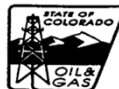


State of Colorado  
Oil and Gas Conservation Commission

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> 24320		Contact Name and Telephone	
Name of Operator: <u>Diamond Operating Inc.</u>		Name: <u>David Peterson</u>	
Address: <u>6666 Gunpark Drive, Suite 200</u>		No: <u>(303) 494-4420</u>	
City: <u>Boulder</u> State: <u>CO</u> Zip: <u>80301</u>		Fax: _____	
API/Facility No: <u>117631, 109575</u>		County: <u>Washington</u>	
Facility Name: <u>Decker Skim/1 and Decker 22-18 2</u>		Facility Number: <u>117631 and 109575</u>	
Well Name: <u>Decker Lease Wells #1, #2</u>		Well Number: <u>Decker Lease Wells #1, #2</u>	
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>SWNE S18 T4S R53W</u>		Latitude: <u>39.706645</u> Longitude: <u>-103.357073</u>	

## TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): <u>Produced Water</u>	
Site Conditions: Is location within a sensitive area (according to Rule 901e)? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N If yes, attach evaluation. ** Please see 'Potential Receptors' section below.	
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): <u>Rangeland</u>	
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: <u>Norka-Colby loams, 3 to 5 percent slopes</u>	
Potential receptors (water wells within 1/4 mi, surface waters, etc.): <u>There is a domestic water well located approximately 115 ' to the Southeast (DWR #89412)</u>	
Depth to shallow groundwater is estimated at approximately 35 feet bgs.	
Description of Impact (if previously provided, refer to that form or document):	
Impacted Media (check):	Extent of Impact:
<input checked="" type="checkbox"/> Soils	<u>Refer to the attached Figures and Table 1</u>
<input type="checkbox"/> Vegetation	_____
<input type="checkbox"/> Groundwater	_____
<input type="checkbox"/> Surface water	_____
How Determined:	
<u>Excavation and soil sampling</u>	
_____	
_____	

## REMEDIALATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
On February 19, 2016 as part of characterization and closure activities, six tests pits were excavated and soil samples were collected at varying depths to determine the vertical and lateral extent of hydrocarbon impacts that exceed COGCC Table 910-1 standards (Table 910) for each pit.
Describe how source is to be removed:
Please see attached Enhanced Bioremediation Workplan.
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.:
Please see attached Enhanced Bioremediation Workplan.

State of Colorado  
Oil and Gas Conservation Commission

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



Tracking Number:	
Name of Operator:	Diamond Operating Inc.
OGCC Operator No:	24320
Received Date:	
Well Name & No:	Decker Skim/1 & Decker 22-18 2
Facility Name & No.:	117631, 109575

Page 2

REMEDIAL WORKPLAN (CONT.)

OGCC Employee:

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):  
Groundwater was not encountered during characterization activities. Please see attached Enhanced Bioremediation Workplan.

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. Please see attached Enhanced Bioremediation Workplan.

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:  
Sidewall and base confirmation sampling will be performed. Please see attached Enhanced Bioremediation Workplan and Exhibit A for analytical results to date.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):  
No offsite disposal is planned for this project.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began:	2/19/2016	Date Site Investigation Completed:	2/19/2016	Remediation Plan Submitted:	6/20/2016
Remediation Start Date:	7/20/2016	Anticipated Completion Date:	7/20/2019	Actual Completion Date:	TBD

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

Print Name: David Peterson

Signed:  Title: Pres. Sec Date: 6/21/2016

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



**Enhanced Bioremediation Work Plan  
Decker Lease - Skim Pits 1, and 22-18 2  
Diamond Operating Inc.**

**Introduction**

Tasman Geosciences, Inc. (Tasman), on behalf of Diamond Operating Inc. (Diamond), has prepared this Enhanced Bioremediation Work Plan as an addendum to the attached Form 27 submittal to the Colorado Oil and Gas Conservation Commission (COGCC) in relation to the Enhanced Bioremediation Land Treatment of impacted pit soils. The impacted soils to be treated are being removed from the Decker Lease Skim Pit 1, and 22-18 2 located at the Decker Lease (Site). The Decker Lease Skim Pit 1, and 22-18 request for closure will be submitted separately under the existing Form 27 (Document #2142361) and the existing Remediation Project #8697 (REM#8697). The closure request will be submitted once Phase One of this Enhanced Bioremediation Work Plan is complete. The Site is situated approximately 1/2 mile east of the intersection of Washington County Roads U and 10 within Washington County, Colorado, as shown in Figure 1. The Site is surrounded by rangeland, and the Site legal description is the SW ¼ of the NE ¼ of Section 18, Township 4S, and Range 53W.

Diamond has selected to remediate the soils associated with the Decker Lease Skim Pit 1 (Pit 1), and 22-18 2 (Pit 2) using a three phased Enhanced Bioremediation approach outlined below.

**Characterization Activities (Complete)**

On February 19, 2016 as part of characterization and closure activities, six test pits were excavated and soil samples were collected at varying depths to determine the vertical and lateral extent of hydrocarbon impacts that exceed COGCC Table 910-1 standards (Table 910) for each pit. Six soil samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by USEPA Method 8260B, and TPH - diesel range organics (DRO) by USEPA Method 8015. The Pit 1 base test pit was advanced to a depth of 27 feet bgs. Hydrocarbon impacts above Table 910 standards were identified as deep as 18 feet bgs. Soil sample P1W@27, collected from 27 feet bgs exhibited concentrations below laboratory detection limits as well as Table 910 standards. Test pits to the south and west of Skim Pit 1 were advanced to a depth of 20 feet bgs and no petroleum hydrocarbon impacts were identified. The Pit 2 base test pit was advanced to a depth of 27 feet bgs. Hydrocarbon impacts above Table 910 standards were identified as deep as 16 feet bgs. Soil sample P2E@24 collected 24 feet bgs exhibited concentrations below laboratory detection limits as well as Table 910 standards. Test pits to the north and east of Pit 2 were advanced to a depth of 20 feet bgs and no petroleum hydrocarbon impacts were identified. As a result of characterization activities it is estimated that 2,300 Cubic Yards (cy) of soils exhibiting concentrations above Table 910 standards are within the Pit 1 and Pit 2 footprint. Sample depths, locations, and results are illustrated within the attached Figures 2, 3, and 4. Soil analytical data is summarized in Table 1



and the analytical reports are included as Exhibit A. Groundwater was not encountered during characterization activities and no impacted soil was removed from location.

### **Phase One Field Activities**

Soils exhibiting impacts above Table 910 standards will be excavated and sidewall confirmation samples illustrated within Figure 2 will be collected to ensure no soils exhibiting impacts above Table 910 standards remain. The excavation sidewalls will be sloped and a ramp access will be added to allow an escape pathway for wildlife. The excavation will be surrounded by fencing until backfill is completed. With COGCC approval impacted soils will be placed in the designated treatment area illustrated within the Decker Bioremediation Area Map – Figure 5 and graded to a maximum 1 foot thickness. The treatment area will be gridded into 23 distinct 100 cy monitoring units based on the one foot depth of the impacted soil lift (Figure 5). Each monitoring unit will be surveyed to record the location and unit extents for monitoring purposes. Written surface owner approval documents for the land treatment of impacted soils at the location within the proposed bioremediation area identified on figure 5 are included as Exhibit B.

### **Phase Two Field Activities**

Phase Two Enhanced Bioremediation activities will include the annual application of a bioenhancement agent (***Micro-Blaze® Emergency Liquid Spill Control***), watering events depending on soil moisture content, and the repeated tilling of the soils. Tilling events will consist of heavy agricultural equipment using a three bottom plow to turn over soils to increase exposure to sun, air flow, wind, and precipitation events. Discing will be performed to break up any soil clods and a blade will be used to level the surface. During the three summer months tilling events will be performed bi-monthly, monthly tilling events will be performed the other nine months. Bi-annually a 4-point composite confirmation soil sample will be collected from each 100 cy monitoring unit to assess post-treatment hydrocarbon concentrations following six months of Enhanced Bioremediation Treatment. A Phase Two Progress Report including a project update and description, sample results as compared to Table 910, applicable figures, and laboratory analytical reports will be submitted on a bi-annual basis following sampling events. A proposed remediation activities schedule is included below.

Confirmation composite samples will be submitted to Summit Scientific Laboratory in Golden, Colorado for laboratory analyses of TPH-DRO and TPH-GRO which were identified as the main constituents of concern during characterization activities. BTEX, Sodium Adsorption Ratio (SAR), Electrical Conductivity (EC), and pH were not identified above Table 910 standards during characterization activities and as such would not be included in the analytical suite with COGCC approval (Table 1).

### **Phase Three Field Activities**

Phase Three Enhanced Bioremediation activities will include the backfill and compaction of successfully treated soils which exhibit concentrations below Table 910 standards. Subsequent to





completion of remediation activities, the excavation and bioremediation treatment area will be re-contoured to match pre-existing conditions, disced to break up any soil clods, drill seeded, and straw crimped in order to be reclaimed in accordance with COGCC standards.

Diamond is proposing a Phase Two completion date of July 20, 2019, with backfill and final reclamation to occur within September 2019. Please see attached Proposed Remediation Schedule.

## **Conclusions**

In order to close Decker Pit 1 and Decker Pit 2, impacted soils will be removed, sidewall and base confirmation samples will be collected and a closure request including sample results will be submitted under Remediation Project #8697. In order to address the impacted soils Diamond has selected Enhanced Bioremediation described herein as the remediation approach. Soils that exhibit concentrations above Table 910 standards will be removed and placed in the designated treatment area illustrated within the Decker Bioremediation Area Map – Figure 5 and graded to a maximum 1 foot thickness with COGCC approval. Enhanced Bioremediation Land Treatment, confirmation sampling, and progress reporting will be performed based on the schedule below. Soils which exhibit concentrations below Table 910 standards will be returned to the excavation as backfill.

Please contact me at 303-854-7337 if you require additional information.

Sincerely,  
Tasman Geosciences, Inc.

A handwritten signature in blue ink, appearing to read 'Carter Peace', is written over a light blue horizontal line.

Carter Peace  
Environmental Scientist

Attached:

Proposed Remediation Schedule

Figure 1 – Site Location Map

Figure 2 – Cross Section and Sample Location Map

Figure 3 – Decker Pits Cross Section 1 (Test pits 5, 1, 2, and 4)

Figure 4 – Decker Pits Cross Section 2 (Test pits 3, 2, and 6)

Figure 5 – Decker Bioremediation Area Map

Table 1 – Decker Skim Pits Soil Analytical Data Summary Table

Exhibit A– Laboratory Analytical Report

Exhibit B– Signed Landowner Agreements



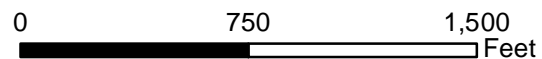
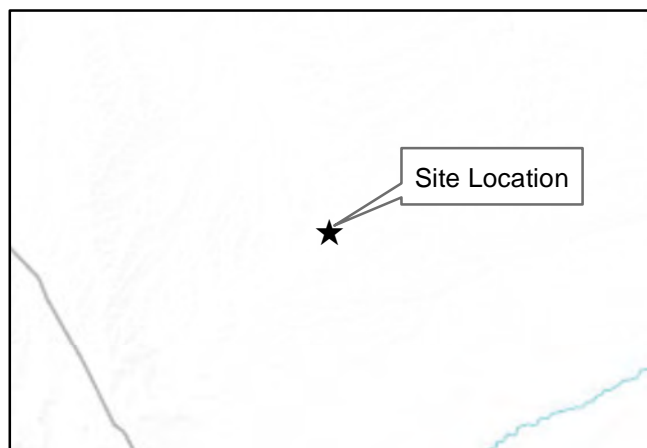
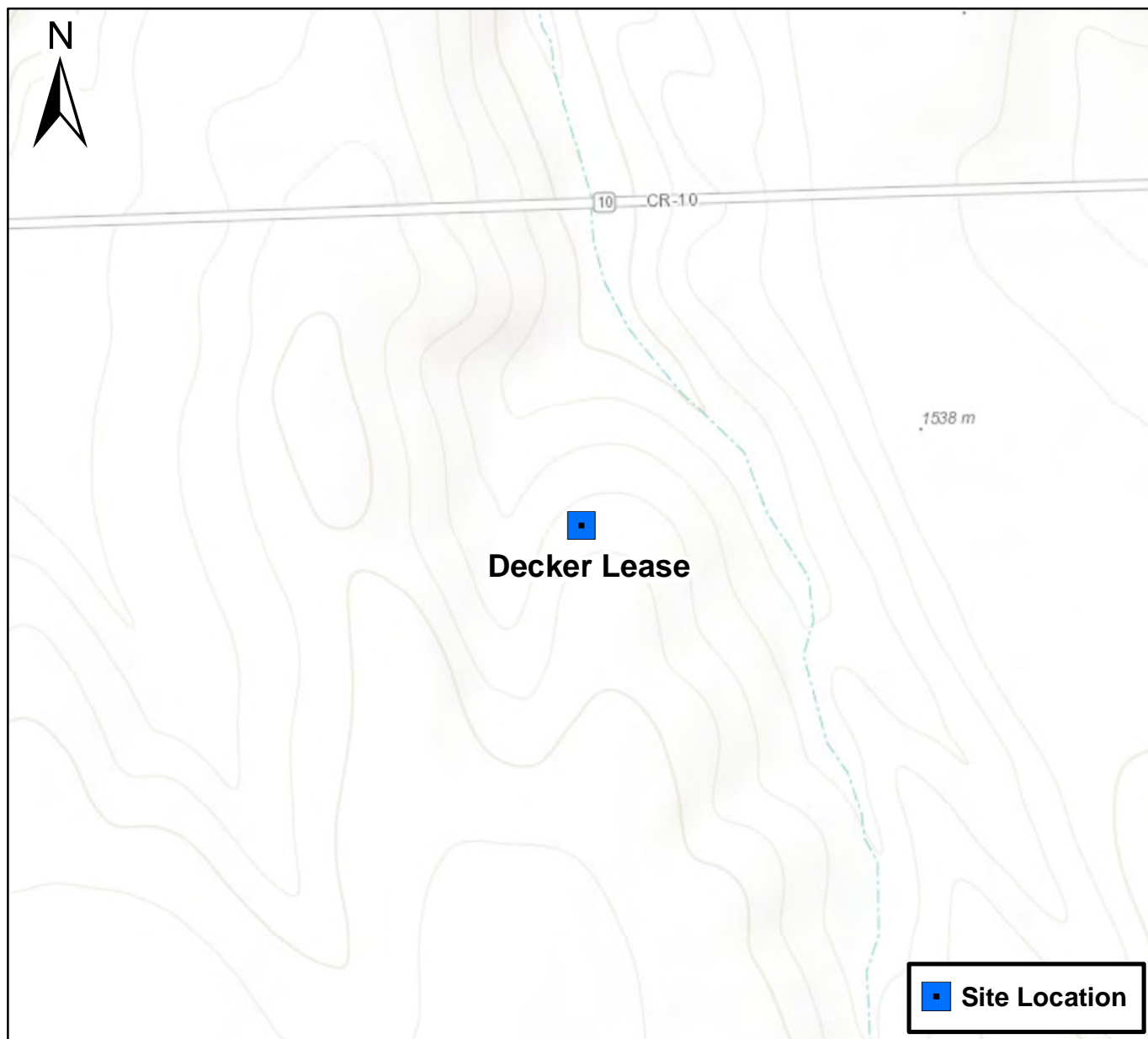
**Proposed Remediation Activities Schedule:**

Task	Start Date	End Date	Notes
Phase One Excavate and Grade	7/15/2016	7/20/2016	
Phase Two Enhanced Bioremediation	7/20/2016	7/20/2019	Three year period
Tilling Event	7/21/2016	7/21/2016	
Microblaze Event	7/22/2016	7/22/2016	Weather dependent
Tilling Event	7/29/2016	7/29/2016	
Tilling Event	8/15/2016	8/15/2016	
Tilling Event	8/30/2016	8/30/2016	
Tilling Event	9/15/2016	9/15/2016	
Tilling Event	9/30/2016	9/30/2016	
Tilling Event	10/15/2016	10/15/2016	
Tilling Event	11/15/2016	11/15/2016	
Tilling Event	12/15/2016	12/15/2016	
Tilling Event	1/15/2017	12/15/2017	
Confirmation Sampling	1/20/2017	1/20/2017	
Phase Two Progress Report 1	1/31/2017	1/31/2017	
Tilling Event	2/15/2017	2/15/2017	
Tilling Event	3/15/2017	3/15/2017	
Tilling Event	4/15/2017	4/15/2017	
Tilling Event	5/15/2017	5/15/2017	
Tilling Event	6/15/2017	6/15/2017	
Tilling Event	6/30/2017	6/30/2017	
Microblaze Event	7/1/2017	7/1/2017	Weather dependent
Tilling Event	7/15/2017	7/15/2017	
Confirmation Sampling	7/20/2017	7/20/2017	
Phase Two Progress Report 2	7/30/2017	7/30/2017	
Tilling Event	7/30/2017	7/30/2017	If Necessary
Tilling Event	8/15/2017	8/15/2017	If Necessary
Tilling Event	8/30/2017	8/30/2017	If Necessary
Tilling Event	9/15/2017	9/15/2017	If Necessary
Tilling Event	10/15/2017	10/15/2017	If Necessary
Tilling Event	11/15/2017	11/15/2017	If Necessary
Tilling Event	12/15/2017	12/15/2017	If Necessary

Tilling Event	1/15/2018	1/15/2018	If Necessary
Confirmation Sampling	1/20/2018	1/20/2018	If Necessary
Phase Two Progress Report 3	1/30/2018	1/30/2018	If Necessary
Tilling Event	2/15/2018	2/15/2018	If Necessary
Tilling Event	3/15/2018	3/15/2018	If Necessary
Tilling Event	4/15/2018	4/15/2018	If Necessary
Tilling Event	5/15/2018	5/15/2018	If Necessary
Tilling Event	6/15/2018	6/15/2018	If Necessary
Tilling Event	6/30/2018	6/30/2018	If Necessary
Microblaze Event	7/20/2018	7/20/2018	If Necessary
Confirmation Sampling	7/20/2018	7/20/2018	If Necessary
Phase Two Progress Report 4	7/30/2018	7/30/2018	If Necessary
Tilling Event	7/30/2018	7/30/2018	If Necessary
Tilling Event	8/15/2018	8/15/2018	If Necessary
Tilling Event	8/30/2018	8/30/2018	If Necessary
Tilling Event	9/15/2018	9/15/2018	If Necessary
Tilling Event	10/15/2018	10/15/2018	If Necessary
Tilling Event	11/15/2018	11/15/2018	If Necessary
Tilling Event	12/15/2018	12/15/2018	If Necessary
Tilling Event	1/15/2019	1/15/2019	If Necessary
Confirmation Sampling	1/20/2019	1/20/2019	If Necessary
Phase Two Progress Report 5	1/30/2019	1/30/2019	If Necessary
Tilling Event	2/15/2019	2/15/2019	If Necessary
Tilling Event	3/15/2019	3/15/2019	If Necessary
Tilling Event	4/15/2019	4/15/2019	If Necessary
Tilling Event	5/15/2019	5/15/2019	If Necessary
Tilling Event	6/15/2019	6/15/2019	If Necessary
Tilling Event	6/30/2019	6/30/2019	If Necessary
Confirmation Sampling	7/1/2019	7/1/2019	If Necessary
Phase Two Final Report	7/20/2019	7/20/2019	
Phase Three Backfill	8/1/2019	8/10/2019	With COGCC Approval
Final Reclamation	9/1/2019	9/30/2019	

## Figures



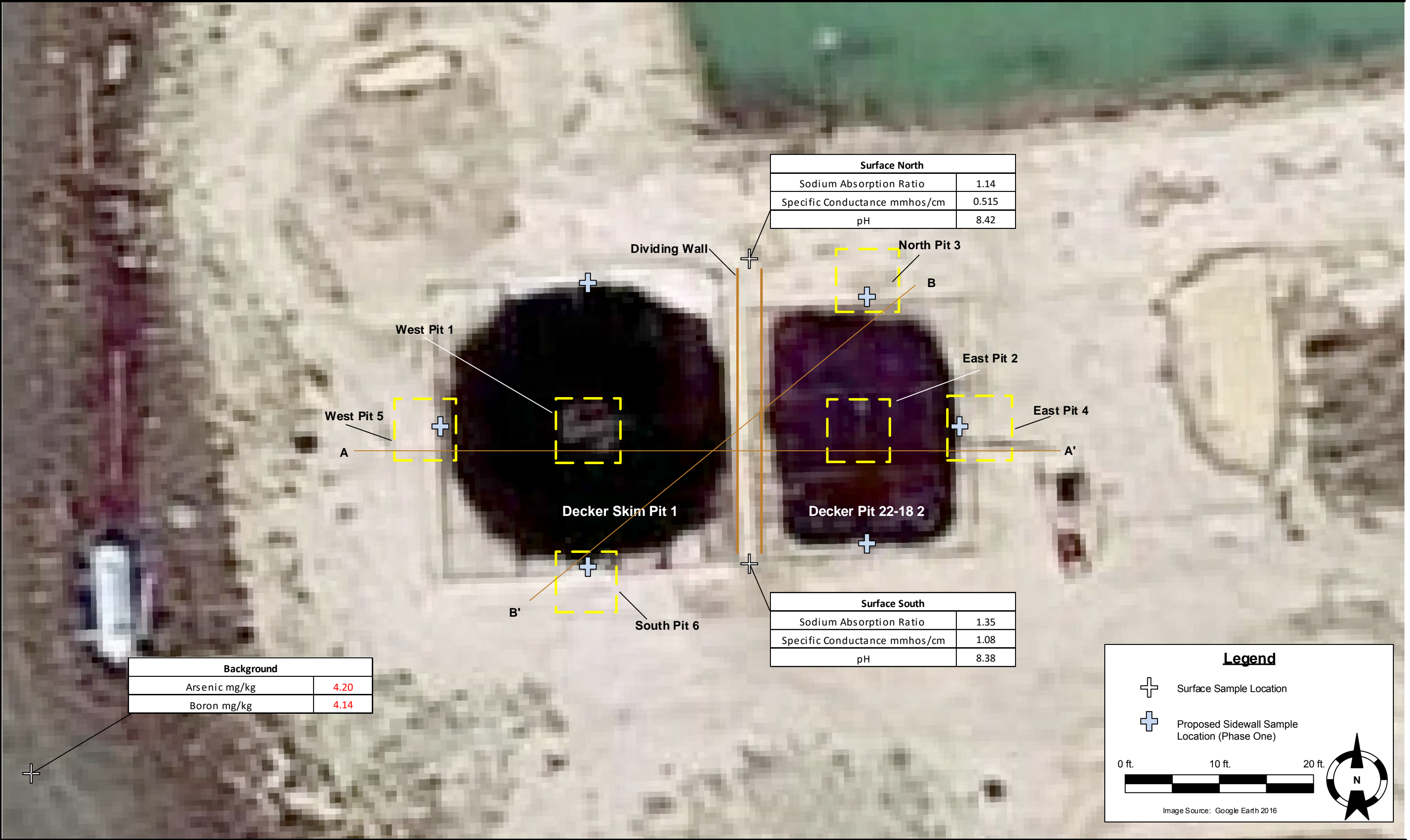


## Figure 1

Site Location Map  
Decker Lease  
SWNE S18 T4S R53W  
Washington County, Colorado









West Pit 5

West Pit 1

East Pit 2

East Pit 4

60 Ft.

Dividing Wall

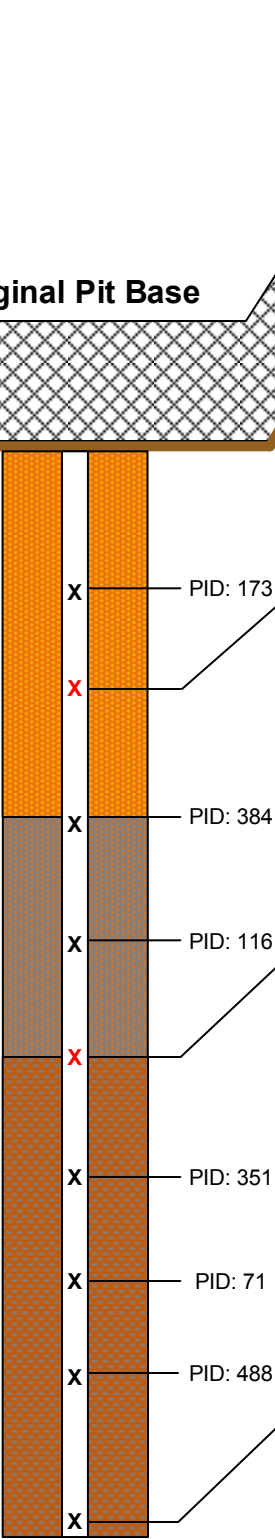
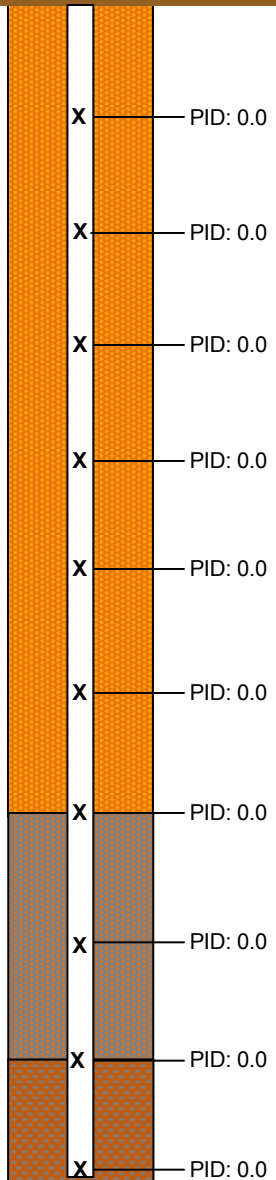
Original Pit Base

Original Pit Base

A

A'

0  
1  
2  
3  
4  
5  
6  
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8  
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10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27



P1W @ 12'	
Benzene mg/kg	<0.0020
Toluene mg/kg	<0.0050
Ethylbenzene mg/kg	<0.0050
Total Xylenes mg/kg	<0.0050
PID (ppm)	209
DRO (mg/kg)	540
GRO (mg/kg)	23
TPH (mg/kg)	563

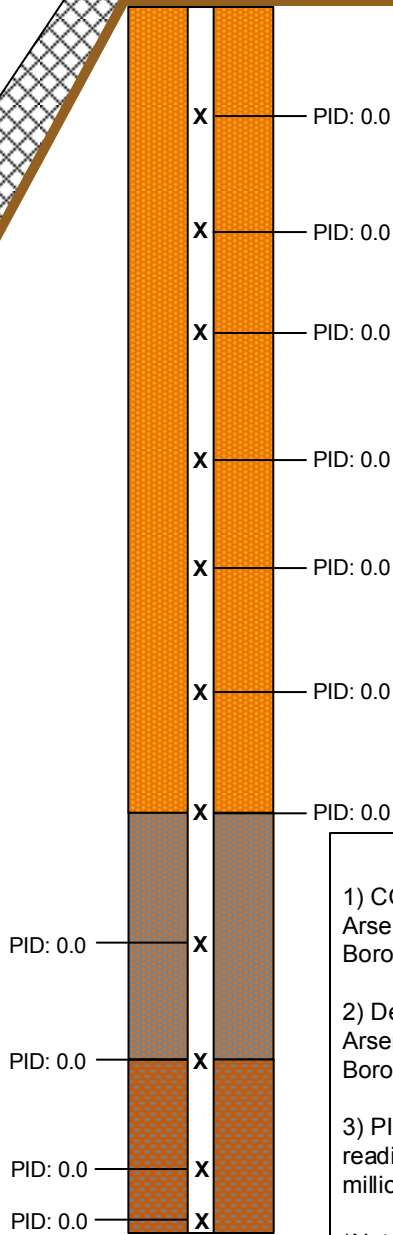
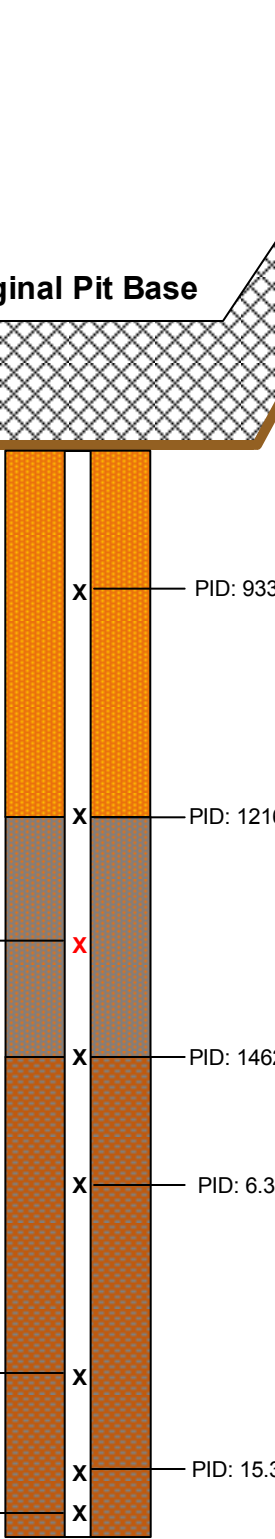
P1W @ 18'	
Benzene mg/kg	<0.0020
Toluene mg/kg	<0.0050
Ethylbenzene mg/kg	<0.0050
Total Xylenes mg/kg	<0.0050
PID (ppm)	624
DRO (mg/kg)	630
GRO (mg/kg)	78
TPH (mg/kg)	708

P1W @ 27'	
Benzene mg/kg	<0.0020
Toluene mg/kg	<0.0050
Ethylbenzene mg/kg	<0.0050
Total Xylenes mg/kg	<0.0050
PID (ppm)	7.1
DRO (mg/kg)	<50
GRO (mg/kg)	<50
TPH (mg/kg)	<50

P2E @ 16'	
Benzene mg/kg	<0.0020
Toluene mg/kg	<0.0050
Ethylbenzene mg/kg	<0.0050
Total Xylenes mg/kg	<0.0050
PID (ppm)	1649
DRO mg/kg	860
GRO mg/kg	2000
TPH mg/kg	2860
Benzo (a) pyrene mg/kg	0.0565
Arsenic mg/kg	4.53
Boron mg/kg	4.07

P2E @ 24'	
Benzene mg/kg	<0.0020
Toluene mg/kg	<0.0050
Ethylbenzene mg/kg	<0.0050
Total Xylenes mg/kg	<0.0050
PID (ppm)	62.7
DRO (mg/kg)	<50
GRO (mg/kg)	<50
TPH (mg/kg)	<50

P2E @ 27'	
Benzene mg/kg	<0.0020
Toluene mg/kg	<0.0050
Ethylbenzene mg/kg	<0.0050
Total Xylenes mg/kg	<0.0050
PID (ppm)	3.6
DRO (mg/kg)	<50
GRO (mg/kg)	<50
TPH (mg/kg)	<50



**Notes**

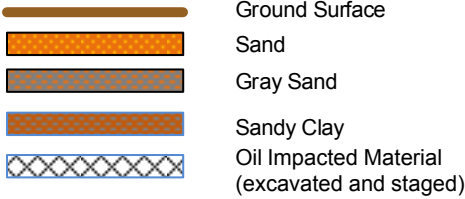
1) COGCC Table 910-1 Standard:  
Arsenic 0.39 mg/kg  
Boron 2.00 mg/l

2) Decker Site background levels:  
Arsenic **4.20** mg/kg  
Boron **4.14** mg/kg

3) PID (Photoionization Detector) readings are measured in parts per million (ppm)

\*Not drawn to scale

LEGEND



DRAWN BY: KF

DATE: 03/14/2016

Diamond Operating  
Decker Lease

SWNE Section 18, Township 4 South, Range 53 West  
Washington County, Colorado



Tasman Geosciences, LLC  
6899 Pecos Street – Unit C  
Denver, CO 80221

Decker Test Pits  
Cross-Section A-A

Figure 3

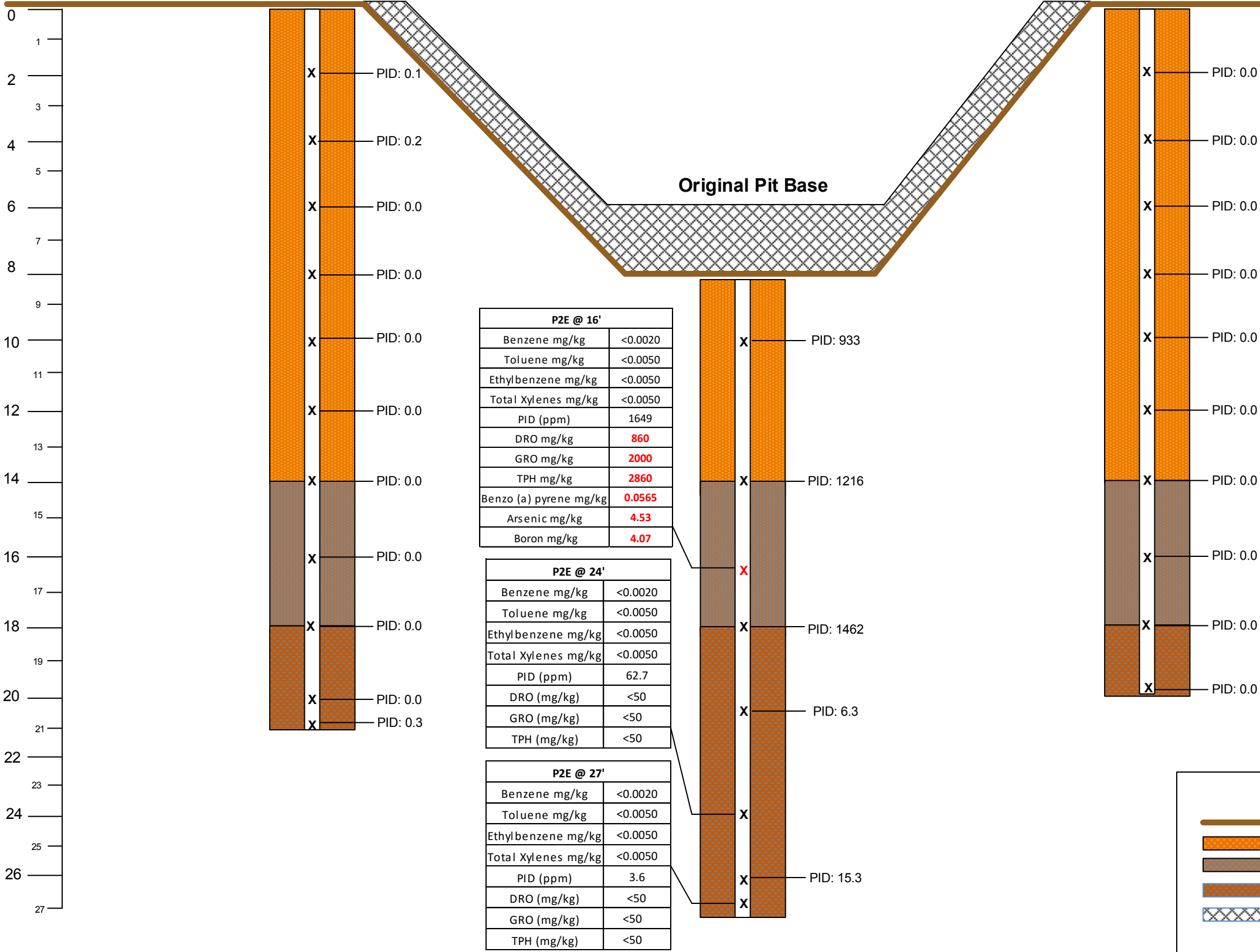
North Pit 3

East Pit 2

South Pit 6

B

B'



DRAWN BY: KF

DATE: 03/15/2016

Diamond Operating  
Decker Lease

SWNE Section 18, Township 4 South, Range 53 West  
Washington County, Colorado



Tasman Geosciences, LLC  
6899 Pecos Street – Unit C  
Denver, CO 80221

Decker Test Pits  
Cross-Section B-B

Figure 4





DATE:	June 6, 2016
DESIGNED BY:	C. Peace
DRAWN BY:	Z. Mahaffey



**Diamond Operating  
Decker Pits**  
SWNE, Section 18, Township 4 South, Range 53 West  
Washington County, Colorado

Bioremediation Area  
Map

Figure  
5



Table 1



**DIAMOND OPERATING  
DECKER PITS CHARACTERIZATION  
SOIL ANALYTICAL DATA SUMMARY  
TABLE 1**

			DECKER PIT 1 - WEST PIT 1			DECKER PIT 22-18 2 - EAST PIT 2			SURFACE		BACKGROUND
Sample Name	Units	COGCC 910-1 Soil Sample Standards	P1W @ 12 PID:209	P1W @ 18 PID:624	P1W @ 27 PID:7.1	P2E @ 16 PID:1649	P2E @ 24 PID:62.7	P2E @ 27 PID:3.6	SURFACE NORTH	SURFACE SOUTH	Background
Benzene	mg/kg	0.17	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	NA	NA	NA
Toluene	mg/kg	85	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	NA	NA
Ethylbenzene	mg/kg	100	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	NA	NA
Total Xylenes	mg/kg	175	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	NA	NA
DRO	mg/kg	500	540	630	<50	860	<50	<50	NA	NA	NA
GRO	mg/kg	500	23	78	<0.50	2000	<0.50	<0.50	NA	NA	NA
TPH	mg/kg	500	563	708	<0.50	2860	<0.50	<0.50	NA	NA	NA
Sodium Adsorption Ratio	units	<12				2.13			1.14	1.35	NA
Specific Conductance (EC)	mmhos /cm	<4				0.814			0.515	1.08	NA
pH	pH units	6-9				7.5			8.42	8.38	NA
Acenaphthene	mg/kg	1,000				<0.0500					NA
Anthracene	mg/kg	1,000				<0.0500					NA
Benzo (a) anthracene	mg/kg	0.22				0.108					NA
Benzo (b) fluoranthene	mg/kg	0.22				0.109					NA
Benzo (k) fluoranthene	mg/kg	2.2				0.0183					NA
Benzo (a) pyrene	mg/kg	0.022				0.0565					NA
Chrysene	mg/kg	22				<0.0500					NA
Dibenz (a,h) anthracene	mg/kg	0.022				<0.0500					NA
Fluoranthene	mg/kg	1,000				0.0476					NA
Fluorene	mg/kg	1,000				0.347					NA
Indeno (1,2,3-cd) pyrene	mg/kg	0.22				<0.0500					NA

**DIAMOND OPERATING  
DECKER PITS CHARACTERIZATION  
SOIL ANALYTICAL DATA SUMMARY  
TABLE 1**

			DECKER PIT 1 - WEST PIT 1			DECKER PIT 22-18 2 - EAST PIT 2			SURFACE		BACKGROUND
Sample Name	Units	COGCC 910-1 Soil Sample Standards	P1W @ 12 PID:209	P1W @ 18 PID:624	P1W @ 27 PID:7.1	P2E @ 16 PID:1649	P2E @ 24 PID:62.7	P2E @ 27 PID:3.6	SURFACE NORTH	SURFACE SOUTH	Background
Naphthalene	mg/kg	23				<0.0500					NA
Pyrene	mg/kg	1,000				<0.0500					NA
Arsenic	mg/kg	0.39				4.53					4.20
Barium	mg/kg	15,000				346					NA
Boron	mg/l	2				4.07					4.14
Cadmium	mg/kg	70				0.224					NA
Chromium	mg/kg	120,000				11.7					NA
Copper	mg/kg	3,100				11.9					NA
Lead	mg/kg	400				10.3					NA
Nickel	mg/kg	1,600				12.1					NA
Selenium	mg/kg	390				1.4					NA
Silver	mg/kg	390				<0.124					NA
Zinc	mg/kg	23,000				57.2					NA
Mercury	mg/kg	23				<0.554					NA
Chromium, Hexavalent	mg/kg	23				<0.300					NA
Chromium, Trivalent	mg/kg	23				11.7					NA
Calcium	mg/kg	NA				11,200					NA
Magnesium	mg/kg	NA				540					NA
Sodium	mg/kg	NA				850					NA
% Solids	%	NA				80.5					NA

**DIAMOND OPERATING  
DECKER PITS CHARACTERIZATION  
SOIL ANALYTICAL DATA SUMMARY  
TABLE 1**

Notes:

- 1). Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective January 30, 2015.
- 2). TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

GRO - Gasoline range organics

mmhos/cm - Millimhos per centimeter

EC - Specific conductance

NA-Not Analyzed

DRO - Diesel range organics

SAR - Sodium adsorption ratio

s.u. - Standard units

BGS - Below ground surface

mg/kg - Milligrams per kilogram

ppm - Parts per million

**Red** values indicate an exceedance of the COGCC soil standards.

< - Analytical result is less than the indicated laboratory reporting limit

## Exhibit A

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 26, 2016

Carter Peace  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Decker

Enclosed are the results of analyses for samples received by Summit Scientific on 02/19/16 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
P1W@12	1602160-01	Soil	02/19/16 00:00	02/19/16 17:00
P1W@18	1602160-02	Soil	02/19/16 00:00	02/19/16 17:00
P1W@27	1602160-03	Soil	02/19/16 00:00	02/19/16 17:00
P2E@16	1602160-04	Soil	02/19/16 00:00	02/19/16 17:00
P2E@24	1602160-05	Soil	02/19/16 00:00	02/19/16 17:00
P2E@27	1602160-06	Soil	02/19/16 00:00	02/19/16 17:00

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker

Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

## Summit Scientific

160216C

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9310 • 303-277-9531 Fax

303-27

Client: TASMAN / Diamond (JEWELLING)  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: ESD

Page 1 of 1

Project Manager: C. PEACE  
E-Mail:  
Project Name: DECKER  
Project Number:

[illegible]

[www.s2scientific.com](http://www.s2scientific.com)

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**P1W@12**  
**1602160-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	540	50	mg/kg	1	1602210	02/22/16	02/24/16	8015M	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.0 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1602211	02/23/16	02/24/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	23	0.50	"	"	"	"	"	"	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		119 %	21-167		"	"	"	"	

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**P1W@18**  
**1602160-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	630	50	mg/kg	1	1602210	02/22/16	02/24/16	8015M	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.4 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1602211	02/23/16	02/24/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	78	0.50	"	"	"	"	"	"	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**P1W@27**  
**1602160-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602210	02/22/16	02/24/16	8015M	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.0 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1602211	02/23/16	02/24/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.0 %	21-167		"	"	"	"	

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

**P2E@16**  
**1602160-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/19/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>860</b>	50	mg/kg	1	1602210	02/22/16	02/24/16	8015M	

Date Sampled: **02/19/16 00:00**

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

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/19/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1602211	02/23/16	02/24/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2000</b>	50	"	100	"	"	"	"	

Date Sampled: **02/19/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		96.6 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.4 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		112 %	21-167		"	"	"	"	

**Semivolatile Organic Compounds by EPA Method 8270D SIM**

Date Sampled: **02/19/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	1602244	02/24/16	02/26/16	EPA 8270D SIM	
Acenaphthylene	ND	0.00500	"	"	"	"	"	"	

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**P2E@16**  
**1602160-04 (Soil)**

**Summit Scientific**

**Semivolatile Organic Compounds by EPA Method 8270D SIM**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	1602244	02/24/16	02/26/16	EPA 8270D SIM	
<b>Benzo (a) anthracene</b>	<b>0.108</b>	0.00500	"	"	"	"	"	"	
<b>Benzo (b) fluoranthene</b>	<b>0.109</b>	0.00500	"	"	"	"	"	"	
<b>Benzo (k) fluoranthene</b>	<b>0.0183</b>	0.00500	"	"	"	"	"	"	
<b>Benzo (g,h,i) perylene</b>	<b>0.117</b>	0.0500	"	10	"	"	"	"	
<b>Benzo (a) pyrene</b>	<b>0.0565</b>	0.00500	"	1	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Fluoranthene</b>	<b>0.0476</b>	0.00500	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.347</b>	0.0500	"	10	"	"	"	"	
<b>Indeno (1,2,3-cd) pyrene</b>	<b>0.0596</b>	0.00500	"	1	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Phenanthrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		136 %	35-150		"	"	"	"	
Surrogate: Fluoranthene-d10		71.0 %	35-150		"	"	"	"	

**Total Metals by EPA Method 6020 - Dry Weight Basis**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Arsenic</b>	<b>4.53</b>	0.124	mg/kg dry	1	1602221	02/23/16	02/23/16	EPA 6020A	
<b>Barium</b>	<b>346</b>	0.124	"	"	"	"	"	"	
<b>Boron</b>	<b>4.07</b>	1.24	"	"	"	"	"	"	
<b>Cadmium</b>	<b>0.224</b>	0.124	"	"	"	"	"	"	
<b>Chromium</b>	<b>11.7</b>	0.621	"	"	"	"	"	"	
<b>Copper</b>	<b>11.9</b>	0.621	"	"	"	"	"	"	
<b>Lead</b>	<b>10.3</b>	0.124	"	"	"	"	"	"	
<b>Nickel</b>	<b>12.1</b>	0.124	"	"	"	"	"	"	
<b>Selenium</b>	<b>1.40</b>	0.0621	"	"	"	"	"	"	
Silver	ND	0.124	"	"	"	"	"	"	
<b>Zinc</b>	<b>57.2</b>	12.4	"	"	"	"	"	"	

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6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**P2E@16**  
**1602160-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA Method 6020 - Dry Weight Basis**

**Total Mercury by EPA Method 7471**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Mercury	ND	0.0554	mg/kg dry	1	1602236	02/24/16	02/24/16	EPA 7471	

**Hexavalent Chromium by EPA 7196**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.300	mg/kg dry	1	1602233	02/24/16	02/25/16	EPA 7196	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trivalent Chromium	11.7	0.993	"	"	[CALC]	"	"	EPA 7196/3060A	

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	11200	10.1	mg/kg dry	1	1602246	02/24/16	02/24/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	540	5.06	"	"	"	"	"	"	
Sodium	850	5.06	"	"	"	"	"	"	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.13		units	"	1602248	02/25/16	02/25/16	"	

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

**P2E@16**  
**1602160-04 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.814	0.0100	mmhos/cm	1	1602223	02/23/16	02/23/16	SM 2510B	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.50	0.100	pH Units	"	1602220	02/23/16	02/23/16	EPA 9045	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	80.5		%	"	1602222	02/23/16	02/24/16	% calculation	

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

**P2E@24**  
**1602160-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602210	02/22/16	02/24/16	8015M	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.9 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1602211	02/23/16	02/24/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**P2E@27**  
**1602160-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602210	02/22/16	02/24/16	8015M	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.7 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1602211	02/23/16	02/24/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 02/19/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	21-167		"	"	"	"	

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1602210 - EPA 3550A**

**Blank (1602210-BLK1)**

Prepared: 02/22/16 Analyzed: 02/23/16

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 12.2 " 12.5 97.4 30-150

**LCS (1602210-BS1)**

Prepared: 02/22/16 Analyzed: 02/23/16

C10-C28 (DRO) 547 50 mg/kg 499 110 73-134

Surrogate: o-Terphenyl 12.1 " 12.5 96.9 30-150

**Matrix Spike (1602210-MS1)**

Source: 1602157-01

Prepared: 02/22/16 Analyzed: 02/23/16

C10-C28 (DRO) 548 50 mg/kg 497 108 88.6 50-148

Surrogate: o-Terphenyl 12.2 " 12.5 98.4 30-150

**Matrix Spike Dup (1602210-MSD1)**

Source: 1602157-01

Prepared: 02/22/16 Analyzed: 02/23/16

C10-C28 (DRO) 554 50 mg/kg 489 108 91.3 50-148 1.15 13

Surrogate: o-Terphenyl 12.1 " 12.3 98.5 30-150

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6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

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

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

**Batch 1602211 - EPA 5030 Soil MS**

**Blank (1602211-BLK1)**

Prepared: 02/23/16 Analyzed: 02/24/16

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0396		"	0.0400		99.1	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	21-167			

**LCS (1602211-BS1)**

Prepared: 02/23/16 Analyzed: 02/24/16

Benzene	0.250	0.0020	mg/kg	0.225		111	58-130			
Toluene	0.220	0.0050	"	0.225		97.8	61-134			
Ethylbenzene	0.274	0.0050	"	0.223		123	74-139			
m,p-Xylene	0.525	0.010	"	0.449		117	73-137			
o-Xylene	0.252	0.0050	"	0.220		114	73-141			
Xylenes (total)	0.777	0.0050	"				30-150			
Gasoline Range Hydrocarbons	5.29	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0383		"	0.0400		95.7	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.0	21-167			

**Matrix Spike (1602211-MS1)**

Source: 1602157-01

Prepared: 02/23/16 Analyzed: 02/24/16

Benzene	0.234	0.0020	mg/kg	0.214	ND	110	30-131			
Toluene	0.208	0.0050	"	0.214	ND	97.3	30-134			
Ethylbenzene	0.259	0.0050	"	0.212	ND	122	22-153			
m,p-Xylene	0.499	0.010	"	0.427	ND	117	10-159			
o-Xylene	0.243	0.0050	"	0.210	ND	116	31-151			
Xylenes (total)	0.741	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	4.99	0.50	"		ND		30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0385		"	0.0380		101	23-173			
Surrogate: Toluene-d8	0.0370		"	0.0380		97.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0380		99.5	21-167			

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Project Manager: Carter Peace

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

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

**Batch 1602211 - EPA 5030 Soil MS**

Matrix Spike Dup (1602211-MSD1)		Source: 1602157-01			Prepared: 02/23/16 Analyzed: 02/24/16					
Benzene	0.246	0.0020	mg/kg	0.224	ND	110	30-131	4.76	34	
Toluene	0.217	0.0050	"	0.224	ND	96.8	30-134	4.00	30	
Ethylbenzene	0.272	0.0050	"	0.222	ND	122	22-153	4.65	24	
m,p-Xylene	0.522	0.010	"	0.446	ND	117	10-159	4.62	68	
o-Xylene	0.252	0.0050	"	0.219	ND	115	31-151	3.61	38	
Xylenes (total)	0.774	0.0050	"		ND		30-150	4.29	20	
Gasoline Range Hydrocarbons	5.26	0.50	"		ND		30-150	5.24	20	
Surrogate: 1,2-Dichloroethane-d4	0.0402		"	0.0398		101	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0398		97.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0398		101	21-167			

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Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

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02/26/16 14:21

**Semivolatile Organic Compounds by EPA Method 8270D SIM - Quality Control**  
**Summit Scientific**

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

**Batch 1602244 - EPA 5030 Soil MS**

**Blank (1602244-BLK1)**

Prepared: 02/24/16 Analyzed: 02/25/16

Acenaphthene	ND	0.00500	mg/kg
Acenaphthylene	ND	0.00500	"
Anthracene	ND	0.00500	"
Benzo (a) anthracene	ND	0.00500	"
Benzo (b) fluoranthene	ND	0.00500	"
Benzo (k) fluoranthene	ND	0.00500	"
Benzo (g,h,i) perylene	ND	0.00500	"
Benzo (a) pyrene	ND	0.00500	"
Chrysene	ND	0.00500	"
Dibenz (a,h) anthracene	ND	0.00500	"
Fluoranthene	ND	0.00500	"
Fluorene	ND	0.00500	"
Indeno (1,2,3-cd) pyrene	ND	0.00500	"
Naphthalene	ND	0.00500	"
Phenanthrene	ND	0.00500	"
Pyrene	ND	0.00500	"

Surrogate: 2-Methylnaphthalene-d10

0.0315

"

0.0330

95.5

35-150

Surrogate: Fluoranthene-d10

0.0355

"

0.0330

108

35-150

**LCS (1602244-BS1)**

Prepared: 02/24/16 Analyzed: 02/25/16

Acenaphthene	0.0311	0.00500	mg/kg	0.0329	94.4	50-150
Acenaphthylene	0.0309	0.00500	"	0.0329	94.0	50-150
Anthracene	0.0286	0.00500	"	0.0329	86.8	50-150
Benzo (a) anthracene	0.0296	0.00500	"	0.0329	89.9	50-150
Benzo (b) fluoranthene	0.0323	0.00500	"	0.0329	98.1	50-150
Benzo (k) fluoranthene	0.0331	0.00500	"	0.0329	101	50-150
Benzo (g,h,i) perylene	0.0330	0.00500	"	0.0329	100	50-150
Benzo (a) pyrene	0.0302	0.00500	"	0.0329	91.7	50-150
Chrysene	0.0295	0.00500	"	0.0329	89.7	50-150
Dibenz (a,h) anthracene	0.0334	0.00500	"	0.0329	101	50-150
Fluoranthene	0.0284	0.00500	"	0.0329	86.3	50-150
Fluorene	0.0298	0.00500	"	0.0329	90.7	50-150
Indeno (1,2,3-cd) pyrene	0.0316	0.00500	"	0.0329	96.1	50-150
2-Methylnaphthalene	0.0310	0.00500	"	0.0329	94.4	0-200
Naphthalene	0.0289	0.00500	"	0.0329	87.8	50-150
Phenanthrene	0.0299	0.00500	"	0.0329	90.9	50-150
Pyrene	0.0300	0.00500	"	0.0329	91.2	50-150

Surrogate: 2-Methylnaphthalene-d10

0.0354

"

0.0329

108

35-150

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Project Number: [none]  
Project Manager: Carter Peace

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02/26/16 14:21

**Semivolatile Organic Compounds by EPA Method 8270D SIM - Quality Control**  
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Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch 1602244 - EPA 5030 Soil MS**

**LCS (1602244-BS1)**

Prepared: 02/24/16 Analyzed: 02/25/16

Surrogate: Fluoranthene-d10	0.0386		mg/kg	0.0329		117	35-150			
<b>Matrix Spike (1602244-MS1)</b>										
	<b>Source: 1602097-02</b>			Prepared: 02/24/16 Analyzed: 02/25/16						
Acenaphthene	0.0635	0.00500	mg/kg	0.0332	0.0399	71.3	50-150			
Acenaphthylene	0.0528	0.00500	"	0.0332	0.0300	68.8	50-150			
Anthracene	0.0406	0.00500	"	0.0332	0.0582	NR	50-150			QM-07
Benzo (a) anthracene	0.0310	0.00500	"	0.0332	0.00838	68.0	50-150			
Benzo (b) fluoranthene	0.0309	0.00500	"	0.0332	0.00691	72.3	50-150			
Benzo (k) fluoranthene	0.0293	0.00500	"	0.0332	0.00379	76.9	50-150			
Benzo (g,h,i) perylene	0.0315	0.00500	"	0.0332	0.00482	80.4	50-150			
Benzo (a) pyrene	0.0285	0.00500	"	0.0332	0.00382	74.2	50-150			
Chrysene	0.0302	0.00500	"	0.0332	0.00786	67.3	50-150			
Dibenz (a,h) anthracene	0.0297	0.00500	"	0.0332	ND	89.5	50-150			
Fluoranthene	0.0287	0.00500	"	0.0332	0.00835	61.3	50-150			
Fluorene	0.0618	0.00500	"	0.0332	0.0358	78.1	50-150			
Indeno (1,2,3-cd) pyrene	0.0287	0.00500	"	0.0332	0.00355	75.8	50-150			
2-Methylnaphthalene	6.48	0.00500	"	0.0332	33100	NR	0-200			E
Naphthalene	4.46	0.00500	"	0.0332	33100	NR	50-150			E
Phenanthrene	0.0735	0.00500	"	0.0332	0.0586	45.0	50-150			QM-07
Pyrene	0.0414	0.00500	"	0.0332	0.0221	58.1	50-150			
Surrogate: 2-Methylnaphthalene-d10	0.0420		"	0.0332		126	35-150			
Surrogate: Fluoranthene-d10	0.0340		"	0.0332		102	35-150			

**Matrix Spike Dup (1602244-MSD1)**

**Source: 1602097-02**

Prepared: 02/24/16 Analyzed: 02/25/16

Acenaphthene	0.0650	0.00500	mg/kg	0.0329	0.0399	76.4	50-150	2.26	20	
Acenaphthylene	0.0587	0.00500	"	0.0329	0.0300	87.3	50-150	10.6	20	
Anthracene	0.0462	0.00500	"	0.0329	0.0582	NR	50-150	12.8	20	QM-07
Benzo (a) anthracene	0.0432	0.00500	"	0.0329	0.00838	106	50-150	32.9	20	QM-07
Benzo (b) fluoranthene	0.0479	0.00500	"	0.0329	0.00691	125	50-150	43.0	20	QM-07
Benzo (k) fluoranthene	0.0404	0.00500	"	0.0329	0.00379	111	50-150	31.7	20	QM-07
Benzo (g,h,i) perylene	0.0408	0.00500	"	0.0329	0.00482	109	50-150	25.7	20	QM-07
Benzo (a) pyrene	0.0392	0.00500	"	0.0329	0.00382	108	50-150	31.8	20	QM-07
Chrysene	0.0447	0.00500	"	0.0329	0.00786	112	50-150	38.7	20	QM-07
Dibenz (a,h) anthracene	0.0346	0.00500	"	0.0329	ND	105	50-150	15.1	20	
Fluoranthene	0.0389	0.00500	"	0.0329	0.00835	93.0	50-150	30.2	20	QM-07
Fluorene	0.0750	0.00500	"	0.0329	0.0358	119	50-150	19.4	20	
Indeno (1,2,3-cd) pyrene	0.0391	0.00500	"	0.0329	0.00355	108	50-150	30.5	20	QM-07
2-Methylnaphthalene	5.56	0.00500	"	0.0329	33100	NR	0-200	15.1	200	E

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Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

Semivolatile Organic Compounds by EPA Method 8270D SIM - Quality Control  
Summit Scientific

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

Batch 1602244 - EPA 5030 Soil MS

Matrix Spike Dup (1602244-MSD1)		Source: 1602097-02			Prepared: 02/24/16		Analyzed: 02/25/16			
Naphthalene	7.88	0.00500	mg/kg	0.0329	33100	NR	50-150	55.4	20	E
Phenanthrene	0.0909	0.00500	"	0.0329	0.0586	98.2	50-150	21.1	20	QM-07
Pyrene	0.0560	0.00500	"	0.0329	0.0221	103	50-150	30.0	20	QM-07
Surrogate: 2-Methylnaphthalene-d10	0.0461		"	0.0329		140	35-150			
Surrogate: Fluoranthene-d10	0.0382		"	0.0329		116	35-150			

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Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**Total Metals by EPA Method 6020 - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1602221 - EPA 3050B**

**Blank (1602221-BLK1)**

Prepared & Analyzed: 02/23/16

Arsenic	0.114	0.100	mg/kg wet
Barium	ND	0.100	"
Boron	ND	1.00	"
Cadmium	ND	0.100	"
Chromium	ND	0.500	"
Copper	ND	0.500	"
Lead	ND	0.100	"
Nickel	ND	0.100	"
Selenium	0.506	0.0500	"
Silver	ND	0.100	"
Zinc	ND	10.0	"

**LCS (1602221-BS1)**

Prepared & Analyzed: 02/23/16

Arsenic	132	0.100	mg/kg wet	127	104	59-110
Barium	219	0.100	"	244	89.9	61.1-110
Boron	171	1.00	"	224	76.1	43-110
Cadmium	120	0.100	"	129	92.8	61.2-110
Chromium	86.1	0.500	"	68.8	125	72.1-132
Copper	97.5	0.500	"	100	97.1	62.5-110
Lead	51.1	0.100	"	57.2	89.3	61-110
Nickel	127	0.100	"	122	103	65.7-111
Selenium	42.5	0.0500	"	49.2	86.4	51.6-111
Silver	21.6	0.100	"	24.4	88.5	54.3-110
Zinc	53.8	10.0	"	54.4	99.0	55.2-113

**Duplicate (1602221-DUP1)**

Source: 1602161-01

Prepared & Analyzed: 02/23/16

Arsenic	7.38	0.106	mg/kg dry	7.67	3.95	20
Barium	230	0.106	"	208	10.0	20
Boron	10.7	1.06	"	9.93	7.12	20
Cadmium	3.35	0.106	"	3.01	10.5	20
Chromium	38.1	0.530	"	34.4	10.3	20
Copper	134	0.530	"	123	8.24	20
Lead	251	0.106	"	229	9.42	20
Nickel	19.5	0.106	"	17.6	10.3	20
Selenium	1.64	0.0530	"	5.17	104	20
Silver	1.26	0.106	"	1.15	9.50	20
Zinc	528	10.6	"	490	7.56	20

QR-03

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Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**Total Metals by EPA Method 6020 - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1602221 - EPA 3050B**

Matrix Spike (1602221-MS1)		Source: 1602161-01			Prepared & Analyzed: 02/23/16					
Arsenic	53.2	0.103	mg/kg dry	41.3	7.67	110	75-125			
Barium	322	0.103	"	41.3	208	275	75-125			QM-07
Boron	48.4	1.03	"	82.5	9.93	46.6	75-125			QM-07
Cadmium	6.95	0.103	"	2.06	3.01	191	75-125			QM-07
Chromium	133	0.516	"	41.3	34.4	239	75-125			QM-07
Copper	163	0.516	"	41.3	123	95.6	75-125			
Lead	388	0.103	"	20.6	229	770	75-125			QM-07
Nickel	64.3	0.103	"	41.3	17.6	113	75-125			
Selenium	5.25	0.0516	"	4.13	5.17	2.07	75-125			QM-07
Silver	3.19	0.103	"	2.06	1.15	98.9	75-125			
Zinc	518	10.3	"	41.3	490	69.2	75-125			QM-07

Matrix Spike Dup (1602221-MSD1)		Source: 1602161-01			Prepared & Analyzed: 02/23/16					
Arsenic	57.2	0.107	mg/kg dry	42.9	7.67	115	75-125	7.14	25	
Barium	538	0.107	"	42.9	208	768	75-125	50.2	25	QM-07
Boron	52.1	1.07	"	85.8	9.93	49.2	75-125	7.51	25	QM-07
Cadmium	4.99	0.107	"	2.15	3.01	92.1	75-125	32.9	25	QM-07
Chromium	90.5	0.536	"	42.9	34.4	131	75-125	37.9	25	QM-07
Copper	158	0.536	"	42.9	123	81.7	75-125	2.71	25	
Lead	281	0.107	"	21.5	229	246	75-125	31.7	25	QM-07
Nickel	75.0	0.107	"	42.9	17.6	134	75-125	15.3	25	QM-07
Selenium	4.81	0.0536	"	4.29	5.17	NR	75-125	8.91	25	QM-07
Silver	2.88	0.107	"	2.15	1.15	80.5	75-125	10.4	25	
Zinc	886	10.7	"	42.9	490	923	75-125	52.3	25	QM-07

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Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

**Total Mercury by EPA Method 7471 - Quality Control**  
**Summit Scientific**

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

**Batch 1602236 - EPA 7471A**

**Blank (1602236-BLK1)**

Prepared & Analyzed: 02/24/16

Mercury ND 0.0500 mg/kg wet

**LCS (1602236-BS1)**

Prepared & Analyzed: 02/24/16

Mercury 0.522 0.0500 mg/kg wet 0.500 104 80-120

**Duplicate (1602236-DUP1)**

**Source: 1602183-01**

Prepared & Analyzed: 02/24/16

Mercury 0.0544 0.0475 mg/kg dry 0.0555 1.94 20

**Matrix Spike (1602236-MS1)**

**Source: 1602183-01**

Prepared & Analyzed: 02/24/16

Mercury 0.542 0.0510 mg/kg dry 0.510 0.0555 95.4 80-120

**Matrix Spike Dup (1602236-MSD1)**

**Source: 1602183-01**

Prepared & Analyzed: 02/24/16

Mercury 0.578 0.0551 mg/kg dry 0.551 0.0555 94.7 80-120 6.38 20

Summit Scientific

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Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

**Hexavalent Chromium by EPA 7196 - Quality Control**  
**Summit Scientific**

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

**Batch 1602233 - 3060A\_Mod**

**Blank (1602233-BLK1)**

Prepared: 02/24/16 Analyzed: 02/25/16

Chromium, Hexavalent ND 0.300 mg/kg wet

**LCS (1602233-BS1)**

Prepared: 02/24/16 Analyzed: 02/25/16

Chromium, Hexavalent 18.0 0.300 mg/kg wet 19.9 90.5 80-120

**Duplicate (1602233-DUP1)**

**Source: 1602183-01**

Prepared: 02/24/16 Analyzed: 02/25/16

Chromium, Hexavalent ND 0.300 mg/kg dry ND 20

**Matrix Spike (1602233-MS1)**

**Source: 1602183-01**

Prepared: 02/24/16 Analyzed: 02/25/16

Chromium, Hexavalent 16.2 0.300 mg/kg dry 24.8 ND 65.4 80-120 QM-07

**Post Spike (1602233-PS1)**

**Source: 1602183-01**

Prepared: 02/24/16 Analyzed: 02/25/16

Chromium, Hexavalent 0.412 mg/kg 0.498 ND 82.6 0-200

Summit Scientific

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





Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1602246 - General Preparation**

**Blank (1602246-BLK1)**

Prepared & Analyzed: 02/24/16

Calcium	ND	10.0	mg/kg wet
Magnesium	ND	5.00	"
Sodium	15.6	5.00	"

**LCS (1602246-BS1)**

Prepared & Analyzed: 02/24/16

Calcium	572	10.0	mg/kg wet	500	114	82.9-118
Magnesium	596	5.00	"	500	119	77.1-123
Sodium	622	5.00	"	500	124	71-129

**Duplicate (1602246-DUP1)**

Source: 1602137-05

Prepared & Analyzed: 02/24/16

Calcium	2570	11.1	mg/kg dry	2470	3.81	200
Magnesium	162	5.56	"	160	0.890	200
Sodium	2980	5.56	"	3020	1.35	200

**Matrix Spike (1602246-MS1)**

Source: 1602137-05

Prepared & Analyzed: 02/24/16

Calcium	2650	11.1	mg/kg dry	556	2470	31.0	75-125	QM-07
Magnesium	777	5.56	"	556	160	111	75-125	
Sodium	3540	5.56	"	556	3020	93.6	75-125	

**Matrix Spike Dup (1602246-MSD1)**

Source: 1602137-05

Prepared & Analyzed: 02/24/16

Calcium	2580	11.1	mg/kg dry	556	2470	19.2	75-125	2.51	25	QM-07
Magnesium	800	5.56	"	556	160	115	75-125	2.88	25	
Sodium	3580	5.56	"	556	3020	102	75-125	1.32	25	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
02/26/16 14:21

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control  
Summit Scientific

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

Batch 1602220 - General Preparation

LCS (1602220-BS1)					Prepared & Analyzed: 02/23/16					
pH	8.00	0.100	pH Units	8.00	100	95-105				
Duplicate (1602220-DUP1)					Source: 1602137-05 Prepared & Analyzed: 02/23/16					
pH	8.04	0.100	pH Units	8.19				1.85	20	

Batch 1602222 - General Preparation

Duplicate (1602222-DUP1)					Source: 1602160-04 Prepared: 02/23/16 Analyzed: 02/24/16					
% Solids	79.8		%	80.5				0.901	20	

Batch 1602223 - General Preparation

Blank (1602223-BLK1)					Prepared & Analyzed: 02/23/16					
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (1602223-BS1)					Prepared & Analyzed: 02/23/16					
Specific Conductance (EC)	0.502	0.0100	mmhos/cm	0.500	100	90-110				
Duplicate (1602223-DUP1)					Source: 1602137-05 Prepared & Analyzed: 02/23/16					
Specific Conductance (EC)	4.97	0.0100	mmhos/cm	4.84				2.57	20	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
02/26/16 14:21

### Notes and Definitions

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 21, 2016

Carter Peace  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Decker

Enclosed are the results of analyses for samples received by Summit Scientific on 03/16/16 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
03/21/16 14:15

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Background	1603120-01	Soil	03/16/16 00:00	03/16/16 17:00
Surface North	1603120-02	Soil	03/16/16 00:00	03/16/16 17:00
Surface South	1603120-03	Soil	03/16/16 00:00	03/16/16 17:00

Summit Scientific

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A handwritten signature in black ink, appearing to be 'MSM'.

Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker

Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
03/21/16 14:15

## Summit Scientific

741 Corporate Circle Suite I • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Client: TASMAN / DIAMOND (INNOV)  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: CSP

Project Manager: C. PEARCE  
E-Mail:  
Project Name: DECKER  
Project Number:

Page 1 of 1

Sample Description			Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For:			Special Instructions						
						HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	ARSENIC		BORON	PERCHLORATE	SAR	PH	EC	
BACKGROUND			3/16/16												X	X					
SURFACE NORTH								X							X	X					
SURFACE SOUTH								X									X	X	X		
Relinquished by:			Date/Time:	Received by:			Date/Time:			Turn Around Time (Check)			Notes:								
										Same Day <input type="checkbox"/>			24 Hours <input checked="" type="checkbox"/>								
Relinquished by:			Date/Time:	Received by:			Date/Time:			24 Hours <input type="checkbox"/>			Standard <input type="checkbox"/>								
										48 Hours <input type="checkbox"/>											
Relinquished by:			Date/Time:	Received in Lab by:			Date/Time:			Sample Integrity:			Temperature Upon Receipt: 4°C								
										Intact: <input checked="" type="checkbox"/>			No <input type="checkbox"/>								

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
03/21/16 14:15

**Background**  
**1603120-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA Method 6020 - Dry Weight Basis**

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	4.20	0.115	mg/kg dry	1	1603161	03/17/16	03/17/16	EPA 6020A	

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	4.14	1.15	"	"	"	"	"	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.0		%	1	1603188	03/18/16	03/21/16	% calculation	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
03/21/16 14:15

**Surface North**  
**1603120-02 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4400	11.5	mg/kg dry	1	1603175	03/17/16	03/17/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	406	5.75	"	"	"	"	"	"	
Sodium	294	5.75	"	"	"	"	"	"	

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.14		units	"	1603203	03/21/16	03/21/16	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.515	0.0100	mmhos/cm	1	1603173	03/17/16	03/17/16	SM 2510B	

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.42	0.100	pH Units	"	1603172	03/17/16	03/17/16	EPA 9045	

Date Sampled: **03/16/16 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.9		%	"	1603188	03/18/16	03/21/16	% calculation	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
03/21/16 14:15

**Surface South**  
**1603120-03 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: 03/16/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4960	11.1	mg/kg dry	1	1603175	03/17/16	03/17/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	401	5.56	"	"	"	"	"	"	
Sodium	367	5.56	"	"	"	"	"	"	

Date Sampled: 03/16/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.35		units	"	1603203	03/21/16	03/21/16	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 03/16/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.08	0.0100	mmhos/cm	1	1603173	03/17/16	03/17/16	SM 2510B	

Date Sampled: 03/16/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.38	0.100	pH Units	"	1603172	03/17/16	03/17/16	EPA 9045	

Date Sampled: 03/16/16 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.0		%	"	1603188	03/18/16	03/21/16	% calculation	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
03/21/16 14:15

**Total Metals by EPA Method 6020 - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1603161 - EPA 3050B**

**Blank (1603161-BLK1)**

Prepared: 03/16/16 Analyzed: 03/17/16

Arsenic	ND	0.100	mg/kg wet							
Boron	ND	1.00	"							

**LCS (1603161-BS1)**

Prepared: 03/16/16 Analyzed: 03/17/16

Arsenic	46.1	0.100	mg/kg wet	47.6		96.9	59.7-113			
Boron	122	1.00	"	251		48.5	48.4-113			

**Duplicate (1603161-DUP1)**

**Source: 1603084-02**

Prepared: 03/16/16 Analyzed: 03/17/16

Arsenic	7.98	0.109	mg/kg dry		9.07			12.7	20	
Boron	10.9	1.09	"		12.3			12.4	20	

**Matrix Spike (1603161-MS1)**

**Source: 1603084-02**

Prepared: 03/16/16 Analyzed: 03/17/16

Arsenic	59.2	0.125	mg/kg dry	46.1	9.07	109	75-125			
Boron	52.2	1.25	"	46.1	12.3	86.6	75-125			

**Matrix Spike Dup (1603161-MSD1)**

**Source: 1603084-02**

Prepared: 03/16/16 Analyzed: 03/17/16

Arsenic	50.0	0.112	mg/kg dry	44.8	9.07	91.3	75-125	16.9	25	
Boron	43.7	1.12	"	44.8	12.3	69.9	75-125	17.9	25	QM-07

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
03/21/16 14:15

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1603175 - General Preparation**

**Blank (1603175-BLK1)**

Prepared & Analyzed: 03/17/16

Calcium	ND	10.0	mg/kg wet
Magnesium	ND	5.00	"
Sodium	ND	5.00	"

**LCS (1603175-BS1)**

Prepared & Analyzed: 03/17/16

Calcium	484	10.0	mg/kg wet	500	96.8	82.9-118
Magnesium	518	5.00	"	500	104	77.1-123
Sodium	519	5.00	"	500	104	71-129

**Duplicate (1603175-DUP1)**

Source: 1603120-02

Prepared & Analyzed: 03/17/16

Calcium	4520	11.5	mg/kg dry	4400	2.61	200
Magnesium	392	5.75	"	406	3.64	200
Sodium	284	5.75	"	294	3.45	200

**Matrix Spike (1603175-MS1)**

Source: 1603120-02

Prepared & Analyzed: 03/17/16

Calcium	5070	11.5	mg/kg dry	575	4400	117	75-125
Magnesium	965	5.75	"	575	406	97.1	75-125
Sodium	843	5.75	"	575	294	95.5	75-125

**Matrix Spike Dup (1603175-MSD1)**

Source: 1603120-02

Prepared & Analyzed: 03/17/16

Calcium	5110	11.5	mg/kg dry	575	4400	122	75-125	0.616	25
Magnesium	1080	5.75	"	575	406	117	75-125	11.4	25
Sodium	940	5.75	"	575	294	112	75-125	10.9	25

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

Reported:  
03/21/16 14:15

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control  
Summit Scientific

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

Batch 1603172 - General Preparation

LCS (1603172-BS1)

Prepared & Analyzed: 03/17/16

pH	7.96	0.100	pH Units	8.00	99.5	95-105
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Duplicate (1603172-DUP1)

Source: 1603094-01

Prepared & Analyzed: 03/17/16

pH	8.35	0.100	pH Units	8.14	2.55	20
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Batch 1603173 - General Preparation

Blank (1603173-BLK1)

Prepared & Analyzed: 03/17/16

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1603173-BS1)

Prepared & Analyzed: 03/17/16

Specific Conductance (EC)	0.505	0.0100	mmhos/cm	0.500	101	90-110
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Duplicate (1603173-DUP1)

Source: 1603094-01

Prepared & Analyzed: 03/17/16

Specific Conductance (EC)	1.61	0.0100	mmhos/cm	1.65	2.39	20
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Batch 1603188 - General Preparation

Duplicate (1603188-DUP1)

Source: 1603120-01

Prepared: 03/18/16 Analyzed: 03/21/16

% Solids	87.9		%	87.0	1.03	20
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Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Decker  
Project Number: [none]  
Project Manager: Carter Peace

**Reported:**  
03/21/16 14:15

### Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

---

Summit Scientific

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

## Exhibit B

## Agreement for Remediation of Surface Use

This Agreement is entered into on this 10<sup>th</sup> day of June, 2016, by and between Scott and Delana Harrison, 7649 S. Eaton Way, Littleton, CO 80128, as Owner, and Diamond Operating Inc., 6666 Gunpark Drive, Suite 200, Boulder CO 80301, as Operator.

Owner is the surface owner and a mineral owner of certain lands located in Washington County, Colorado upon which Operator has been producing oil, gas and other hydrocarbons from two wells located on said lands as follows:

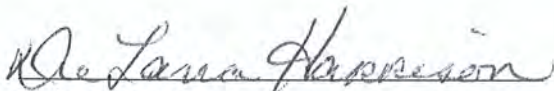
<b>Wells</b>	Decker #1 and Decker #3
<b>Lands</b>	<u>Township 4 South, Range 53 West, 6<sup>th</sup> P.M.</u> Section 18: W/2 NE/4, SE/4NW/4


Operator has installed a new skim tank on the Decker facility for the purpose of replacing two earthen skim pits that had been in use in the operation of the Wells under prior approval of the Colorado Oil and Gas Conservation Commission (COGCC facility # 117631 and # 109575). In order to comply with COGCC regulations regarding reclamation of land and soil affected by oil and gas operations, operator plans to excavate soil from the skim pit and treat it using enhanced surface bioremediation methods. Operator will use a rectangular area that will be 150' x 400' located just southwest of the site of the skim pits (For details see attached Exhibit A). After the treated soil meets the COGCC Table 910 standards, it will be placed back into the pits and the remediation site will be reclaimed per COGCC guidelines and subject to Owner approval.

Owner hereby acknowledges agreement to this plan and Operator agrees to the full reclamation of surface in and around the replaced skim pits.

Dated and made effective the date included above.

OWNER:

  
Delana Harrison

  
Scott Harrison

OPERATOR:

  
David C. Peterson, President  
Diamond Operating, Inc.



STATE OF COLORADO

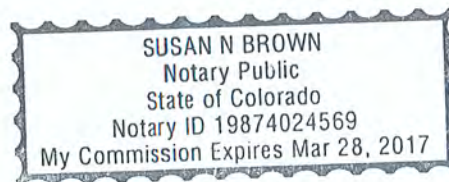
COUNTY OF Boulder Jefferson

The forgoing instrument was acknowledged before me this 10<sup>th</sup> day of June, 2016,  
by **Scott and Delana Harrison**.

Susan N. Brown  
Notary Public

My Commission Expires:

3-28-17



THE STATE OF COLORADO

COUNTY OF BOULDER

Before me, the undersigned, a Notary Public, on this day personally appeared **David C. Peterson**, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said **Diamond Operating, Inc.**, a Colorado corporation, and that he has executed the same as the act of said corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this 7<sup>th</sup> day of June, 2016.

[Signature]  
Notary Public

My Commission expires:

02/22/2020

