

RECEIVED
5/29/2014

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	
Document Number: 2141168			

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: 47120 Contact Name Paul Schneider
 Name of Operator: Kerr-McGee Oil & Gas Onshore LP Phone: 720-929-6000
 Address: 1099 18th Street, Suite 1800 Fax: 720-929-7726
 City: Denver State: CO Zip: 80202 Email: paul.schneider@anadarko.com

Complete the Attachment
Checklist

OP OGCC

API Number : 05- 123- 13295 OGCC Facility ID Number: _____
 Well/Facility Name: Stenzel 1-31 Well/Facility Number: _____
 Location QtrQtr: NENW Section: 31 Township: 5N Range: 65W Meridian: 6th
 County: Weld Field Name: Wattenberg
 Federal, Indian or State Lease Number: _____

Survey Plat		
Directional Survey		
Srvc Eqpmt Diagram		
Technical Info Page		
Other		

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 Twp Range Meridian

New **Surface** Location **To** QtrQtr Sec Twp Range Meridian

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 Twp Range

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

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

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

Current **Bottomhole** Location Sec Twp Range ** attach deviated drilling plan

New **Bottomhole** Location Sec Twp Range

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 _____

CHANGE OR ADD OBJECTIVE FORMATION AND/OR SPACING UNIT

Objective Formation	Formation Code	Spacing Order Number	Unit Acreage	Unit Configuration

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 (Form2) – 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 4/14/2014

<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 type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases	

COMMENTS:

Please see attached letter report with notice of work complete, laboratory results, and a request for no further action (NFA). This letter report summarizes recent work performed in association with the COGCC Remediation Plan # 8258, and is associated with COGCC Spill Release Report # 2146353.

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

<u>Type</u>	<u>Comment</u>

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 1/2-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

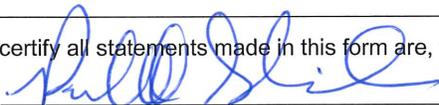
Enter Sample ID Number from COGIS Maps for each Previous Water Sample:

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: Paul Schneider
 Title: Senior Staff EHS Representative Email: paul.schneider@anadarko.com Date: 5-29-14

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: 5/30/2014



Mr. Paul Schneider
Senior Staff EHS Representative
Kerr-McGee Oil & Gas Onshore LP
1099 - 18th Street, Suite 1800
Denver, Colorado 80202

Subject:

**Stenzel 1-31 Sundry Form – Letter Report
Request for No Further Action (NFA)**
COGCC Spill Release Report # 2146353
COGCC Remediation Plan # 8258

Dear Mr. Schneider:

This letter report summarizes data collected in response to a Colorado Oil and Gas Conservation Commission (COGCC) request for additional characterization related to the COGCC Spill Release Report # 2146353 and associated COGCC Remediation Plan # 8258. A Site Investigation and Remediation Workplan (Form F27) was submitted to the COGCC for the subject facility on March 11, 2014. Upon review, the COGCC requested that Kerr-McGee complete the following:

- Collect additional subsurface soil samples from native soil on the approximate east, west, and south edges of the former excavation. All samples are to be analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons – gasoline range organics (TPH-GRO), and TPH-diesel range organics (DRO).
- At the conclusion of sampling, and assuming all results were below COGCC's allowable Table 910-1 criteria (COGCC action levels) for soils, Kerr-McGee must submit a Sundry Form 4 with sample results and a request for NFA.

This letter report serves as an attachment to the Sundry Form 4, and includes a summary of the sample results and the NFA request.

Soil Sampling Laboratory Results

On April 14, 2014, ARCADIS field personnel utilized a hand auger to collect subsurface soil samples from the approximate east (East02), west (West02), and south (South02) walls of the former excavation (Figure 1). These samples were collected from native soils at a depth of 1 foot below ground surface (bgs). This depth

Imagine the result

ARCADIS U.S., Inc.
630 Plaza Drive
Suite 200
Highlands Ranch
Colorado 80129
Tel 720 344 3500
Fax 720 344 3535
www.arcadis-us.com

ENVIRONMENT

Date:
May 29, 2014

Contact:
Kevin Szympruch

Phone:
720.344.3849

Email:
Kevin.Szympruch@arcadis-us.com

Our ref:
CO001857

is consistent with the depth of the samples previously collected from the open excavation. All samples were submitted to ALS Laboratories in Fort Collins, Colorado (ALS) for analysis of BTEX, TPH-GRO, and TPH-DRO by EPA Methods SW8260, SW8015, and SW8015M, respectively.

Analytical results indicate that all constituents of concern (COC) concentrations are below COGCC action levels in each of the soil samples (Table 1). During previous investigation activities, a soil sample (North) was collected from the north side of the excavation and a groundwater grab sample (0001) was collected from the excavation at an approximate depth of 1.8 feet bgs. Analytical results indicate both of these samples also have COC concentrations below COGCC action levels (Table 1 and 2).

Conclusions

In addition to the previously collected excavation sidewall sample (North) and excavation groundwater sample (0001), the additional subsurface soil samples (East02, West02, and South02) collected at this site indicate the remaining soil left in-place does not have COC concentrations above the COGCC action levels.

Based on previous investigation and remediation activities conducted at this site, as well as those described in this report, all impacted environmental media associated with this release have been assessed and remediated to below COGCC action levels. Kerr-McGee recommends COGCC issue a NFA determination for this release.

We appreciate the opportunity to provide Kerr-McGee with professional consulting services related to this effort. If you have any questions regarding this deliverable, please feel free to contact me at (720) 344-3849 or via email at kevin.szympruch@arcadis-us.com.

Sincerely,

ARCADIS U.S., Inc.



Kevin Szympruch
Project Manager, Senior Engineer

Attachments

- Attachment 1 – Tables
- Attachment 2 – Figure
- Attachment 3 – Laboratory Report



Attachment 1

Tables

Table 1
Analytical Excavation Soil Confirmation Data Summary
Stenzel 1-31
Weld County, Colorado

Location	Sample ID	Chemical Name									
		TPH-DRO					TPH-GRO				
COGCC Table 910-1 Concentration Levels											
		Depth (feet bgs)	Sample Type	Sample Date	M8015D	SW8015	SW8260	SW8260	SW8260	SW8260	SW8260
North	SS_STENZ131_NORTH_11072013(1.0)	1.0	N	11/7/2013	17	< 0.40	< 0.023	< 0.023	< 0.023	< 0.023	< 0.0092
East02	SS_STENZ131_EAST02_041414(1.0)	1.0	N	4/14/2014	< 10	< 0.3	< 0.019	< 0.019	< 0.019	< 0.019	< 0.002
South02	SS_STENZ131_SOUTH02_041414(1.0)	1.0	N	4/14/2014	< 10	< 0.43	< 0.018	< 0.018	< 0.018	< 0.018	< 0.002
West02	SS_STENZ131_WEST02_041414(1.0)	1.0	N	4/14/2014	< 9.1	< 0.51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.002

Abbreviations:

- TPH Total Petroleum Hydrocarbons
- DRO Diesel Range Organics
- GRO Gasoline Range Organics
- ID Identification
- bgs Below ground surface
- mg/kg Milligram per kilogram
- N Normal sample
- DUP Duplicate sample

< The compound was analyzed but not detected above the Laboratory Reporting Limit

Reference for Standards:

COGCC Colorado Oil and Gas Conservation Commission (COGCC). 900 Series Exploration & Production Waste Management. May 30, 2011. Table 910-1



Attachment 2

Figure



Attachment 3

Laboratory Analytical Report



April 16, 2014

Ms. Kelli Jo Preston
ARCADIS
630 Plaza Drive, Suite 200
Highlands Ranch, CO 80129

Re: ALS Workorder: 14-04-226
Project Name: Stenzel 1-31
Project Number: CO001857.0007

Dear Ms. Preston:

Three soil samples were received from ARCADIS on April 14, 2014. The samples were scheduled for the following analyses:

GC/MS Volatiles
Total Volatile Petroleum Hydrocarbons (Gasoline)
Total Extractable Petroleum Hydrocarbons (Diesel)

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Amy Wolf
Project Manager

ARW/arw
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

1 of 13



1404226

GC/MS Volatiles:

The samples were analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

All acceptance criteria were met.

GRO:

The samples were analyzed following the current revision of SOP 425 generally based on SW-846 Methods 8000C and 8015D. The procedures are based on these methods because SW-846 does not have a specific method for TVPH or gasoline range organics. The only true modification from these methods is that TVPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks. The carbon range integrated in this test extends from C₆ to C₁₀.

All acceptance criteria were met.

DRO:

The samples were analyzed following the current revision of SOP 406 generally based on SW-846 Method 8000C and Method 8015D. The procedures are based on this general method because SW-846 does not have a specific method for total extractable petroleum hydrocarbons (TEPH) or diesel range organics. The only true modification from this method is that TEPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks.

All acceptance criteria were met.

Client: Arcadis
Project: Stenzel 1-31
Work Order: 1404226

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1404226-1	SS_Stenz131_East02_041414(1.0)	SOIL		4/14/2014 13:10	4/14/2014 14:40	<input type="checkbox"/>
1404226-2	SS_Stenz131_South02_041414(1.0)	SOIL		4/14/2014 13:20	4/14/2014 14:40	<input type="checkbox"/>
1404226-3	SS_Stenz131_West02_041414(1.0)	SOIL		4/14/2014 13:30	4/14/2014 14:40	<input type="checkbox"/>



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Arcadis

Workorder No: 1404226

Project Manager: ARW

Initials: JLR Date: 4/14/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	<input checked="" type="radio"/> DROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4		<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>14.4° *</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / <input checked="" type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

* Delivered same day as collected.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: Sway 4/15/14

Client: Arcadis
Project: CO001857.0007 Stenzel 1-31
Sample ID: SS_Stenz131_East02_041414(1.0)
Legal Location:
Collection Date: 4/14/2014 13:10

Date: 16-Apr-14
Work Order: 1404226
Lab ID: 1404226-1
Matrix: SOIL
Percent Moisture: 2.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M			Prep Date: 4/14/2014 PrepBy: JFN
Diesel Range Organics	ND		10	MG/KG	1	4/14/2014 23:52
Surr: O-TERPHENYL	74		53-116	%REC	1	4/14/2014 23:52
GASOLINE RANGE ORGANICS			SW8015			Prep Date: 4/14/2014 PrepBy: JFN
GASOLINE RANGE ORGANICS	ND		0.3	MG/KG	1	4/14/2014 18:10
Surr: 2,3,4-TRIFLUOROTOLUENE	93		76-126	%REC	1	4/14/2014 18:10
GC/MS VOLATILES			SW8260			Prep Date: 4/14/2014 PrepBy: TWK
BENZENE	ND		0.019	MG/KG	1	4/14/2014 17:35
TOLUENE	ND		0.019	MG/KG	1	4/14/2014 17:35
ETHYLBENZENE	ND		0.019	MG/KG	1	4/14/2014 17:35
M+P-XYLENE	ND		0.015	MG/KG	1	4/14/2014 17:35
O-XYLENE	ND		0.0076	MG/KG	1	4/14/2014 17:35
TOTAL XYLENES	ND		0.002	MG/KG	1	4/14/2014 17:35
Surr: DIBROMOFLUOROMETHANE	99		61-134	%REC	1	4/14/2014 17:35
Surr: TOLUENE-D8	99		57-135	%REC	1	4/14/2014 17:35
Surr: 4-BROMOFLUOROBENZENE	95		52-151	%REC	1	4/14/2014 17:35

Client: Arcadis
Project: CO001857.0007 Stenzel 1-31
Sample ID: SS_Stenz131_South02_041414(1.0)
Legal Location:
Collection Date: 4/14/2014 13:20

Date: 16-Apr-14
Work Order: 1404226
Lab ID: 1404226-2
Matrix: SOIL
Percent Moisture: 6.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M			
Diesel Range Organics	ND		10	MG/KG	1	4/15/2014 00:24
Surr: O-TERPHENYL	79		53-116	%REC	1	4/15/2014 00:24
GASOLINE RANGE ORGANICS			SW8015			
GASOLINE RANGE ORGANICS	ND		0.43	MG/KG	1	4/14/2014 18:29
Surr: 2,3,4-TRIFLUOROTOLUENE	89		76-126	%REC	1	4/14/2014 18:29
GC/MS VOLATILES			SW8260			
BENZENE	ND		0.018	MG/KG	1	4/14/2014 18:00
TOLUENE	ND		0.018	MG/KG	1	4/14/2014 18:00
ETHYLBENZENE	ND		0.018	MG/KG	1	4/14/2014 18:00
M+P-XYLENE	ND		0.015	MG/KG	1	4/14/2014 18:00
O-XYLENE	ND		0.0074	MG/KG	1	4/14/2014 18:00
TOTAL XYLENES	ND		0.002	MG/KG	1	4/14/2014 18:00
Surr: DIBROMOFLUOROMETHANE	97		61-134	%REC	1	4/14/2014 18:00
Surr: TOLUENE-D8	100		57-135	%REC	1	4/14/2014 18:00
Surr: 4-BROMOFLUOROBENZENE	97		52-151	%REC	1	4/14/2014 18:00

Client: Arcadis
Project: CO001857.0007 Stenzel 1-31
Sample ID: SS_Stenz131_West02_041414(1.0)
Legal Location:
Collection Date: 4/14/2014 13:30

Date: 16-Apr-14
Work Order: 1404226
Lab ID: 1404226-3
Matrix: SOIL
Percent Moisture: 7.1

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M		Prep Date: 4/14/2014	PrepBy: JFN
Diesel Range Organics	ND		9.1	MG/KG	1	4/15/2014 00:55
Surr: O-TERPHENYL	82		53-116	%REC	1	4/15/2014 00:55
GASOLINE RANGE ORGANICS			SW8015		Prep Date: 4/14/2014	PrepBy: JFN
GASOLINE RANGE ORGANICS	ND		0.51	MG/KG	1	4/14/2014 18:48
Surr: 2,3,4-TRIFLUOROTOLUENE	90		76-126	%REC	1	4/14/2014 18:48
GC/MS VOLATILES			SW8260		Prep Date: 4/14/2014	PrepBy: TWK
BENZENE	ND		0.02	MG/KG	1	4/14/2014 18:27
TOLUENE	ND		0.02	MG/KG	1	4/14/2014 18:27
ETHYLBENZENE	ND		0.02	MG/KG	1	4/14/2014 18:27
M+P-XYLENE	ND		0.016	MG/KG	1	4/14/2014 18:27
O-XYLENE	ND		0.0079	MG/KG	1	4/14/2014 18:27
TOTAL XYLENES	ND		0.002	MG/KG	1	4/14/2014 18:27
Surr: DIBROMOFLUOROMETHANE	94		61-134	%REC	1	4/14/2014 18:27
Surr: TOLUENE-D8	101		57-135	%REC	1	4/14/2014 18:27
Surr: 4-BROMOFLUOROBENZENE	99		52-151	%REC	1	4/14/2014 18:27

Client: Arcadis
Project: CO001857.0007 Stenzel 1-31
Sample ID: SS_Stenz131_West02_041414(1.0)
Legal Location:
Collection Date: 4/14/2014 13:30

Date: 16-Apr-14
Work Order: 1404226
Lab ID: 1404226-3
Matrix: SOIL
Percent Moisture: 7.1

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

- U or ND - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
- G - Sample density differs by more than 15% of LCS density.
- D - DER is greater than Control Limit
- M - Requested MDC not met.
- LT - Result is less than requested MDC but greater than achieved MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits
- NC - Not Calculated for duplicate results less than 5 times MDC
- B - Analyte concentration greater than MDC.
- B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

- B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
- U or ND - Indicates that the compound was analyzed for but not detected.
- E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
- M - Duplicate injection precision was not met.
- N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
- Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
- * - Duplicate analysis (relative percent difference) not within control limits.
- S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

- U or ND - Indicates that the compound was analyzed for but not detected.
- B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
- E - Analyte concentration exceeds the upper level of the calibration range.
- J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- A - A tentatively identified compound is a suspected aldol-condensation product.
- X - The analyte was diluted below an accurate quantitation level.
- * - The spike recovery is equal to or outside the control criteria used.
- + - The relative percent difference (RPD) equals or exceeds the control criteria.
- G - A pattern resembling gasoline was detected in this sample.
- D - A pattern resembling diesel was detected in this sample.
- M - A pattern resembling motor oil was detected in this sample.
- C - A pattern resembling crude oil was detected in this sample.
- 4 - A pattern resembling JP-4 was detected in this sample.
- 5 - A pattern resembling JP-5 was detected in this sample.
- H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

ALS Environmental -- FC

Date: 4/16/2014 12:08

Client: Arcadis
 Work Order: 1404226
 Project: CO001857.0007 Stenzel 1-31

QC BATCH REPORT

Batch ID: **EX140414-99-1** Instrument ID **FUELS-1** Method: **SW8015M**

LCS		Sample ID: EX140414-99			Units: MG/KG			Analysis Date: 4/14/2014 21:45		
Client ID:		Run ID: HC140414-3A			Prep Date: 4/14/2014			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	251	10	250		100	87-124			20	
Surr: O-TERPHENYL	17.5		25		70	53-116				

MB		Sample ID: EX140414-99			Units: MG/KG			Analysis Date: 4/14/2014 21:14		
Client ID:		Run ID: HC140414-3A			Prep Date: 4/14/2014			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	ND	10								
Surr: O-TERPHENYL	17.8		25		71	53-116				

The following samples were analyzed in this batch:

1404226-1	1404226-2	1404226-3
-----------	-----------	-----------

Client: Arcadis
Work Order: 1404226
Project: CO001857.0007 Stenzel 1-31

QC BATCH REPORT

Batch ID: **HC140414-6-1** Instrument ID **FUELS-1** Method: **SW8015**

LCS		Sample ID: HC140414-6			Units: MG/KG		Analysis Date: 4/14/2014 19:27				
Client ID:		Run ID: HC140414-6A					Prep Date: 4/14/2014		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
GASOLINE RANGE ORGANICS	2.75	0.5	2.5		110	79-118			20		
Surr: 2,3,4-TRIFLUOROTOLUEN	0.539		0.5		108	76-126					

MB		Sample ID: HC140414-6			Units: MG/KG		Analysis Date: 4/14/2014 16:45				
Client ID:		Run ID: HC140414-6A					Prep Date: 4/14/2014		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
GASOLINE RANGE ORGANICS	ND	0.5									
Surr: 2,3,4-TRIFLUOROTOLUEN	0.537		0.5		107	76-126					

The following samples were analyzed in this batch:

1404226-1	1404226-2	1404226-3
-----------	-----------	-----------

Client: Arcadis
 Work Order: 1404226
 Project: CO001857.0007 Stenzel 1-31

QC BATCH REPORT

Batch ID: VL140414-2-3 Instrument ID: HPV1 Method: SW8260

LCS		Sample ID: VL140414-2			Units: MG/KG		Analysis Date: 4/14/2014 11:34			
Client ID:		Run ID: VL140414-2A			Prep Date: 4/14/2014		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	0.0371	0.005	0.04		93	73-126			30	
TOLUENE	0.0378	0.005	0.04		94	71-127			30	
ETHYLBENZENE	0.0378	0.005	0.04		95	74-127			30	
M+P-XYLENE	0.0767	0.004	0.08		96	79-126			30	
O-XYLENE	0.0388	0.002	0.04		97	77-125			30	
Surr: DIBROMOFLUOROMETHA	0.0487		0.05		97	61-134				
Surr: TOLUENE-D8	0.0485		0.05		97	57-135				
Surr: 4-BROMOFLUOROBENZE	0.0478		0.05		96	52-151				

LCSD		Sample ID: VL140414-2			Units: MG/KG		Analysis Date: 4/14/2014 11:56			
Client ID:		Run ID: VL140414-2A			Prep Date: 4/14/2014		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	0.0373	0.005	0.04		93	73-126	0.0371	1	30	
TOLUENE	0.0382	0.005	0.04		95	71-127	0.0378	1	30	
ETHYLBENZENE	0.038	0.005	0.04		95	74-127	0.0378	1	30	
M+P-XYLENE	0.0768	0.004	0.08		96	79-126	0.0767	0	30	
O-XYLENE	0.0388	0.002	0.04		97	77-125	0.0388	0	30	
Surr: DIBROMOFLUOROMETHA	0.0493		0.05		99	61-134			1	
Surr: TOLUENE-D8	0.0499		0.05		100	57-135			3	
Surr: 4-BROMOFLUOROBENZE	0.0483		0.05		97	52-151			1	

MB		Sample ID: VL140414-2			Units: MG/KG		Analysis Date: 4/14/2014 12:22			
Client ID:		Run ID: VL140414-2A			Prep Date: 4/14/2014		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	ND	0.005								
TOLUENE	ND	0.005								
ETHYLBENZENE	ND	0.005								
M+P-XYLENE	ND	0.004								
O-XYLENE	ND	0.002								
TOTAL XYLENES	ND	0.002								
Surr: DIBROMOFLUOROMETHA	0.0496		0.05		99	61-134				
Surr: TOLUENE-D8	0.0508		0.05		102	57-135				
Surr: 4-BROMOFLUOROBENZE	0.0505		0.05		101	52-151				

Client: Arcadis
Work Order: 1404226
Project: CO001857.0007 Stenzel 1-31

QC BATCH REPORT

Batch ID: **VL140414-2-3** Instrument ID **HPV1** Method: **SW8260**

MS Sample ID: **1404224-1** Units: **MG/KG** Analysis Date: **4/14/2014 18:49**
 Client ID: **SS_Road12_North02_041414 (1.0)** Run ID: **VL140414-2A** Prep Date: **4/14/2014** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	0.168	0.0224	0.179	0.021	94	73-126			30	
TOLUENE	0.175	0.0224	0.179	0.021	98	71-127			30	
ETHYLBENZENE	0.171	0.0224	0.179	0.021	95	74-127			30	
M+P-XYLENE	0.341	0.0179	0.358	0.017	95	79-126			30	
O-XYLENE	0.172	0.00896	0.179	0.0086	96	77-125			30	
Surr: DIBROMOFLUOROMETHA	0.218		0.224		97	61-134				
Surr: TOLUENE-D8	0.224		0.224		100	57-135				
Surr: 4-BROMOFLUOROBENZE	0.215		0.224		96	52-151				

MSD Sample ID: **1404224-1** Units: **MG/KG** Analysis Date: **4/14/2014 19:11**
 Client ID: **SS_Road12_North02_041414 (1.0)** Run ID: **VL140414-2A** Prep Date: **4/14/2014** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	0.164	0.0211	0.169	0.021	97	73-126	0.168	2	30	
TOLUENE	0.164	0.0211	0.169	0.021	97	71-127	0.175	7	30	
ETHYLBENZENE	0.163	0.0211	0.169	0.021	96	74-127	0.171	5	30	
M+P-XYLENE	0.32	0.0169	0.338	0.017	95	79-126	0.341	6	30	
O-XYLENE	0.165	0.00844	0.169	0.0086	98	77-125	0.172	4	30	
Surr: DIBROMOFLUOROMETHA	0.21		0.211		99	61-134		4		
Surr: TOLUENE-D8	0.211		0.211		100	57-135		6		
Surr: 4-BROMOFLUOROBENZE	0.209		0.211		99	52-151		3		

The following samples were analyzed in this batch:

1404226-1	1404226-2	1404226-3
-----------	-----------	-----------