



Julie Justus
Regulatory, Health &
Environment Specialist
MCBU
Piceance
Oil Shale

**Chevron North America
Exploration and Production Company**
(A Chevron U.S.A. Inc. Division)
760 Horizon Drive Suite 412
Grand Junction, Colorado 81506
Telephone: 970.257.6042
Email: jjustus@chevron.com

December 16, 2013

Mr. Alex Fischer
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203

RE: Wilson Creek Facility Landfarm (Facility ID 149002)
Annual Report of Operations

Dear Mr. Fischer,

As required by Rule 908 f. of the Colorado Oil and Gas Conservation Commission (COGCC) rules (2 CCR 404-1), please find attached the Annual Report of Operations for the Wilson Creek Facility Landfarm (Facility ID 149002).

The attached report consists of:

- A completed Sundry Notice (Form 4)
- A brief narrative description of the facility and current operations
- The waste application log for 2012 - 2013
- Results of periodic groundwater monitoring well sampling

The annual report submitted in December 2012 was current through November 2012. For simplicity and continuity, the waste application logs attached include all of calendar year 2012 in addition to the 2013 data to date.

If you have any questions concerning this site, please contact me at 970-257-6042.

Julie Justus

A handwritten signature in blue ink that reads "Julie Justus".

Regulatory, Health & Environment Specialist
Chevron USA

FORM

4

Rev
04/13

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80205 Phone: (303) 894-2100 Fax: (303) 894-2109



DE	ET	OE	ES
----	----	----	----

Document Number:

SUNDRY NOTICE

Submit a signed original. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full in Comments or provide as an attachment. Identify Well by API Number; identify Oil and Gas Location by Location ID Number; identify other Facility by Facility ID Number.

OGCC Operator Number: 16700 Contact Name Julie Justus
 Name of Operator: Chevron USA, Inc. Phone: (970) 257-6042
 Address: 760 Horizon Drive Fax: ()
 City: Grand Junction State: CO Zip: 81506 Email: jjustus@chevron.com

Complete the Attachment
Checklist

OP OGCC

API Number : 05- OGCC Facility ID Number: 149002
 Well/Facility Name: Wilson Creek Landfarm Well/Facility Number:
 Location QtrQtr: NE NW Section: 35 Township: 3N Range: 94W Meridian: 6th
 County: Rio Blanco Field Name: Wilson Creek
 Federal, Indian or State Lease Number:

Survey Plat		
Directional Survey		
Srvc Eqpm Diagram		
Technical Info Page		
Other Annual Report	<input checked="" type="checkbox"/>	

CHANGE OF LOCATION OR AS BUILT GPS REPORT

☐ Change of Location * ☐ As-Built GPS Location Report ☐ As-Built GPS Location Report with Survey

* Well location change requires new plat. A substantive surface location change may require new Form 2A.

SURFACE LOCATION GPS DATA Data must be provided for Change of Surface Location and As Built Reports.

Latitude PDOP Reading Date of Measurement
 Longitude GPS Instrument Operator's Name

LOCATION CHANGE (all measurements in Feet)

Well will be: (Vertical, Directional, Horizontal)

Change of **Surface** Footage **From** Exterior Section Lines:

Change of **Surface** Footage **To** Exterior Section Lines:

Current **Surface** Location **From** QtrQtr Sec

New **Surface** Location **To** QtrQtr Sec

Change of **Top of Productive Zone** Footage **From** Exterior Section Lines:

Change of **Top of Productive Zone** Footage **To** Exterior Section Lines:

Current **Top of Productive Zone** Location **From** Sec

New **Top of Productive Zone** Location **To** Sec

Change of **Bottomhole** Footage **From** Exterior Section Lines:

Change of **Bottomhole** Footage **To** Exterior Section Lines:

Current **Bottomhole** Location Sec Twp

New **Bottomhole** Location Sec Twp

Is location in High Density Area?

Distance, in feet, to nearest building , public road: , above ground utility: , railroad: ,

property line: , lease line: , well in same formation:

Ground Elevation feet Surface owner consultation date

FNL/FSL		FEL/FWL	
<u></u>	<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u></u>	<u></u>
Twp <u></u>	Range <u></u>	Meridian <u></u>	
Twp <u></u>	Range <u></u>	Meridian <u></u>	
<u></u>	<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u></u>	<u></u>
Twp <u></u>	Range <u></u>		
Twp <u></u>	Range <u></u>		
<u></u>	<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u></u>	<u></u>
Range <u></u>			
Range <u></u>			

** attach deviated drilling plan

CHANGE OR ADD OBJECTIVE FORMATION AND/OR SPACING UNIT

<u>Objective Formation</u>	<u>Formation Code</u>	<u>Spacing Order Number</u>	<u>Unit Acreage</u>	<u>Unit Configuration</u>

OTHER CHANGES

☐ **REMOVE FROM SURFACE BOND** Signed surface use agreement is a required attachment

☐ **CHANGE OF WELL, FACILITY OR OIL & GAS LOCATION NAME OR NUMBER**

From: Name _____ Number _____ Effective Date: _____

To: Name _____ Number _____

☐ **ABANDON PERMIT: Permit can only be abandoned if the permitted operation has NOT been conducted. Field inspection will be conducted to verify site status.**

☐ **WELL:** Abandon Application for Permit-to-Drill (Form 2) – Well API Number _____ has not been drilled.

☐ **PIT:** Abandon Earthen Pit Permit (Form 15) – COGCC Pit Facility ID Number _____ has not been constructed (Permitted and constructed pit requires closure per Rule 905)

☐ **CENTRALIZED E&P WASTE MANAGEMENT FACILITY:** Abandon Centralized E&P Waste Management Facility Permit (Form 28) – Facility ID Number _____ has not been constructed (Constructed facility requires closure per Rule 908)

OIL & GAS LOCATION ID Number: _____

☐ Abandon Oil & Gas Location Assessment (Form 2A) – Location has not been constructed and site will not be used in the future.

☐ Keep Oil & Gas Location Assessment (Form 2A) active until expiration date. This site will be used in the future.

Surface disturbance from Oil and Gas Operations must be reclaimed per Rule 1003 and Rule 1004.

☐ **REQUEST FOR CONFIDENTIAL STATUS**

☐ **DIGITAL WELL LOG UPLOAD**

☐ **DOCUMENTS SUBMITTED** Purpose of Submission: _____

RECLAMATION**INTERIM RECLAMATION**

☐ Interim Reclamation will commence approximately _____

Per Rule 1003.e.(3) operator shall submit Sundry Notice reporting interim reclamation is complete and site is ready for inspection when vegetation reaches 80% coverage.

☐ Interim reclamation complete, site ready for inspection. Per Rule 1003.e.(3) describe interim reclamation procedure in Comments below or provide as an attachment and attach required location photographs.

Field inspection will be conducted to document Rule 1003.e. compliance

FINAL RECLAMATION

☐ Final Reclamation will commence approximately _____

Per Rule 1004.c.(4) operator shall submit Sundry Notice reporting final reclamation is complete and site is ready for inspection when vegetation reaches 80% coverage.

☐ Final reclamation complete, site ready for inspection. Per Rule 1004.c.(4) describe final reclamation procedure in Comments below or provide as an attachment.

Field inspection will be conducted to document Rule 1004.c. compliance

Comments:

ENGINEERING AND ENVIRONMENTAL WORK

☐ NOTICE OF CONTINUED TEMPORARILY ABANDONED STATUS

Indicate why the well is temporarily abandoned and describe future plans for utilization in the COMMENTS box below or provide as an attachment, as required by Rule 319.b.(3).

Date well temporarily abandoned _____ Has Production Equipment been removed from site? _____

Mechanical Integrity Test (MIT) required if shut in longer than 2 years. Date of last MIT _____

☐ SPUD DATE: _____

TECHNICAL ENGINEERING AND ENVIRONMENTAL WORK

Details of work must be described in full in the COMMENTS below or provided as an attachment.

☐ NOTICE OF INTENT Approximate Start Date _____

☐ REPORT OF WORK DONE Date Work Completed _____

- | | | |
|--|---|--|
| <input type="checkbox"/> Intent to Recomplete (Form 2 also required) | <input type="checkbox"/> Request to Vent or Flare | <input type="checkbox"/> E&P Waste Mangement Plan |
| <input type="checkbox"/> Change Drilling Plan | <input type="checkbox"/> Repair Well | <input type="checkbox"/> Beneficial Reuse of E&P Waste |
| <input type="checkbox"/> Gross Interval Change | <input type="checkbox"/> Rule 502 variance requested. Must provide detailed info regarding request. | |
| <input checked="" type="checkbox"/> Other Rule 908 f. Annual Report | <input type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases | |

COMMENTS:

Detailed Annual Report of Operations for the Rangely Weber Sand Unit Landfarm is attached.

CASING AND CEMENTING CHANGES

Casing Type	Size	Of	/	Hole	Size	Of	/	Casing	Wt/Ft	Csg/LinTop	Setting Depth	Sacks of Cement	Cement Bottom	Cement Top

H2S REPORTING

Data Fields in this section are intended to document Sample and Location Data associated with the collection of a Gas Sample that is submitted for Laboratory Analysis.

Gas Analysis Report must be attached.

H2S Concentration: _____ in ppm (parts per million) Date of Measurement or Sample Collection _____

Description of Sample Point:

Absolute Open Flow Potential _____ in CFPD (cubic feet per day)

Description of Release Potential and Duration (If flow is not open to the atmosphere, identify the duration in which the container or pipeline would likely be opened for servicing operations.):

Distance to nearest occupied residence, school, church, park, school bus stop, place of business, or other areas where the public could reasonably be expected to frequent: _____

Distance to nearest Federal, State, County, or municipal road or highway owned and principally maintained for public use: _____

COMMENTS:

BMP

Type	Comment

GROUND WATER SAMPLING

Uses of Ground Water Sampling Section

Request an Exception to Ground Water Sampling Requirements in Greater Wattenberg Area Rule 318A.e(4) or in Statewide Rule 609.c. Request a Previously Sampled Water Source in the COGIS database be used to meet sampling requirements as described in Rule 609.d. (3).

NOTE: If this Sundry Notice is being submitted to request a Ground Water Sampling Exception it cannot be used for any other purpose except requesting the use of a Previously Sampled Water Source in the COGIS database.

☐ Request an Exception to Ground Water Sampling Requirements per Greater Wattenberg Area Rule 318A.e(4): There are no Available Water Sources located within the governmental quarter section or within a previously unsampled governmental quarter section within a ½-mile radius of this proposed Oil and Gas Well, Multi-Well Site, or Dedicated Injection Well.

☐ Request an Exception to Ground Water Sampling Requirements per Statewide Rule 609.c.

_____ Number of Water Sources located within one-half (1/2) mile of a proposed Oil and Gas Well, Multi-Well Site, or Dedicated Injection Well.

_____ Number of Water Source Exceptions requested per Rule 609.c.

_____ Number of Water Sources determined to be unsuitable. **The condition of these Water Sources MUST be documented in the comments below or in an attachment.**

_____ Number of Water Sources suitable for testing whose owners refused to grant access despite an operator's reasonable good faith efforts to obtain consent to conduct sampling.
The reasonable good faith efforts used to obtain access from the owners of these Water Sources MUST be documented in the comments below or in an attachment.

☐ Request a Previously Sampled Water Source in the COGIS database be used to meet sampling requirements as described in Rule 609.d(3)

_____ Type of Sample Substitution Request

Enter Sample ID Number from COGIS Maps for each Previous Water Sample:

Sample ID	Facility ID	Sample Date	Sample Purpose

COMMENTS

Operator Comments:

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

Signed:  Print Name: Julie Justus
 Title: Regulatory Specialist Email: jjustus@chevron.com Date: 12/16/13

Based on the information provided herein, this Sundry Notice (Form 4) complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: _____ Date: _____

WILSON CREEK FACILITY LANDFARM

ANNUAL REPORT OF OPERATIONS

Centralized E&P Waste Management Facility



CHEVRON USA, INC.

December 2013

I. Introduction

The Wilson Creek Field is located in various sections of Townships 2 and 3 North, Range 94 West, of the 6th Principle Meridian in Rio Blanco County, Colorado. The town of Meeker, Colorado, which lies approximately 11 miles south of the facility, is the nearest population center. The Wilson Creek Field can be reached from Meeker by traveling approximately 0.5 miles west on State Highway 64, then traveling approximately 7 miles north of County Road 7, and finally following County Road 9 approximately 7 miles to the facility.

The Wilson Creek Field is an onshore production facility, owned and operated by Chevron. The Wilson Creek Field is located in rugged mountainous terrain consisting of steep canyon walls and deep gorges. Vehicular travel is restricted to roadways and foot travel off roadways is difficult. The Landfarm is located in the NE NW Qtr-Qtr, Section 35, T3N, R94W, Sixth PM on a level area adjacent to a lease road.

Landfarming, also known as land treatment or land application, is an above-ground remediation technology for soils that reduces concentrations of petroleum constituents through biodegradation. For Chevron's Wilson Creek Production Operations, this technology involves spreading contaminated soils or other E&P waste in a thin layer on the ground surface, shallow tilling to mix with native soils, and stimulating aerobic microbial activity within the soils through aeration and the addition of fertilizers and moisture. The enhanced microbial activity results in degradation of adsorbed petroleum product constituents through microbial respiration. Chevron's goal is to remediate certain E&P wastes as they are produced, eliminating the need for off-site disposal of these wastes.

The original landfarm was lined and was approximately 50' x 70'. An unlined expansion of the original landfarm was approved in July 2003 by the COGCC which enlarged the landfarm to approximately 1.36 acres. As part of the expansion approval, the COGCC directed that no 'wet' or de-watered waste was to be applied to any unlined section of the landfarm. In 2011, a new liner and groundwater monitoring wells were installed per the approved sundry notice dated October 29, 2010.

II. Landfarm Operations

Four attachments are submitted with this report –

- Wilson Creek Landfarm Application Log, January 2012 – current.
- Landfarm Ground Water Sampling Results, Summary Table
- Landfarm Survey Drawing with Groundwater Monitoring Wells, Figure 1
- Groundwater Monitoring Analytical Report – September 2013

No soil was removed from the landfarm in 2013 and due to excessive precipitation, standing water, and saturated conditions experienced in the fall of 2013, the soil sampling event scheduled for 2013 had to be deferred until summer of 2014.

In the fourth quarter of 2011, three groundwater monitoring wells were installed as a condition of the most recent sundry notice approval (for installation of a new liner under a portion of the landfarm). As reported last year, the initial sampling conducted in June 2012 showed all parameters within COGCC Table 910-1 standards. Similarly, as summarized in Table 1 (attached) all sampled parameters in 2013 are within the COGCC standards.

Attached is the detailed Landfarm Waste Log for 2012 and 2013 to date. A total of 267 tons of E&P waste was applied to the landfarm in 2012 and 119 tons in 2013. The waste streams originate from a variety of upstream sources, but are primarily from:

- Spent Sulfa-Treat catalyst (composed of Montmorillonite and other silicates, iron oxide, and absorbed hydrocarbons and sulfate)
- Oily dirt from incidental spills

Other than the issues reported above, no changes or modifications have been made in the waste streams, processes, or procedures since the last Annual Report of Operations. No upsets, spills, or discharges from the landfarm occurred in 2013.

WILSON CREEK LANDFARM WASTE LOG

COGCC Facility 149002

Date	Waste Type	BBLS	Quantity			Source Location	Comments
			YDS	FT ³	TONS		
6-Jan-12	Spent SulfaTreat		22		29.70	tower 2	sept 30 2011- spread 5 tons of lime on linned area tilled down 3'.
2-Mar-12	Spent SulfaTreat		22		29.70	tower 1	
19-Apr-12	Spent SulfaTreat		22		29.70	tower 2	
8-May-12	Spent SulfaTreat	115			32.28	Tower 1	7-25-12 Tilled land farm
19-Jun-12	Spent SulfaTreat		22		29.70	Tower 2	
14-Aug-12	Spent SulfaTreat		22		29.70	Tower 1	
15-Aug-12	Spent SulfaTreat		20		27.00	Tower 2	19-Sept-12 tilled land farm
4-Nov-12	Spent SulfaTreat		22		29.70	Tower 2	
17-Dec-12	Spent SulfaTreat		22		29.70	Tower 1	
2012 Totals -		115	174		267.1805		
15-Jan-13	Spent SulfaTreat		22		29.70	Tower 2	August and Sept. tilled landfarm Changed towers
11-Mar-13	Spent SulfaTreat		22		29.70	Tower 2	
13-Aug-13	Spent SulfaTreat		22		29.70	Tower 1	
13-Aug-13	Spent SulfaTreat		22		29.70	Tower 2	
20-Sep-13							
2013 Totals -		0	88		118.8		

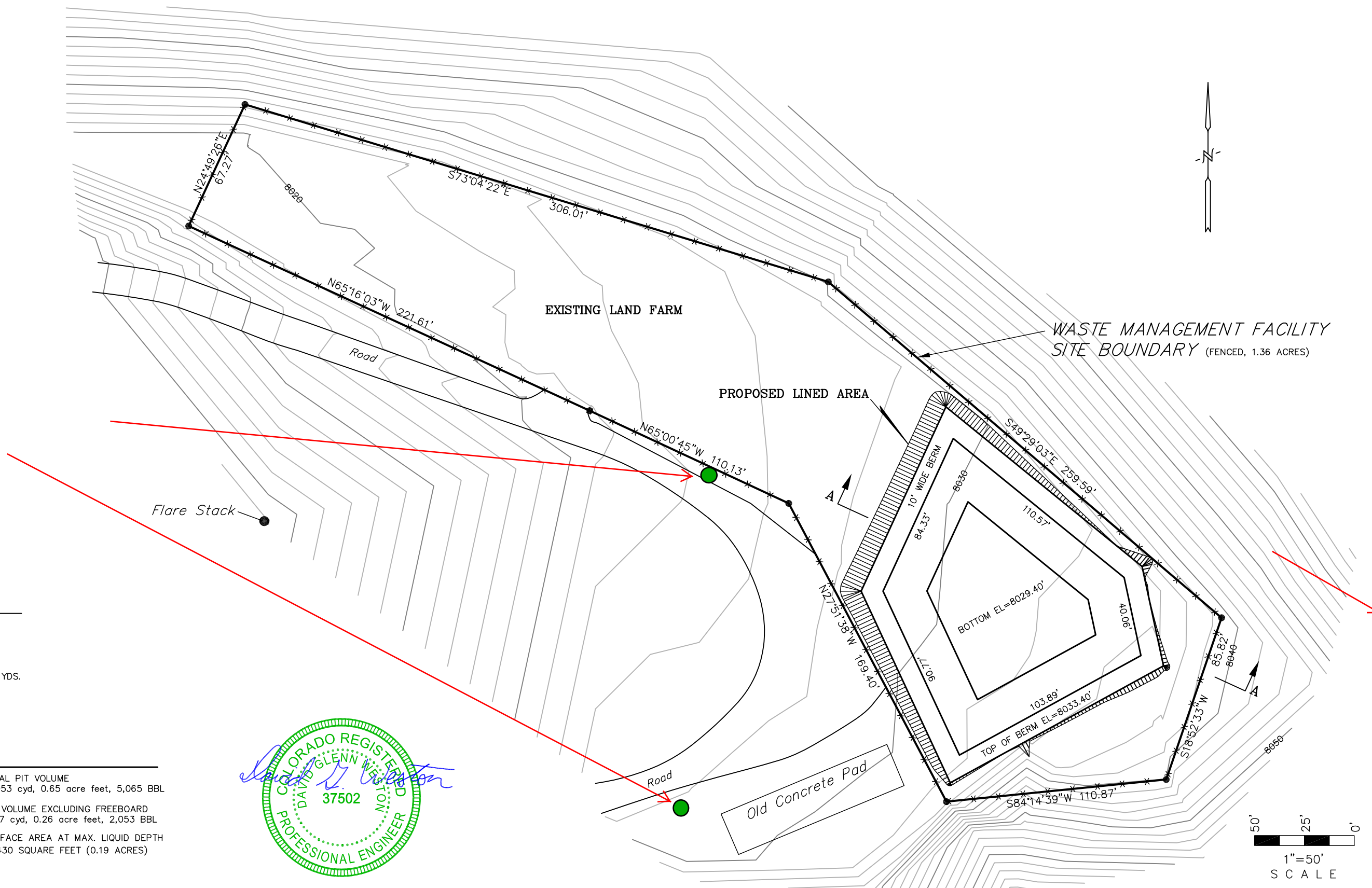
Table 1
Wilson Creek Landfarm
2013 Groundwater Monitoring Well Summary

Sample Summary	
Location Description	Wilson Creek Landfarm
Sample Type	Groundwater - Grab
Sample Date	9/19/2013

Laboratory Data Summary					
Sample ID	MW-48-091913	MW-49-091913	MW-50-091913	COGCC Allowable Limits	Units
Type	Upgradient	Downgradient	Downgradient		
Analytical Parameters					
TPH					
TPH-GRO	ND	ND	ND	Det. Limit	µg/l
TPH-DRO	ND	ND	ND	Det. Limit	µg/l
Total TPH	ND	ND	ND	Det. Limit	µg/l
Organic Compounds in Groundwater					
Benzene	ND	ND	ND	5	µg/l
Ethylbenzene	ND	ND	ND	700	µg/l
Toluene	ND	ND	ND	560	µg/l
Total Xylenes	ND	ND	ND	1400	µg/l
Inorganic Compounds in Groundwater					
Chloride	35.3	9.2	30.8	44.1	mg/l ¹
Sulfate	1,940	298	1,760	2,425	mg/l ¹
Total Dissolved Solids	3,030	814	2,740	3,788	mg/l ¹

ND - analyte not detected at limit of quantitation

Note 1 - COGCC limit = 1.25 x background. MW-48 is the upgradient well and is used as the basis for calculating allowable limits



EARTHWORK APPROXIMATE VOLUMES

RAW CUT = 778 CU. YDS.
FILL = 705 CU. YDS.
FILL+10% = 775 CU. YDS.

IMPORTED BEDDING/FOUNDATION
COMPACTED, IN PLACE = 430 CU. YDS.

PIT CHARACTERISTICS

INSIDE TOP 126.0' X 132.2'
INSIDE DIKE SLOPE 4:1
OUTSIDE DIKE SLOPE 2:1
DEPTH OF PIT: 4'
MAX LIQUID DEPTH: 2'
FREEBOARD DEPTH 2'

TOTAL PIT VOLUME
1,053 cyd, 0.65 acre feet, 5,065 BBL
PIT VOLUME EXCLUDING FREEBOARD
427 cyd, 0.26 acre feet, 2,053 BBL
SURFACE AREA AT MAX. LIQUID DEPTH
8,430 SQUARE FEET (0.19 ACRES)



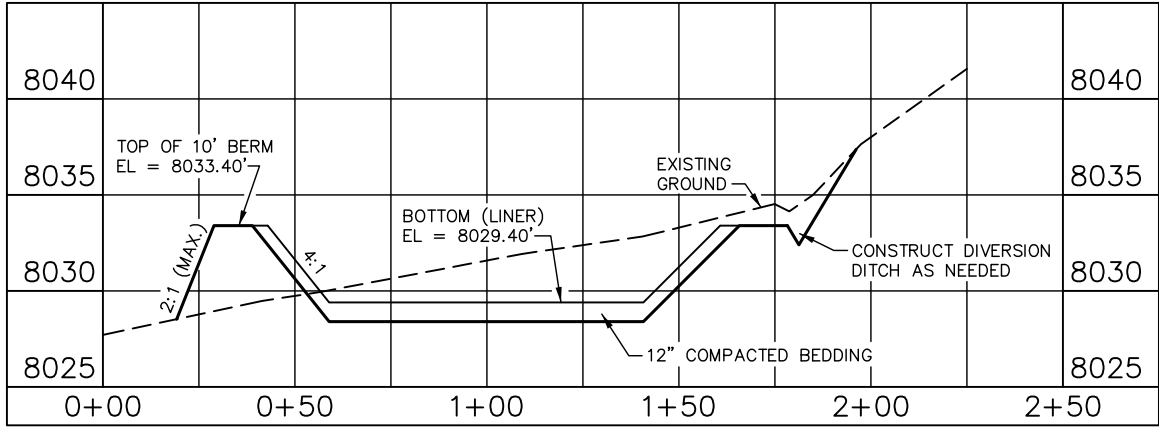
CHEVRON
WILSON CREEK – WASTE MANAGEMENT FACILITY
PROPOSED LINED AREA
NW 1/4 NW 1/4 OF SECTION 35, T3N, R94W, 6th P.M.

SCALE: NO SCALE	DRAWN BY: DGW
DRAWING DATE: 10-7-10	E-FILE:
REVISED:	PROJECT NO:
	REFERENCE DRAWINGS:

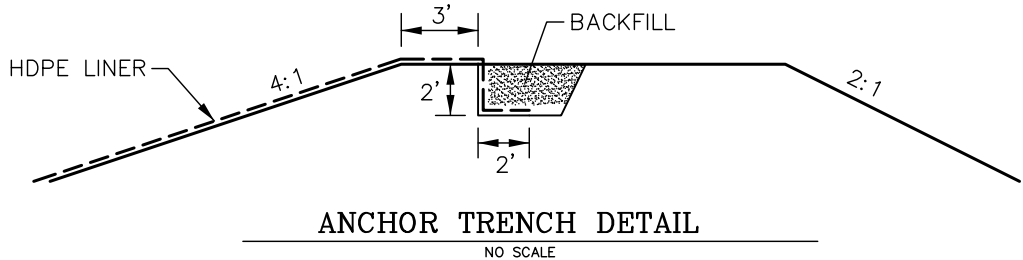


UINTEAH ENGINEERING & LAND SURVEYING
— SINCE 1964 —
UTAH OFFICE 85 South 200 East
Vernal, UT 84078
435-789-1017
WYOMING OFFICE 79 Winston Drive
Suite 210 Rock
Springs, WY 82901
307-382-3585
COLORADO OFFICE 832 Northcrest Drive
Unit B
Grand Junction, CO
81506
970-263-4006
MONTANA OFFICE 104 2nd Ave. SW
Suite 300
Sidney, MT 59270
406-433-9650

SHEET NO.
1
OF
2



SECTION A-A



MATERIALS SPECIFICATION

MATERIAL AND CONSTRUCTION SPECIFICATIONS:

THE FOLLOWING MATERIAL LIST IS NOT ALL INCLUSIVE. OTHER MATERIAL WILL BE NECESSARY FOR THE COMPLETION OF THE PROJECT.

PIT LINER TO BE A MINIMUM OF 24 MIL THICK HDPE OR OTHER AS APPROVED BY THE COLORADO OIL AND GAS CONSERVATION COMMISSION AND SHALL MEET THE REQUIREMENTS OF RULE 904. PIT LINERS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS SPECIFICATIONS. BEDDING/FOUNDATION MATERIAL FOR THE LINER SHALL CONSIST OF 12" OF COMPACTED SOIL HAVING A HYDRAULIC CONDUCTIVITY NOT EXCEEDING 1.0 X 10⁻⁷ CM/SEC AFTER TESTING AND COMPACTION. THE FOUNDATION MATERIAL SELECTED SHALL BE FREE OF FRACTURED FACES CAPABLE OF PUNCTURING THE LINER MATERIAL. THE MATERIAL SHALL ALSO BE FREE OF ORGANIC AND FROZEN MATERIAL. LINER MANUFACTURER SHALL APPROVE SUBGRADE PRIOR TO INSTALLATION OF LINER.

BERM WILL BE KEYED INTO NATIVE MATERIAL. THE KEY-WAY WILL BE BACKFILLED AND COMPACTED WITH CLEAN BERM MATERIAL. NO DEBRIS WILL BE USED IN THE BERM CONSTRUCTION. NATIVE MATERIAL MAY BE USED FOR BERM CONSTRUCTION EXCEPT NO CLEAN SAND OR POROUS ROCK MAY BE USED. BERM MATERIAL MUST BE WELL GRADED.

ALL BERM MATERIAL SHALL BE COMPACTED TO AT LEAST 95% OF THE OPTIMUM OBTAINED BY AASHTO METHOD T99. THE MATERIAL MUST BE PLACED IN LIFTS NOT TO EXCEED 8" AND COMPACTION TESTS SHALL BE MADE TO VERIFY COMPACTION REQUIREMENTS. IF COMPACTION REQUIREMENTS ARE NOT MET AT 8" LIFTS, ADJUSTMENTS MUST BE MADE TO THE LIFT DEPTH (EG. 6" MAX LIFT).

- ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES WILL BE REVIEWED AND STRICTLY COMPLIED WITH.

CHEVRON
WILSON CREEK – WASTE MANAGEMENT FACILITY
PROPOSED LINED AREA
NW 1/4 NW 1/4 OF SECTION 35, T3N, R94W, 6th P.M.

SCALE: NO SCALE			DRAWN BY: DGW		
DRAWING DATE: 10-7-10			E-FILE:		
REVISED:			PROJECT NO:		
			REFERENCE DRAWINGS:		



UINTAH ENGINEERING & LAND SURVEYING
- SINCE 1964 -
UTAH OFFICE: 85 South 200 East, Vernal, UT 84078, 435-789-1017
WYOMING OFFICE: 79 Winston Drive, Suite 210 Rock Springs, WY 82901, 307-382-3585
COLORADO OFFICE: 832 Northcrest Drive, Unit B, Grand Junction, CO 81506, 970-263-4006
MONTANA OFFICE: 104 2nd Ave. SW, Suite 300, Sidney, MT 59270, 406-433-9650

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

STANTEC Consulting, Inc.
Suite 2-300
2000 South Colorado Boulevard
Denver CO 80222

October 03, 2013

Project: Wilson Creek

Submittal Date: 09/24/2013
Group Number: 1421031
PO Number: 89CH.49557.08
Release Number: WILSON CREEK
State of Sample Origin: CO

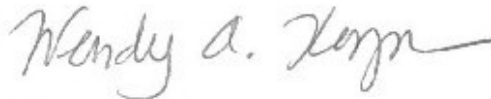
<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
MW-48-091913 Grab Groundwater	7209168
MW-49-091913 Grab Groundwater	7209169
MW-50-091913 Grab Groundwater	7209170
Trip Blank Water	7209171

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC STANTEC Consulting, Inc.
COPY TO

Attn: Christopher Beall

Respectfully Submitted,



Wendy A. Kozma
Principal Specialist Group Leader

(717) 556-7257

Sample Description: MW-48-091913 Grab Groundwater
Wilson Creek

LL Sample # WW 7209168
LL Group # 1421031
Account # 11842

Project Name: Wilson Creek

Collected: 09/19/2013 10:37 by CB

STANTEC Consulting, Inc.

Submitted: 09/24/2013 09:15

Suite 2-300

Reported: 10/03/2013 15:37

2000 South Colorado Boulevard
Denver CO 80222

WC-48

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC Volatiles					
01636	TPH-GRO water C6-C10	SW-846 8015B n.a.	ug/l < 50	ug/l 50	1
GC Volatiles					
02102	Benzene	SW-846 8021B 71-43-2	ug/l < 1.0	ug/l 1.0	1
02102	Ethylbenzene	100-41-4	< 1.0	1.0	1
02102	Toluene	108-88-3	< 1.0	1.0	1
02102	Total Xylenes	1330-20-7	< 3.0	3.0	1
GC Petroleum Hydrocarbons					
08269	TPH-DRO water C10-C28	SW-846 8015B n.a.	ug/l < 96	ug/l 96	1
Wet Chemistry					
00224	Chloride	EPA 300.0 16887-00-6	mg/l 35.3	mg/l 4.0	10
00228	Sulfate	14808-79-8	1,940	200	200
SM 2540 C-1997					
00212	Total Dissolved Solids	n.a.	mg/l 3,030	mg/l 240	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01636	TPH-GRO water C6-C10	SW-846 8015B	1	13268A53A	09/26/2013 15:15	Catherine J Schwarz	1
02102	Method 8021 Water Master	SW-846 8021B	1	13268A53A	09/26/2013 15:15	Catherine J Schwarz	1
01146	GC VOA Water Prep	SW-846 5030B	1	13268A53A	09/26/2013 15:15	Catherine J Schwarz	1
08269	TPH-DRO water C10-C28	SW-846 8015B	1	132690012A	09/28/2013 11:19	Nicholas R Rossi	1
07003	Extraction - DRO (Waters)	SW-846 3510C	1	132690012A	09/26/2013 22:00	Elaine F Stoltzfus	1
00224	Chloride	EPA 300.0	1	13270347602A	09/30/2013 14:22	Sandra J Miller	10
00228	Sulfate	EPA 300.0	1	13270347602A	09/30/2013 14:38	Sandra J Miller	200
00212	Total Dissolved Solids	SM 2540 C-1997	1	13269021201B	09/26/2013 06:45	Noah M Rainbow	1

Sample Description: MW-49-091913 Grab Groundwater
Wilson Creek

LL Sample # WW 7209169
LL Group # 1421031
Account # 11842

Project Name: Wilson Creek

Collected: 09/19/2013 10:14 by CB

STANTEC Consulting, Inc.

Submitted: 09/24/2013 09:15

Suite 2-300

Reported: 10/03/2013 15:37

2000 South Colorado Boulevard

Denver CO 80222

WC-49

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC Volatiles					
01636	TPH-GRO water C6-C10	SW-846 8015B n.a.	ug/l < 50	ug/l 50	1
GC Volatiles					
02102	Benzene	SW-846 8021B 71-43-2	ug/l < 1.0	ug/l 1.0	1
02102	Ethylbenzene	100-41-4	< 1.0	1.0	1
02102	Toluene	108-88-3	< 1.0	1.0	1
02102	Total Xylenes	1330-20-7	< 3.0	3.0	1
GC Petroleum Hydrocarbons					
08269	TPH-DRO water C10-C28	SW-846 8015B n.a.	ug/l < 96	ug/l 96	1
Wet Chemistry					
00224	Chloride	EPA 300.0 16887-00-6	mg/l 9.2	mg/l 2.0	5
00228	Sulfate	14808-79-8	298	50.0	50
SM 2540 C-1997					
00212	Total Dissolved Solids	n.a.	mg/l 814	mg/l 120	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01636	TPH-GRO water C6-C10	SW-846 8015B	1	13268A53A	09/26/2013 15:42	Catherine J Schwarz	1
02102	Method 8021 Water Master	SW-846 8021B	1	13268A53A	09/26/2013 15:42	Catherine J Schwarz	1
01146	GC VOA Water Prep	SW-846 5030B	1	13268A53A	09/26/2013 15:42	Catherine J Schwarz	1
08269	TPH-DRO water C10-C28	SW-846 8015B	1	132690012A	09/28/2013 11:41	Nicholas R Rossi	1
07003	Extraction - DRO (Waters)	SW-846 3510C	1	132690012A	09/26/2013 22:00	Elaine F Stoltzfus	1
00224	Chloride	EPA 300.0	1	13270347602A	09/28/2013 01:58	Sandra J Miller	5
00228	Sulfate	EPA 300.0	1	13270347602A	09/30/2013 14:54	Sandra J Miller	50
00212	Total Dissolved Solids	SM 2540 C-1997	1	13269021201B	09/26/2013 06:45	Noah M Rainbow	1

Sample Description: MW-50-091913 Grab Groundwater
Wilson Creek

LL Sample # WW 7209170
LL Group # 1421031
Account # 11842

Project Name: Wilson Creek

Collected: 09/19/2013 09:32 by CB

STANTEC Consulting, Inc.

Submitted: 09/24/2013 09:15

Suite 2-300

Reported: 10/03/2013 15:37

2000 South Colorado Boulevard

Denver CO 80222

WC-50

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC Volatiles					
01636	TPH-GRO water C6-C10	SW-846 8015B n.a.	ug/l < 50	ug/l 50	1
GC Volatiles					
02102	Benzene	SW-846 8021B 71-43-2	ug/l < 1.0	ug/l 1.0	1
02102	Ethylbenzene	100-41-4	< 1.0	1.0	1
02102	Toluene	108-88-3	< 1.0	1.0	1
02102	Total Xylenes	1330-20-7	< 3.0	3.0	1
GC Petroleum Hydrocarbons					
08269	TPH-DRO water C10-C28	SW-846 8015B n.a.	ug/l < 98	ug/l 98	1
Wet Chemistry					
00224	Chloride	EPA 300.0 16887-00-6	mg/l 30.8	mg/l 4.0	10
00228	Sulfate	14808-79-8	1,760	200	200
SM 2540 C-1997					
00212	Total Dissolved Solids	n.a.	mg/l 2,740	mg/l 240	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01636	TPH-GRO water C6-C10	SW-846 8015B	1	13268A53A	09/26/2013 18:49	Catherine J Schwarz	1
02102	Method 8021 Water Master	SW-846 8021B	1	13268A53A	09/26/2013 18:49	Catherine J Schwarz	1
01146	GC VOA Water Prep	SW-846 5030B	1	13268A53A	09/26/2013 18:49	Catherine J Schwarz	1
08269	TPH-DRO water C10-C28	SW-846 8015B	1	132690012A	09/28/2013 12:04	Nicholas R Rossi	1
07003	Extraction - DRO (Waters)	SW-846 3510C	1	132690012A	09/26/2013 22:00	Elaine F Stoltzfus	1
00224	Chloride	EPA 300.0	1	13270347602A	09/30/2013 15:10	Sandra J Miller	10
00228	Sulfate	EPA 300.0	1	13270347602A	09/30/2013 15:26	Sandra J Miller	200
00212	Total Dissolved Solids	SM 2540 C-1997	1	13269021201B	09/26/2013 06:45	Noah M Rainbow	1

Sample Description: Trip Blank Water
Wilson Creek

LL Sample # WW 7209171
LL Group # 1421031
Account # 11842

Project Name: Wilson Creek

Collected: 09/19/2013

STANTEC Consulting, Inc.

Submitted: 09/24/2013 09:15

Suite 2-300

Reported: 10/03/2013 15:37

2000 South Colorado Boulevard

Denver CO 80222

WC-TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC Volatiles		SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	< 1.0	1.0	1
02102	Ethylbenzene	100-41-4	< 1.0	1.0	1
02102	Toluene	108-88-3	< 1.0	1.0	1
02102	Total Xylenes	1330-20-7	< 3.0	3.0	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	13268B94A	09/26/2013 15:21	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	13268B94A	09/26/2013 15:21	Marie D Beamenderfer	1

Quality Control Summary

Client Name: STANTEC Consulting, Inc.
Reported: 10/03/13 at 03:37 PM

Group Number: 1421031

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 13268A53A	Sample number(s): 7209168-7209170							
Benzene	< 1.0	1.0	ug/l	104		80-120		
Ethylbenzene	< 1.0	1.0	ug/l	104		80-120		
Toluene	< 1.0	1.0	ug/l	107		80-120		
TPH-GRO water C6-C10	< 50	50.	ug/l	97		75-135		
Total Xylenes	< 3.0	3.0	ug/l	108		80-120		
Batch number: 13268B94A	Sample number(s): 7209171							
Benzene	< 1.0	1.0	ug/l	97	102	80-120	4	30
Ethylbenzene	< 1.0	1.0	ug/l	100	105	80-120	5	30
Toluene	< 1.0	1.0	ug/l	98	102	80-120	4	30
Total Xylenes	< 3.0	3.0	ug/l	100	105	80-120	5	30
Batch number: 132690012A	Sample number(s): 7209168-7209170							
TPH-DRO water C10-C28	< 100	100.	ug/l	91	90	73-120	1	20
Batch number: 13270347602A	Sample number(s): 7209168-7209170							
Chloride	< 0.40	0.40	mg/l	104		90-110		
Sulfate	< 1.0	1.0	mg/l	107		90-110		
Batch number: 13269021201B	Sample number(s): 7209168-7209170							
Total Dissolved Solids	< 30.0	30.0	mg/l	100		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 13268A53A	Sample number(s): 7209168-7209170 UNSPK: 7209168, 7209169								
Benzene	107	106	80-130	1	30				
Ethylbenzene	105	105	80-133	0	30				
Toluene	109	108	80-133	1	30				
TPH-GRO water C6-C10	88	98	75-135	10	30				
Total Xylenes	109	108	80-132	0	30				
Batch number: 13270347602A	Sample number(s): 7209168-7209170 UNSPK: P215129 BKG: P215129								
Chloride	113*		90-110			20.8	21.0	1	20
Sulfate	121*		90-110			< 5.0	< 5.0	0 (1)	20

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: STANTEC Consulting, Inc.
Reported: 10/03/13 at 03:37 PM

Group Number: 1421031

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 13269021201B	Sample number(s): 7209168-7209170 UNSPK: P206978 BKG: P190585								
Total Dissolved Solids	92	98	51-144	3	23	25,800	29,800	14*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TPH-GRO water C6-C10

Batch number: 13268A53A

Trifluorotoluene-F

Trifluorotoluene-P

7209168	71	80
7209169	71	79
7209170	71	79
Blank	70	79
LCS	78	79
MS	77	79
MSD	78	79

Limits: 63-135 51-120

Analysis Name: Method 8021 Water Master

Batch number: 13268B94A

Trifluorotoluene-P

7209171	91
Blank	92
LCS	91
LCSD	91

Limits: 51-120

Analysis Name: TPH-DRO water C10-C28

Batch number: 132690012A

Orthoterphenyl

7209168	94
7209169	92
7209170	90
Blank	97
LCS	100
LCSD	99

Limits: 46-131

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: STANTEC Consulting, Inc.
Reported: 10/03/13 at 03:37 PM

Group Number: 1421031

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody



**Lancaster
Laboratories**

Acct. # 11842 For Eurofins Lancaster Laboratories use only
Group # 1421031 Sample # 7209168-71
Instructions on reverse side correspond with circled numbers.

COC # 334335

1 Client Information				4 Matrix				5 Analysis Requested												For Lab Use Only	
Client: <u>Stantec - Chevron</u>		Acct. #:		<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Potable <input type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> NPDES <input type="checkbox"/> Other:				Preservation Codes # <u>8041 B BTEX</u> # <u>TPH, HRO, DRO, ORO</u> # <u>Total Dissolved Solids</u> # <u>Chlorides</u> # <u>Sulfates</u>												FSC: _____	
Project Name/ #: <u>Wilson Creek - Chevron</u>		PWSID #:						FSC: _____													
Project Manager: <u>Chris Beall</u>		P.O. #:		SCR#: _____																	
Sampler: <u>Chris Beall</u>		Quote #:		Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other																	
Name of state where samples were collected: <u>Colorado</u>						6 Remarks 															
2 Sample Identification		3 Collected		Grab	Composite			Soil	Water	Other	Total # of Containers										
Date	Time																				
MW-48-091913	9/19/13 1037	X					X		11	X	X	X	X	X							
MW-49-091913	9/19/13 1014	X					X		11	X	X	X	X	X							
MW-50-091913	9/19/13 0932	X					X		11	X	X	X	X	X							
Top Blank	-	X					X		2	X											
7 Turnaround Time (TAT) Requested (please circle) <u>Standard</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ E-mail address: <u>christopher.beall@stantec.com</u>				Relinquished by <u>[Signature]</u>		Date <u>09/23/13</u>	Time <u>1400</u>	Received by _____		Date _____	Time _____	9 Relinquished by Commercial Carrier: UPS <input checked="" type="checkbox"/> FedEx _____ Other _____									
				Relinquished by _____		Date _____	Time _____	Received by _____		Date _____	Time _____										
8 Data Package Options (circle if required) Type I (Validation/non-CLP) Type VI (Raw Data Only) Type III (Reduced non-CLP) TX TRRP-13 Type IV (CLP SOW) MA MCP CT RCP				Relinquished by _____		Date _____	Time _____	Received by _____		Date _____	Time _____	Temperature upon receipt <u>2.8</u> °C									
				Relinquished by _____		Date _____	Time _____	Received by _____		Date _____	Time _____										
				EDD Required? Yes No		If yes, format: _____		Site-Specific QC (MS/MSD/Dup)? Yes No		(If yes, indicate QC sample and submit triplicate sample volume.)											

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m3	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	B	Value is $<$ CRDL, but \geq IDL
B	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and confirmation columns $>25\%$	W	Post digestion spike out of control limits
U	Compound was not detected	*	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.