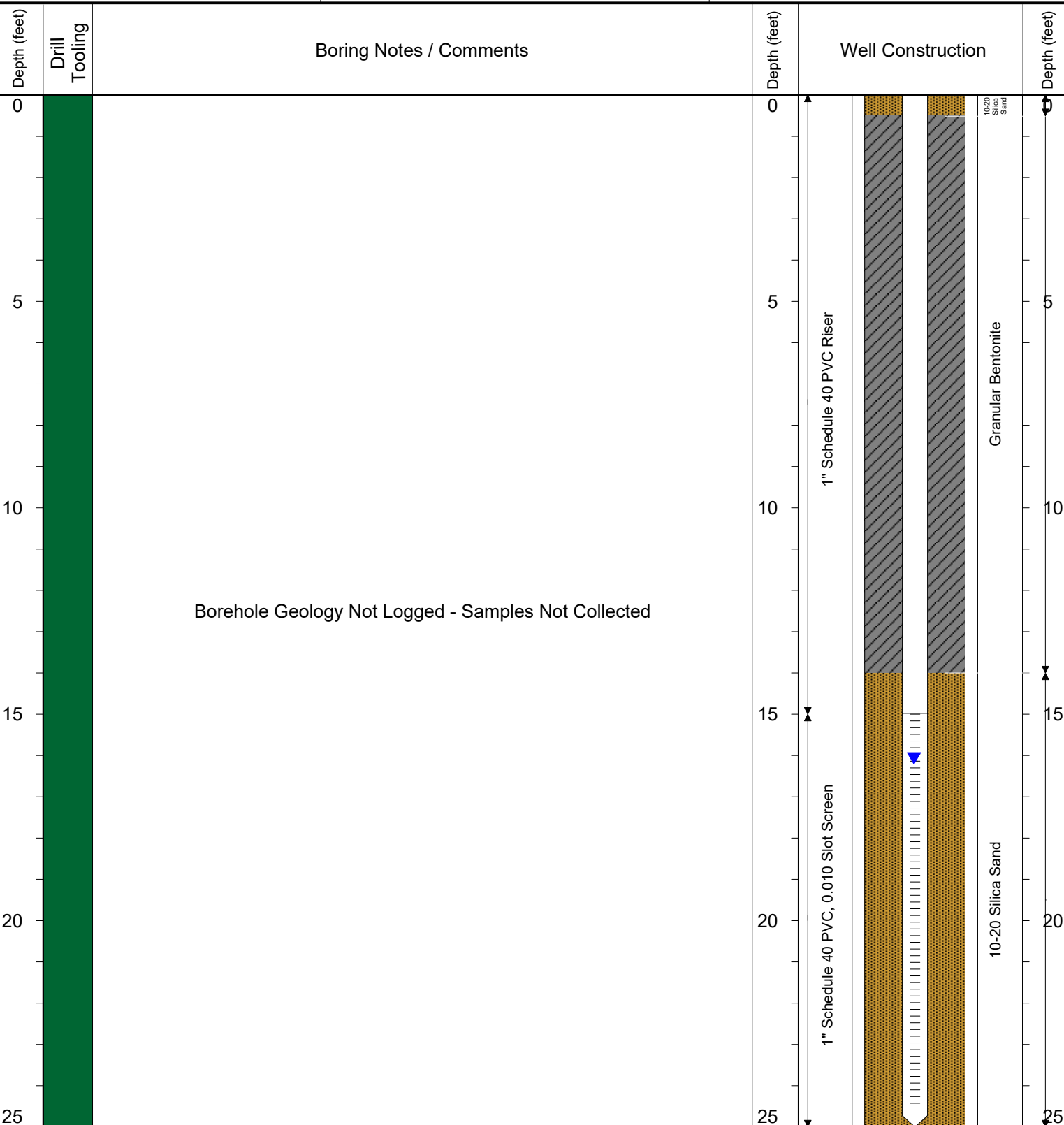
SURFACE COMPLETION: Flush Mount

LATITUDE (NAD 83): Not Surveyed

LONGITUDE (NAD 83): Not Surveyed

CASING ELEVATION (FT. AMSL): Not Surveyed

GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

Solid-Stem Auger

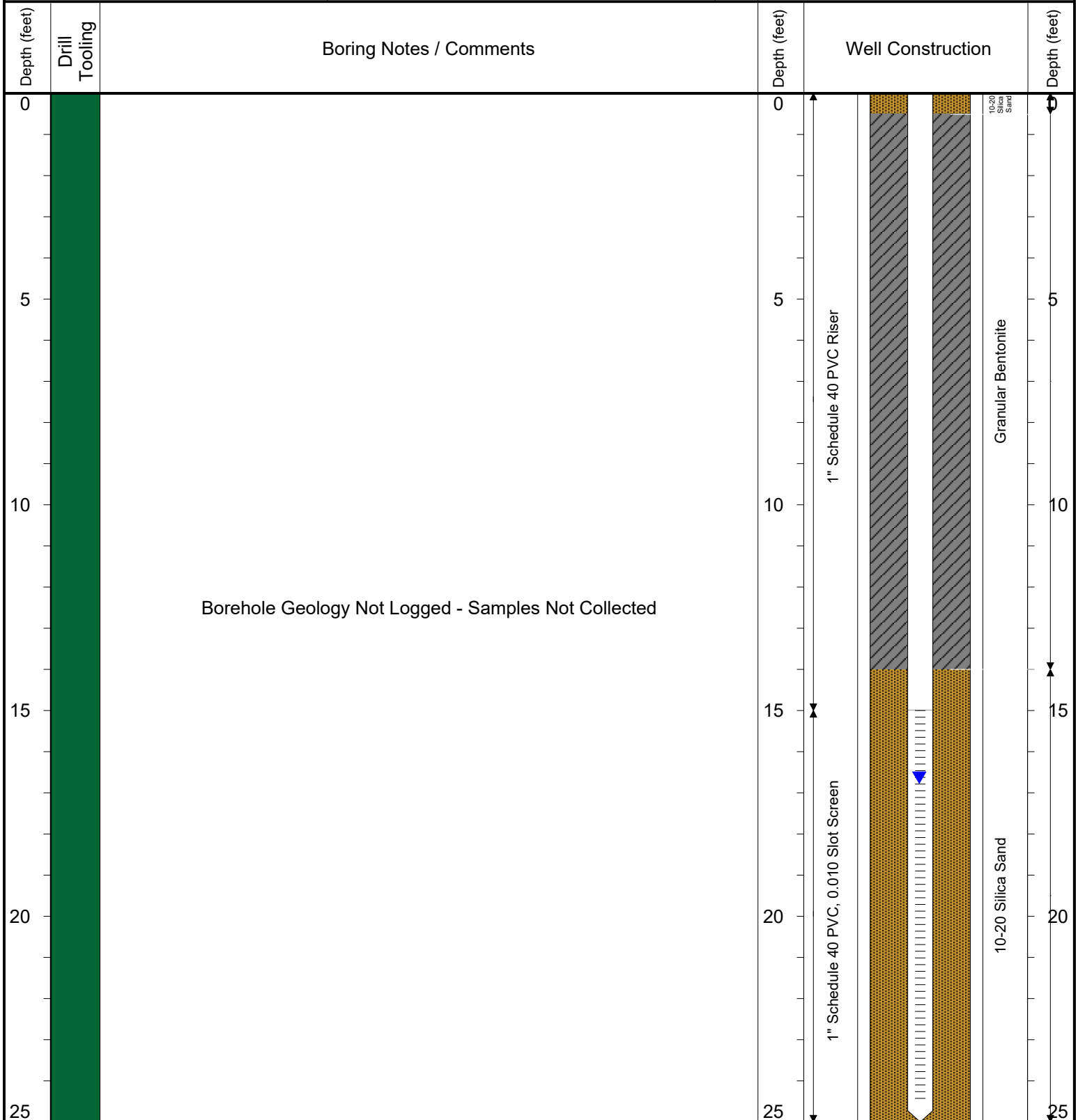
Perforated Injection Tool

Direct Push - Expendable Well Tip



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP	UPRC - 61N68W/25NWSW
DRILLED BY: Tyler Blessing	
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): 3-1/2"	LATITUDE (NAD 83): Not Surveyed
DATE STARTED - COMPLETED: 07/27/16 -07/27/16	LONGITUDE (NAD 83): Not Surveyed
TOTAL WELL DEPTH (FT. BGS): 25	CASING ELEVATION (FT. AMSL): Not Surveyed
DEPTH TO WATER (FT. BGS): 16.63 (07/27/16) ▼	GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

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



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP

DRILLED BY: Brandon LaVasseur

PROJECT MANAGER: Robert Cornez

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS PowerProbe

DRILL BIT SIZE (INCHES): 3-1/2"

DATE STARTED - COMPLETED: 07/27/16 -07/27/16

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 18.48 (07/27/16) ▼

UPRC - 61N68W/25NWSW

BORING / WELL ID: BH04

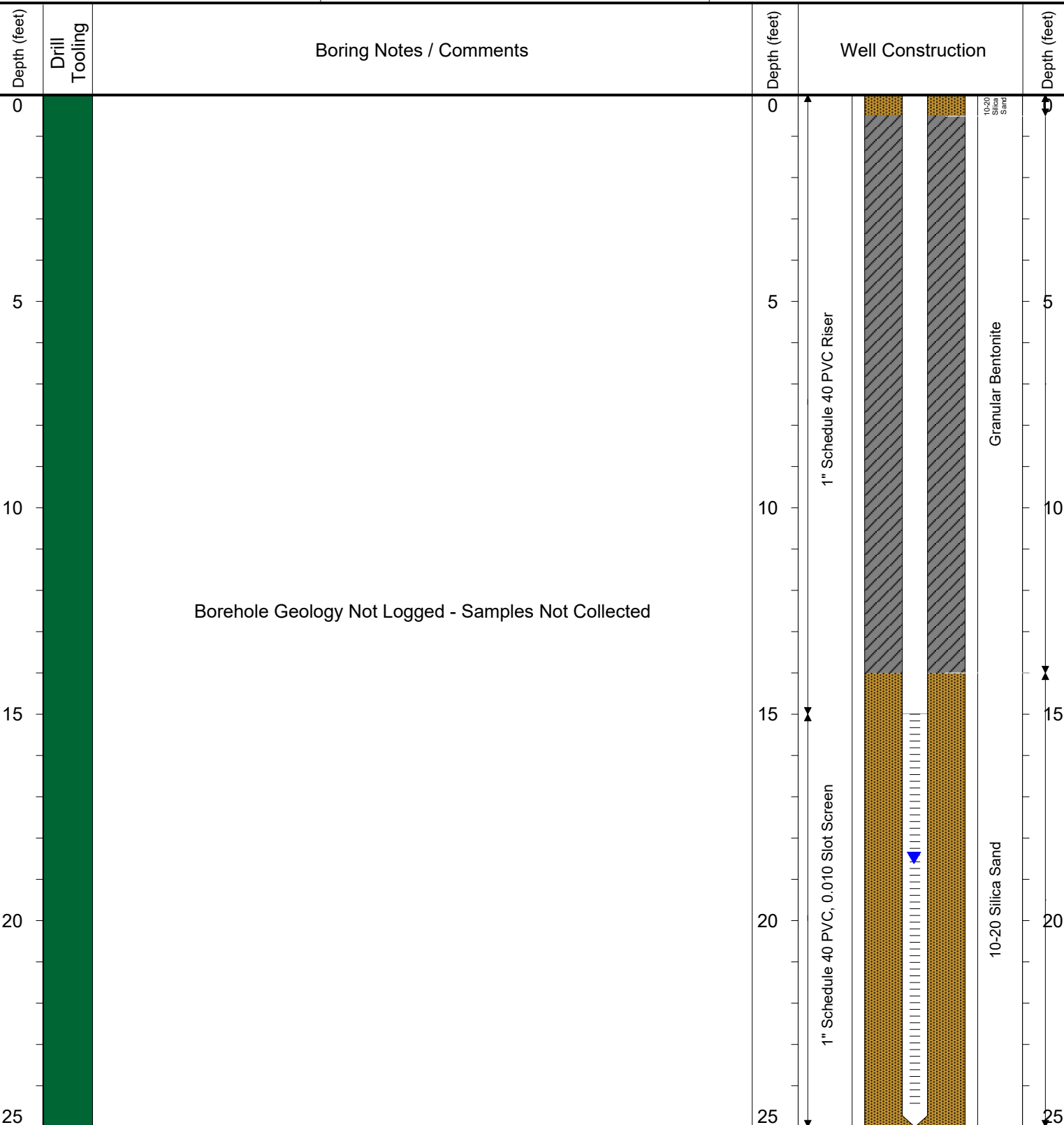
SURFACE COMPLETION: Flush Mount

LATITUDE (NAD 83): Not Surveyed

LONGITUDE (NAD 83): Not Surveyed

CASING ELEVATION (FT. AMSL): Not Surveyed

GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

Solid-Stem Auger

Perforated Injection Tool

Direct Push - Expendable Well Tip



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Kerr-McGee Oil and Gas Onshore, LP

DRILLED BY: Tyler Blessing

PROJECT MANAGER: Robert Cornez

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS PowerProbe

DRILL BIT SIZE (INCHES): 3-1/2"

DATE STARTED - COMPLETED: 07/27/16 -07/27/16

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 16.89 (07/27/16)

UPRC - 61N68W/25NWSW

BORING / WELL ID: BH05

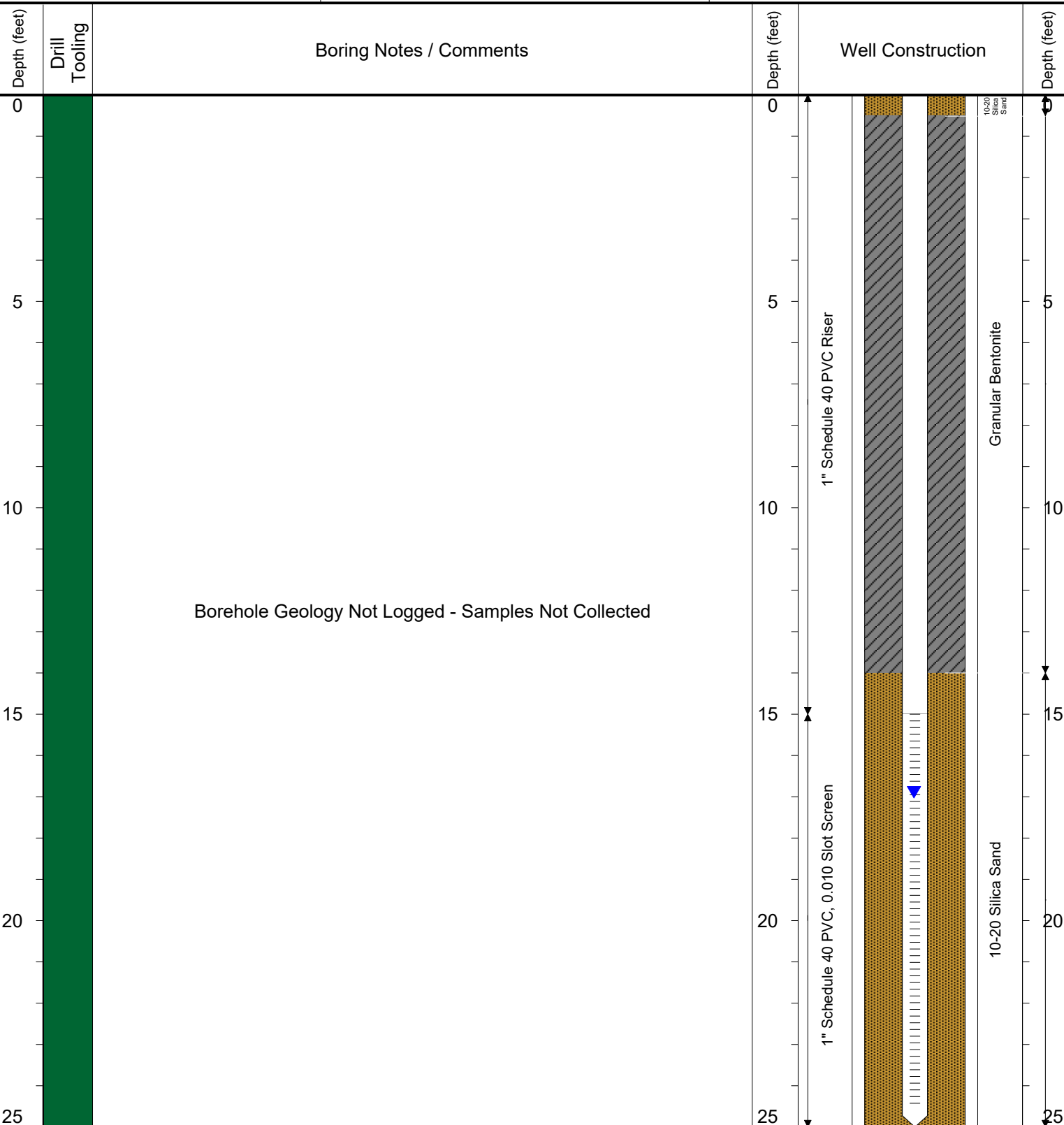
SURFACE COMPLETION: Flush Mount

LATITUDE (NAD 83): Not Surveyed

LONGITUDE (NAD 83): Not Surveyed

CASING ELEVATION (FT. AMSL): Not Surveyed

GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

Solid-Stem Auger

Perforated Injection Tool

Direct Push - Expendable Well Tip