

State of Colorado
Oil and Gas Conservation Commission

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



#6830

FOR OGCC USE ONLY

RECEIVED
1/30/2012

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:

☒ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No: 2216701

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

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

OGCC Operator Number: 96850

Name of Operator: Williams Production RMT Company

Address: 1058 County Road 215

City: Parachute State: CO Zip: 81635

Contact Name and Telephone:

Karolina Blaney

No: 970-683-2295

Fax: 970-285-9573

API Number: N/A

County: Garfield

Facility Name: Cottonwood Gulch

Facility Number: 414567

Well Name: Cottonwood Gulch

Well Number: PA 33-22

Location: (QtrQtr, Sec, Twp, Rng, Meridian): NWSE Sec. 28, T6S, R95W, 6th PM Latitude: 39.4944 Longitude: -108.0026

TECHNICAL CONDITIONS

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

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☒ Y ☐ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Rangeland, Non Crop Land

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Heldt Clay Loam 3 to 6% slopes, Rock Outcrops-Torriorthents, very steep

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Cottonwood Gulch lies approximately 105 feet to the west,

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):

- ☒ Soils
☐ Vegetation
☐ Groundwater
☐ Surface Water

Extent of Impact:

See attached document

How Determined:

Visual observations, field screening, and analytical analysis

REMEDIALATION WORKPLAN

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

See attached document

Describe how source is to be removed:

See attached document

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.:

See attached document

FORM
27
Rev 6/99State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado 80203
(303)894-2100 Fax: (303)894-2109Page 2
REMEDIAL WORKPLAN (Cont.)Tracking Number: See Form 19 # 2216701
Name of Operator: _____
OGCC Operator No: LOCATION # 335355
Received Date: _____
Well Name & No: Well PA 33-28 API 045-08124
Facility Name & No: COTONWOOD GULCH Facility # 414567

OGCC Employee: _____

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

See attached document

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.

See attached document

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:

See attached document

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

See attached document

IMPLEMENTATION SCHEDULEDate Site Investigation Began: October 22, 2011 Date Site Investigation Completed: October 22, 2011 Date Remediation Plan Submitted: N/A
Remediation Start Date: October 24, 2011 Anticipated Completion Date: October 28, 2011 Actual Completion Date: October 28, 2011

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

Print Name: Karolina Blaney Signed: Karolina Blaney
Title: Environmental Specialist Date: November 8, 2011OGCC Approved: Title: FOR Chris Canfield Date: 02/08/2012

EPS NW Region

COA:
Notify COGCC when stockpiled material
moved to DOE i-w-28 has been remediated
in order to close the Remediation Project.

Sensitive Area Determination Checklist

Williams Production RMT Company		
Person(s) Conducting Field Inspection	Ashlee Lane	11/3/11
	<i>Biologist</i>	
Site Information		
Location:	PA 33-28 (Cottonwood Frac Pad)	Time: 1230
Type of Facility:	Hydraulic Fracturing (Frac) Pad	
Environmental Conditions	Clear and calm; soil conditions dry.	
Temperature (°F)	58°	

Has the proposed, new or existing location been designated as a sensitive area?

☒ Yes ☐ No

SURFACE WATER

1. Are there any surface water features or SWSAs adjacent to or within ¼ mile of the proposed/new or existing facility?

☒ Yes ☐ No

If yes, list type of surface water feature(s), i.e. rivers, creeks, streams, seeps, springs, wetlands: Cottonwood Gulch, an intermittent drainage; and two (2) USGS indentified unnamed intermittent drainages.

If yes, describe location relative to facility: Cottonwood Gulch is located 144 feet south, one of the unnamed intermittent drainages is located 250 feet to the northwest and the other unnamed intermittent drainage is located 500 feet to the east of the existing facility.

2. Could a potential release from the facility reach surface water features?

☒ Yes ☐ No

If yes, describe the pathway a release from the facility would likely follow to determine if the potential to impact surface water is high or low. A release, if it were to migrate off the facility, would likely flow to the south, southeast towards Cottonwood Gulch.

3. Is the potential to impact surface water from a facility release high or low?

☒ High ☐ Low

GROUNDWATER

1. Will the proposed/new or existing facility have any pits which will contain hydrocarbons and chlorides or other E&P wastes?
☒ Yes ☐ No
If yes, List the pit type(s): Hydraulic fracturing (frac) pit.
2. Is the site of the proposed facility underlain by an unconfined aquifer or recharge zone?
☒ Yes ☐ No
3. Is the hydraulic conductivity of the underlying soil or geologic material $\leq 1.0 \times 10^{-7}$ cm/sec?
☐ Yes ☒ No
4. Is the proposed facility located within 1/8 mile of a domestic water well or 1/4 mile of a public water supply well which would use the same aquifer?
☐ Yes ☒ No
5. Is the proposed facility located within a 100 year floodplain?
☐ Yes (*Sensitive Area*) ☒ No (*If no, proceed to question #6.*)
6. Is the depth to groundwater known?
☐ Yes (*If yes, follow instructions provided in 6(a) of this section.*)
☒ No (*If no, follow instructions provided in 6(b) of this section.*)
 - (a) If yes, could a potential release from the proposed facility reach groundwater?
☐ Yes ☐ No
If yes, explain:
 - (b) If no:
 - (i) Evaluate surrounding soils, topography, and vegetation which may suggest the presence of shallow groundwater.
 - (ii) Gather information from surrounding well data in order to determine a depth to groundwater, i.e. State Engineers Office.
7. Is the potential to impact ground water from the facility in the event of a release high or low?
☒ Moderate ☐ Low

Additional Comments:


As stated in the surface water section of this sensitive area determination, Cottonwood Gulch, an intermittent drainage is located 144 feet south of the facility. Cottonwood Gulch experiences seasonal flows from early spring until early winter. Cottonwood Gulch flows directly into the Colorado River. The other two (2) intermittent drainages to the east and west of the facility flow into Cottonwood Gulch. By COGCC decision the close proximity of all three drainages, most notably Cottonwood Creek, would classify the facility as being in a sensitive area. The facility as it is currently constructed limits the direction of a potential release to the southeastern and southwestern sides. There are currently minimal Best Management Practices (BMPs) in the form of an earthen berm surround southwestern southeastern sides of the facility. Due to the close proximity of Cottonwood Gulch to the pad, it would be recommended that these be upgraded in order to ensure site containment in the event of a release. Due to the current development occurring in Cottonwood Gulch; Williams has installed a gate valve downstream of the Cottonwood Frac Pad in Cottonwood Gulch to stop live water flows to the Colorado River in the event a release were to migrate off of the location impact live water. Crews working onsite should be informed of spill and release protocols in the event a potential release was to enter the drainage.

The State Engineer's Office records were reviewed for depth to ground water and no ground water wells are located within the immediate vicinity of the location. The nearest ground water well resides 1,301 feet south of the location. This ground water well has a known depth of 130 feet. However due to the proximity of the facility to Cottonwood Gulch, there is potential for shallow groundwater in the fluvial sediments in the immediate vicinity of Cottonwood gulch during periods of no surface flow.

Based on the information collected during the site investigation and desktop review, the potential to impact surface water has been deemed high especially during periods of seasonal flow. The potential to impact shallow groundwater, if present would be deemed moderate as well. Therefore it is recommended that the facility be considered sensitive from both a surface water and groundwater perspective.

Inspector Signature(s):  Date: 11/4/2011

Mark E. Mumby, *Project Manager/RPG*
HRL Compliance Solutions, Inc.

 Date: 11/4/2011

Ashlee Lane, *Biologist*
HRL Compliance Solutions, Inc.

***WILLIAMS PRODUCTION RMT COMPANY
NORTH PARACHUTE
WILLIAMS COTTONWOOD GULCH FRAC PIT***

November 2011

Prepared For:



1058 County Road 215
P.O. Box 370
Parachute, Colorado 81635

Prepared By:



744 Horizon Court, Suite 140
Grand Junction, CO 81506
Phone: 970-243-3271
Fax: 970-243-3280

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Form 27 Attachment

Introduction

The purpose of this Form 27 report – for the closure of the Williams Cottonwood Gulch Multi Well Pit (COGCC Facility ID# 414567; hereinafter also referred to as Cottonwood Gulch Pit) – is to provide detailed information and findings analysis for the remediated soils within the pit due to a tear in the liner. It was discovered during a liner maintenance that a tear was present on the south wall and requiring an investigation of the sub-liner soils.

A Form 19 was submitted to the COGCC on October 26, 2011 and issued a spill tracking number on the same day (Spill Tracking # 2216701). Based upon inspection of the liner, it was determined that the pit liner would be removed and impacted soils below would be excavated until concentrations met COGCC Table 910-1 criteria.

Evacuation of Pit Contents

Remaining pit contents/sludge was removed from the pit using hydro-vac trucks and placed in a bermed containment to have free liquids removed via filter press.

The filter press sludge was placed into the aforementioned bermed containment cell pending disposal.

Pit Liner Removal

Removal of the pit liners consisted of a crew cutting the liner along the crest of the pit at an elevation adjacent to the surface of the well pad. A trackhoe bucket was utilized to grab sections of the liner for extraction and place them in a lined earthen bermed containment cell for subsequent management. Sections of liner that contained residual or trace amounts of sludge were pulled, placed into the containment cell, and allowed to dry. Liners were stored in a lined bermed containment until being banded to pallets to be recycled.

Subliner Soil Investigation and Activities

Subliner soils, examined below the pit lining, were inspected visually and through the use of specialized field screening equipment (identified below) to identify areas which may exceed standards set forth in Table 910-1 of the COGCC 900-Series Rule for hydrocarbons within the soil. Soils below the second lining system, on the south wall, were stained black and red and contained a moderate hydrocarbon odor, indicating that there may have been impacts to the subliner soils.

Field screening of the pit footprint and walls was performed along the entire pit in a sectional grid pattern. The pit bottom was separated into two sections and a five point composite sample was collected from each of the half sections, with a depth of 0-6 inches below the surface and

analyzed utilizing a PetroFlag hydrocarbon detector. In addition to the bottom, a five point composite sample was collected from each of the pit walls and field screened for hydrocarbons. Grab samples were collected from each section to provide laboratory confirmation of field screen results.

Figure 1 outlines the pit sampling nomenclature and field screening results using a PetroFlag Hydrocarbon Unit (PetroFlag[®]). Figure 2 is a GIS map of the pit outlining the impacted south wall of the pit.

Figure 1

Pit Surface PetroFlag Results and Pit Sampling ID Layout

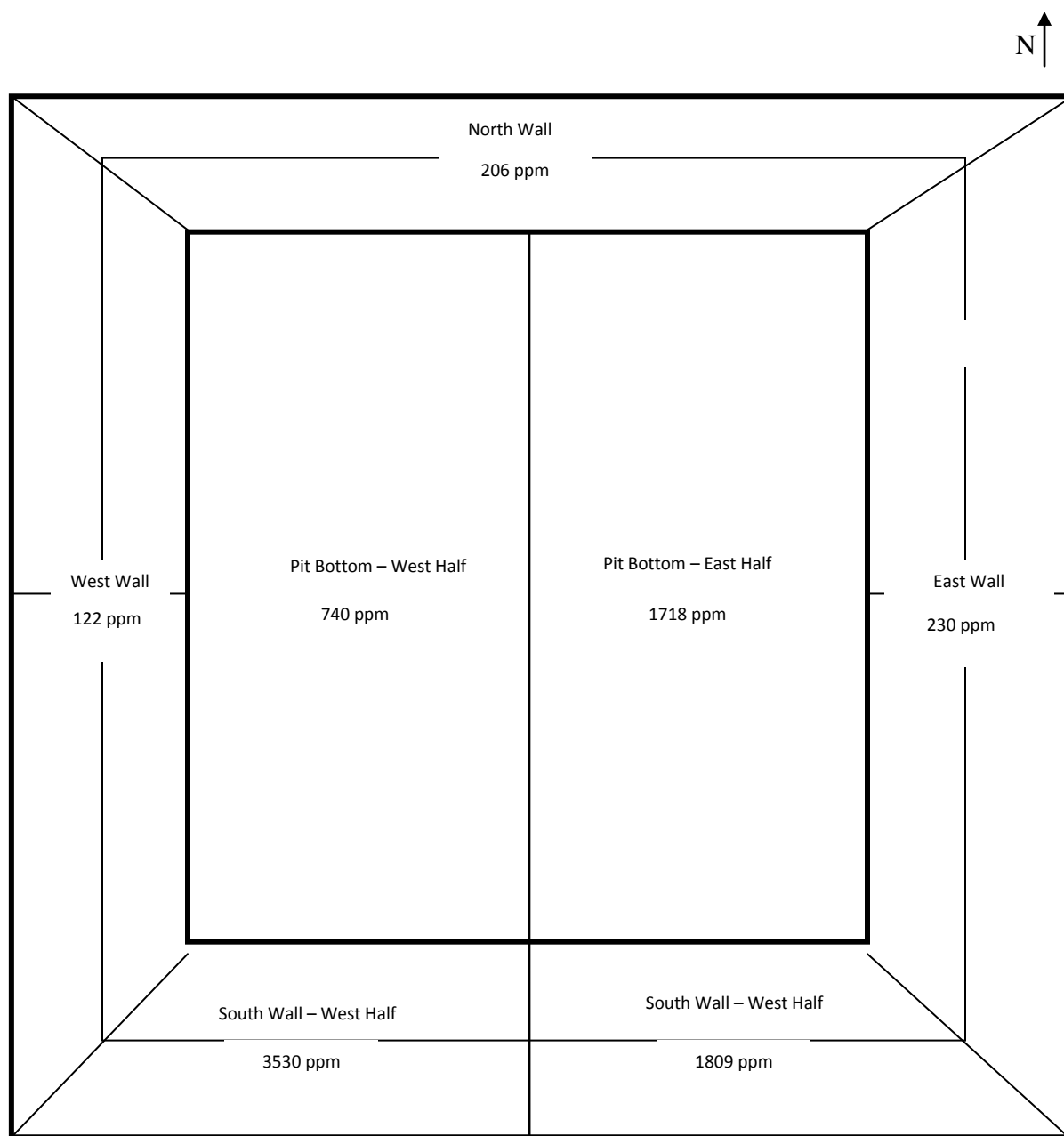


Table 1: PetroFlag Hydrocarbon Screening Results at Various Depths

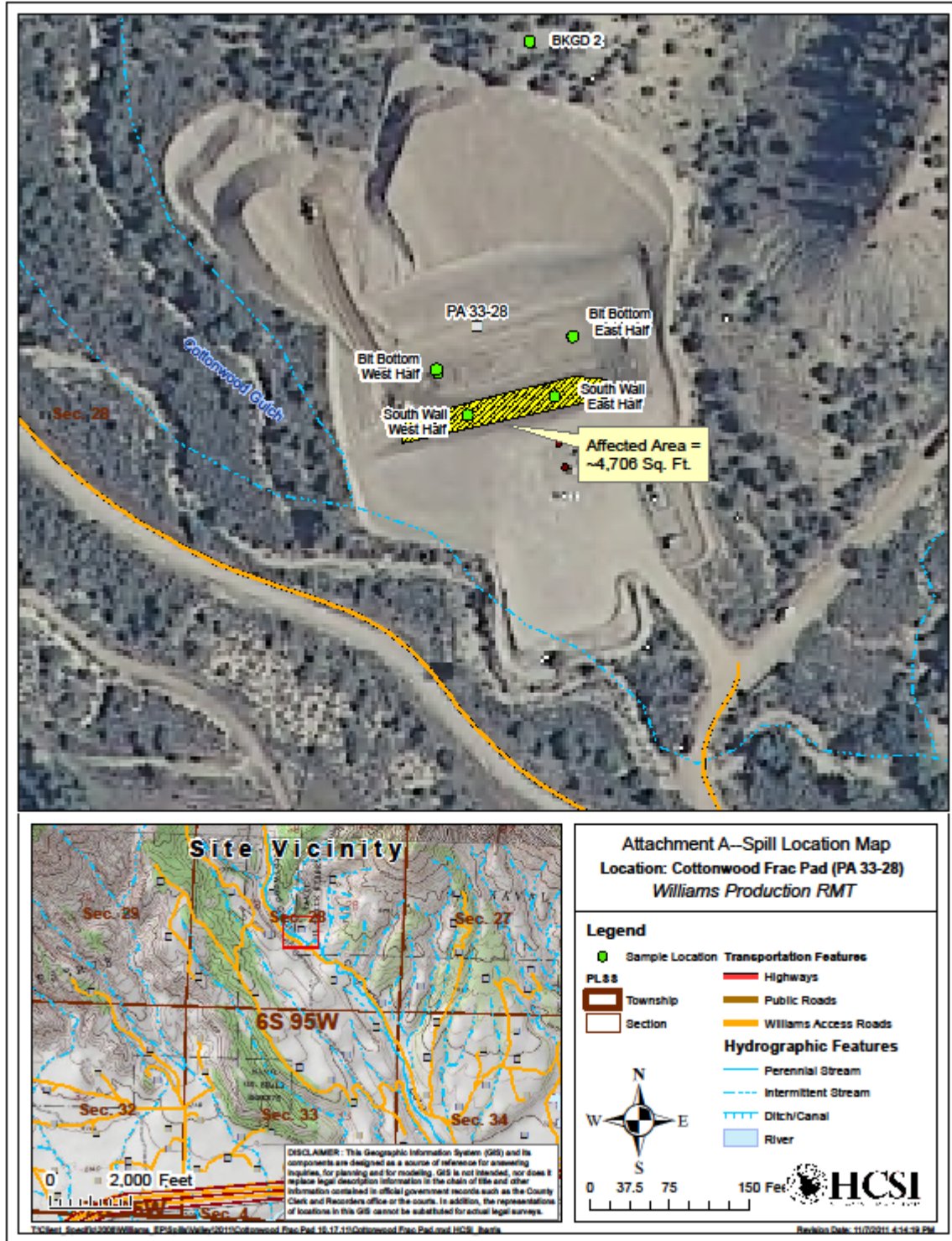
Sample ID	Results @ 0-1 ft	Results @ 1-2 ft
South Wall – Middle	3530	2275
South Wall - Bottom	1366	598
South Wall – East Half	1809	405
South Wall – West Half	200	NS
Pit Bottom – Middle	218	NS

Note: All results are in mg/kg

NS = Not Sampled; previous field screening results indicate that soils were below COGCC Table 910-1 standards

Highlighted numbers indicate areas that warranted additional inspection and analysis

Figure 2: GIS Map of Sampling Locations



Field screening results are provided in Table 1 indicated that remediation was required on the southern wall and pit bottom due to TPH concentrations likely being above COGCC Table 910-1 standards.

Remediation Activities

Soil exhibiting dark stains and a hydrocarbon odor were located on the southern pit wall and pit bottom indicating the potential presence of hydrocarbon concentrations exceeding 500 ppm, thus required remediation. The southern wall was excavated to a depth approximately 1 foot on the western half and up to 3 feet as the remediation moved laterally west. Discoloration within soil was no longer present at the excavated depth and field screening results indicated that hydrocarbon concentrations were below 500 ppm. The pit bottom was excavated to a vertical maximum of 1 foot, where soil staining was no longer present and field screening results indicated hydrocarbon concentrations below 500 ppm. Per rules 910.b.(3).C, a reduced list of constituents was approved by the COGCC on November 3, 2011 to remove metals analysis from the confirmation sampling criteria and arsenic criteria within background samples.

- Confirmation samples, in accordance with Rule 905.b.(4), were collected from the south wall at a position that was centered vertically and horizontally. These samples were collected for confirmation of compliance with COGCC Rule 910 and Table 910-1; as well as verification of field screening analysis. Two (2) additional grab samples were collected from the base of the pit, dividing the bottom of the pit into halves, which included the low point of the base, to demonstrate compliance in accordance with Rule 905.b.(1).
- A Trimble Geo XT 2008 was used to satisfy requirements outlined in COGCC Rule 215 for collecting GPS locations of each confirmation sample location from the pit wall and pit footprint.

Confirmation samples indicated that the southern pit wall, the western pit bottom, and eastern pit bottom indicated that soil within the pit, post excavation, met COGCC Table 910-1 criteria and required not additional excavation.

Sample Analysis

See attached Table 2 (additional detail provided in Appendix 1) for summary of pit bottom and southern wall raw analytical results, and Table 3 (additional detail provided in Appendix 2) which provides raw analytical results for background analytical sampling.

Background Sampling

One sample was collected from the up-gradient undisturbed hillside surrounding the pad and analyzed for inorganic parameters of COGCC Table 910-1(i.e. SAR, EC, pH). Because of rule 910.b.(3).C, based on site specific conditions and process knowledge, the COGCC gave prior

approval for a reduced list of parameters on November 3, 2011 via e-mail, which omitted 910-1 metals analysis from pit confirmation samples as well as background arsenic sampling. Refer to Table 3 and Appendix 2 for background sampling results.

Management of Stockpiled Material

The pit liner was segregated according to material and placed in a bermed containment. Plastic lining material and felt liners were placed on the north end of the pad. High Plains Services compressed and collected the liners and bound them to pallets for transportation to be recycled.

Excavated soils from the pit wall and bottom were placed in a stockpile pending transportation to the DOE 1-W-28 cuttings management area where it will be treated through the use of bioremediation technologies. See location map – Figure 4.

Analytical Data Management

See Appendix 1 for post excavated pit bottom and southern wall raw analytical data and Appendix 2 for background analytical data.

Figures

Figure 3



Visual representation of the south wall facing east during excavation

Figure 4



Summary Tables

Table 2: Post Excavation Pit Bottom and Southern Wall Analytical Results

Post Excavation of Pit Walls and Bottom	Pit Bottom – West Half	Pit Bottom – East Half	South Wall – West Half	South Wall – East Half
TEPH (DRO)	10	58	30	6.4
TVPH (GRO)	270	ND	ND	ND
BENZENE	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND
ETHYLBENZENE	ND	ND	ND	ND
XYLENE TOTAL	ND	ND	ND	ND
ACENAPHTHENE	ND	ND	ND	ND
ACENAPHTHYLENE	ND	ND	ND	ND
ANTHRACENE	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ND	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND	ND
BENZO(G,H,I)PERYLENE	ND	ND	ND	ND
BENZO(K)FLUORANTHENE	ND	ND	ND	ND
CHRYSENE	ND	ND	ND	ND
DIBENZO(A,H)ANTHRACENE	ND	ND	ND	ND
FLUORANTHENE	ND	ND	ND	ND
FLUORENE	.130	ND	ND	ND
INDENO(1,2,3-CD)PYRENE	ND	ND	ND	ND
NAPHTHALENE	ND	.210	ND	ND
PYRENE	ND	ND	ND	ND
Sodium Absorbion Ratio (unitless)	38.0	88.0	63.1	58.4
Electric Conductivity (mmhos/cm)	1.44	5.05	5.99	4.99
pH (unitless)	8.5	8.41	8.19	8.3

Note: all results are in, mg/kg = milligram per kilogram, unless noted

Table 3: Background Analytical Data

	Sodium Absorption Ratio (unitless)	Electro Conductivity (mmhos/cm)	pH (unitless)
BKGD 2	6.4	0.26	8.84

All results are in, mg/kg = milligram per kilogram, unless noted otherwise

Table 4: Stockpile Arsenic Results

	Arsenic
Stockpile	8.4

Appendix 1: Pit Bottom and Southern Wall Raw Analytical Data



07-Nov-2011

Kris Rowe
HRL Compliance Solutions
744 Horizon Ct. Suite 140
Grand Junction, CO 81506

Re: **Williams Cottonwood Frac Pit 10/25/11**

Work Order: **1110946**

Dear Kris,

ALS Environmental received 4 samples on 27-Oct-2011 10:00 AM for the analyses presented in the following report.

This is a REVISED REPORT. The Case Narrative provides information discussing the reason for issuing a revised report. The total number of pages in this revision is 26.

If you have any questions regarding these test results, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston
Project Manager



Certificate No: IL100452

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/25/11
Work Order: 1110946

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>
1110946-01	Pit Bottom West Half	Soil		10/25/2011 10:30	10/27/2011 10:00	<input type="checkbox"/>
1110946-02	Pit Bottom East Half	Soil		10/25/2011 10:45	10/27/2011 10:00	<input type="checkbox"/>
1110946-03	South Wall (West Half)	Soil		10/25/2011 10:55	10/27/2011 10:00	<input type="checkbox"/>
1110946-04	South Wall (East Half)	Soil		10/25/2011 11:25	10/27/2011 10:00	<input type="checkbox"/>

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/25/11
Work Order: 1110946

Case Narrative

This revised report does not include the Metals analyses.

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/25/11
WorkOrder: 1110946

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
SQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg-dry as noted	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight
s.u.	Standard Units

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 10/25/11

Sample ID: Pit Bottom West Half

Collection Date: 10/25/2011 10:30 AM

Work Order: 1110946

Lab ID: 1110946-01

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 10/28/2011	Analyst: RM
DRO (C10-C28)	10		5.2	mg/Kg-dry	1	11/1/2011 05:02 PM
Surr: 4-Terphenyl-d14	57.7		39-115	%REC	1	11/1/2011 05:02 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015			Analyst: RM
GRO (C6-C10)	270		6.2	mg/Kg-dry	100	10/29/2011 12:07 PM
Surr: Toluene-d8	95.5		50-150	%REC	100	10/29/2011 12:07 PM
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 10/28/2011	Analyst: CW
Acenaphthene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Anthracene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Benzo(a)anthracene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Benzo(a)pyrene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Benzo(b)fluoranthene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Benzo(g,h,i)perylene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Benzo(k)fluoranthene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Chrysene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Dibenzo(a,h)anthracene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Fluoranthene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Fluorene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Indeno(1,2,3-cd)pyrene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Naphthalene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Pyrene	ND		38	µg/Kg-dry	1	10/31/2011 10:54 PM
Surr: 2,4,6-Tribromophenol	67.0		34-140	%REC	1	10/31/2011 10:54 PM
Surr: 2-Fluorobiphenyl	56.5		12-100	%REC	1	10/31/2011 10:54 PM
Surr: 2-Fluorophenol	63.1		33-117	%REC	1	10/31/2011 10:54 PM
Surr: 4-Terphenyl-d14	73.8		25-137	%REC	1	10/31/2011 10:54 PM
Surr: Nitrobenzene-d5	61.0		37-107	%REC	1	10/31/2011 10:54 PM
Surr: Phenol-d6	68.1		40-106	%REC	1	10/31/2011 10:54 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260			Analyst: BG
Benzene	ND		120	µg/Kg-dry	100	11/2/2011 08:14 AM
Ethylbenzene	ND		250	µg/Kg-dry	100	11/2/2011 08:14 AM
m,p-Xylene	ND		250	µg/Kg-dry	100	11/2/2011 08:14 AM
o-Xylene	ND		120	µg/Kg-dry	100	11/2/2011 08:14 AM
Toluene	ND		190	µg/Kg-dry	100	11/2/2011 08:14 AM
Xylenes, Total	ND		370	µg/Kg-dry	100	11/2/2011 08:14 AM
Surr: 1,2-Dichloroethane-d4	108		70-120	%REC	100	11/2/2011 08:14 AM
Surr: 4-Bromofluorobenzene	96.1		75-120	%REC	100	11/2/2011 08:14 AM
Surr: Dibromofluoromethane	95.8		85-115	%REC	100	11/2/2011 08:14 AM
Surr: Toluene-d8	99.8		85-115	%REC	100	11/2/2011 08:14 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 10/25/11

Work Order: 1110946

Sample ID: Pit Bottom West Half

Lab ID: 1110946-01

Collection Date: 10/25/2011 10:30 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			A2540 G			Analyst: CG
Moisture	19		0.050	% of sample	1	10/27/2011 05:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/25/11
Sample ID: Pit Bottom East Half
Collection Date: 10/25/2011 10:45 AM

Work Order: 1110946
Lab ID: 1110946-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	58		SW8015M		Prep Date: 10/28/2011	Analyst: RM
Surr: 4-Terphenyl-d14	59.8		4.8	mg/Kg-dry	1	11/1/2011 05:02 PM
			39-115	%REC	1	11/1/2011 05:02 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		SW8015			Analyst: RM
Surr: Toluene-d8	100		5.8	mg/Kg-dry	100	10/29/2011 12:33 PM
			50-150	%REC	100	10/29/2011 12:33 PM
SUBCONTRACTED ANALYSES						
Subcontracted Analyses	Rcvd 11/02/11		SUBCONTRACT	as noted	1	Analyst: A&LGL
						11/2/2011
SEMI-VOLATILE ORGANIC COMPOUNDS						
SW8270					Prep Date: 10/28/2011	Analyst: CW
Acenaphthene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Anthracene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Benzo(a)anthracene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Benzo(a)pyrene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Benzo(b)fluoranthene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Benzo(g,h,i)perylene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Benzo(k)fluoranthene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Chrysene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Dibenzo(a,h)anthracene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Fluoranthene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Fluorene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Indeno(1,2,3-cd)pyrene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Naphthalene	210		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Pyrene	ND		35	µg/Kg-dry	1	11/1/2011 04:50 AM
Surr: 2,4,6-Tribromophenol	84.5		34-140	%REC	1	11/1/2011 04:50 AM
Surr: 2-Fluorobiphenyl	68.1		12-100	%REC	1	11/1/2011 04:50 AM
Surr: 2-Fluorophenol	73.0		33-117	%REC	1	11/1/2011 04:50 AM
Surr: 4-Terphenyl-d14	88.0		25-137	%REC	1	11/1/2011 04:50 AM
Surr: Nitrobenzene-d5	72.6		37-107	%REC	1	11/1/2011 04:50 AM
Surr: Phenol-d6	82.0		40-106	%REC	1	11/1/2011 04:50 AM
VOLATILE ORGANIC COMPOUNDS						
SW8260						Analyst: BG
Benzene	ND		120	µg/Kg-dry	100	11/2/2011 08:39 AM
Ethylbenzene	ND		230	µg/Kg-dry	100	11/2/2011 08:39 AM
m,p-Xylene	ND		230	µg/Kg-dry	100	11/2/2011 08:39 AM
o-Xylene	ND		120	µg/Kg-dry	100	11/2/2011 08:39 AM
Toluene	ND		170	µg/Kg-dry	100	11/2/2011 08:39 AM
Xylenes, Total	ND		350	µg/Kg-dry	100	11/2/2011 08:39 AM
Surr: 1,2-Dichloroethane-d4	106		70-120	%REC	100	11/2/2011 08:39 AM
Surr: 4-Bromofluorobenzene	97.4		75-120	%REC	100	11/2/2011 08:39 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 07-Nov-11**Client:** HRL Compliance Solutions**Project:** Williams Cottonwood Frac Pit 10/25/11**Work Order:** 1110946**Sample ID:** Pit Bottom East Half**Lab ID:** 1110946-02**Collection Date:** 10/25/2011 10:45 AM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: Dibromofluoromethane</i>	94.6		85-115	%REC	100	11/2/2011 08:39 AM
<i>Surr: Toluene-d8</i>	100		85-115	%REC	100	11/2/2011 08:39 AM
MOISTURE			A2540 G			Analyst: CG
Moisture	13		0.050	% of sample	1	10/27/2011 05:35 PM
PH			SW9045D			Analyst: JJG
pH	8.41			s.u.	1	10/28/2011 08:30 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/25/11
Sample ID: South Wall (West Half)
Collection Date: 10/25/2011 10:55 AM

Work Order: 1110946
Lab ID: 1110946-03
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	30		SW8015M		Prep Date: 10/28/2011	Analyst: RM
			4.9	mg/Kg-dry	1	11/1/2011 05:24 PM
Surr: 4-Terphenyl-d14	52.8		39-115	%REC	1	11/1/2011 05:24 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		SW8015			Analyst: RM
			5.9	mg/Kg-dry	100	10/29/2011 12:59 PM
Surr: Toluene-d8	99.1		50-150	%REC	100	10/29/2011 12:59 PM
SUBCONTRACTED ANALYSES						
Subcontracted Analyses	Rcvd 11/02/11		SUBCONTRACT			Analyst: A&LGL
			as noted		1	11/2/2011
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 10/28/2011	Analyst: CW
Acenaphthene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Anthracene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Benzo(a)anthracene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Benzo(a)pyrene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Benzo(b)fluoranthene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Benzo(g,h,i)perylene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Benzo(k)fluoranthene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Chrysene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Dibenzo(a,h)anthracene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Fluoranthene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Fluorene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Indeno(1,2,3-cd)pyrene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Naphthalene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Pyrene	ND		35	µg/Kg-dry	1	11/1/2011 04:15 AM
Surr: 2,4,6-Tribromophenol	83.6		34-140	%REC	1	11/1/2011 04:15 AM
Surr: 2-Fluorobiphenyl	65.1		12-100	%REC	1	11/1/2011 04:15 AM
Surr: 2-Fluorophenol	75.5		33-117	%REC	1	11/1/2011 04:15 AM
Surr: 4-Terphenyl-d14	90.5		25-137	%REC	1	11/1/2011 04:15 AM
Surr: Nitrobenzene-d5	74.0		37-107	%REC	1	11/1/2011 04:15 AM
Surr: Phenol-d6	82.4		40-106	%REC	1	11/1/2011 04:15 AM
VOLATILE ORGANIC COMPOUNDS						
			SW8260			Analyst: BG
Benzene	ND		120	µg/Kg-dry	100	11/2/2011 09:04 AM
Ethylbenzene	ND		240	µg/Kg-dry	100	11/2/2011 09:04 AM
m,p-Xylene	ND		240	µg/Kg-dry	100	11/2/2011 09:04 AM
o-Xylene	ND		120	µg/Kg-dry	100	11/2/2011 09:04 AM
Toluene	ND		180	µg/Kg-dry	100	11/2/2011 09:04 AM
Xylenes, Total	ND		350	µg/Kg-dry	100	11/2/2011 09:04 AM
Surr: 1,2-Dichloroethane-d4	106		70-120	%REC	100	11/2/2011 09:04 AM
Surr: 4-Bromofluorobenzene	97.2		75-120	%REC	100	11/2/2011 09:04 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 07-Nov-11**Client:** HRL Compliance Solutions**Project:** Williams Cottonwood Frac Pit 10/25/11**Work Order:** 1110946**Sample ID:** South Wall (West Half)**Lab ID:** 1110946-03**Collection Date:** 10/25/2011 10:55 AM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: Dibromofluoromethane</i>	93.9		85-115	%REC	100	11/2/2011 09:04 AM
<i>Surr: Toluene-d8</i>	101		85-115	%REC	100	11/2/2011 09:04 AM
MOISTURE			A2540 G			Analyst: CG
Moisture	15		0.050	% of sample	1	10/27/2011 05:35 PM
PH			SW9045D			Analyst: JJG
pH	8.19			s.u.	1	10/28/2011 08:30 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/25/11
Sample ID: South Wall (East Half)
Collection Date: 10/25/2011 11:25 AM

Work Order: 1110946
Lab ID: 1110946-04
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep Date: 10/28/2011	Analyst: RM
DRO (C10-C28)	6.4		4.6	mg/Kg-dry	1	11/1/2011 05:24 PM
Surr: 4-Terphenyl-d14	86.0		39-115	%REC	1	11/1/2011 05:24 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015			Analyst: JD
GRO (C6-C10)	ND		5.5	mg/Kg-dry	100	10/29/2011 07:42 AM
Surr: Toluene-d8	99.6		50-150	%REC	100	10/29/2011 07:42 AM
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep Date: 10/28/2011	Analyst: CW
Acenaphthene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Anthracene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Benzo(a)anthracene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Benzo(a)pyrene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Benzo(b)fluoranthene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Benzo(g,h,i)perylene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Benzo(k)fluoranthene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Chrysene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Dibenzo(a,h)anthracene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Fluoranthene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Fluorene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Indeno(1,2,3-cd)pyrene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Naphthalene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Pyrene	ND		33	µg/Kg-dry	1	10/31/2011 11:30 PM
Surr: 2,4,6-Tribromophenol	73.9		34-140	%REC	1	10/31/2011 11:30 PM
Surr: 2-Fluorobiphenyl	66.9		12-100	%REC	1	10/31/2011 11:30 PM
Surr: 2-Fluorophenol	71.7		33-117	%REC	1	10/31/2011 11:30 PM
Surr: 4-Terphenyl-d14	88.5		25-137	%REC	1	10/31/2011 11:30 PM
Surr: Nitrobenzene-d5	70.7		37-107	%REC	1	10/31/2011 11:30 PM
Surr: Phenol-d6	77.6		40-106	%REC	1	10/31/2011 11:30 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260			Analyst: BG
Benzene	ND		110	µg/Kg-dry	100	11/2/2011 09:29 AM
Ethylbenzene	ND		220	µg/Kg-dry	100	11/2/2011 09:29 AM
m,p-Xylene	ND		220	µg/Kg-dry	100	11/2/2011 09:29 AM
o-Xylene	ND		110	µg/Kg-dry	100	11/2/2011 09:29 AM
Toluene	ND		160	µg/Kg-dry	100	11/2/2011 09:29 AM
Xylenes, Total	ND		330	µg/Kg-dry	100	11/2/2011 09:29 AM
Surr: 1,2-Dichloroethane-d4	106		70-120	%REC	100	11/2/2011 09:29 AM
Surr: 4-Bromofluorobenzene	96.9		75-120	%REC	100	11/2/2011 09:29 AM
Surr: Dibromofluoromethane	93.9		85-115	%REC	100	11/2/2011 09:29 AM
Surr: Toluene-d8	99.8		85-115	%REC	100	11/2/2011 09:29 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 10/25/11

Work Order: 1110946

Sample ID: South Wall (East Half)

Lab ID: 1110946-04

Collection Date: 10/25/2011 11:25 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			A2540 G			Analyst: CG
Moisture	9.0		0.050	% of sample	1	10/27/2011 05:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Report Number: F11304-0644

Account Number: 91000

A & L GREAT LAKES LABORATORIES, INC.

3505 Conestoga Drive • Fort Wayne, Indiana 46808-4413 • Phone 260-483-4759 • Fax 260-483-5274
www.algreatlakes.com • lab@algreatlakes.com



QUALITY ANALYSES FOR INFORMED DECISIONS

TO: ALS LABORATORY GROUP
3352 128TH AVE
HOLLAND, MI 49424-9263

RE: 1110946

DATE RECEIVED: 10/31/2011

DATE REPORTED: 11/02/2011

PAGE: 1

P.O. NUMBER: 20-122011107

REPORT OF ANALYSIS

ATTN: ANN PRESTON

LAB NO.	SAMPLE ID	ANALYSIS	RESULT	UNIT	METHOD
16982	02C	Sat'd Paste Extraction with DIW Conductivity (ECe) Calcium (Sat'd Paste) Magnesium (Sat'd Paste) Sodium (Sat'd Paste) Sodium Adsorption Ratio	1 5.05 86 61 4412 88.6	mmho/cm ppm ppm ppm -	USDA Handbook 60 USDA Handbook 60 USDA Handbook 60 USDA Handbook 60 USDA Handbook 60 USDA Handbook 60
16983	03C	Sat'd Paste Extraction with DIW Conductivity (ECe) Calcium (Sat'd Paste) Magnesium (Sat'd Paste) Sodium (Sat'd Paste) Sodium Adsorption Ratio	1 5.99 172 130 4521 63.1	mmho/cm ppm ppm ppm -	USDA Handbook 60 USDA Handbook 60 USDA Handbook 60 USDA Handbook 60 USDA Handbook 60 USDA Handbook 60

Client: HRL Compliance Solutions

QC BATCH REPORT

Work Order: 1110946

Project: Williams Cottonwood Frac Pit 10/25/11

Batch ID: 36939

Instrument ID GC8

Method: SW8015M

MBLK		Sample ID: DBLKS1-36939-36939				Units: mg/Kg		Analysis Date: 11/1/2011 07:38 AM		
Client ID:		Run ID: GC8_111030A				SeqNo: 1803033		Prep Date: 10/28/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	4.2								
<i>Surr: 4-Terphenyl-d14</i>	<i>0.9417</i>	<i>0</i>	<i>1.667</i>	<i>0</i>	<i>56.5</i>	<i>39-115</i>	<i>0</i>			

LCS		Sample ID: DLCSS1-36939-36939				Units: mg/Kg		Analysis Date: 11/1/2011 06:09 AM		
Client ID:		Run ID: GC8_111030A				SeqNo: 1803030		Prep Date: 10/28/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	149.7	4.2	166.7	0	89.8	60-130	0			
<i>Surr: 4-Terphenyl-d14</i>	<i>1.04</i>	<i>0</i>	<i>1.667</i>	<i>0</i>	<i>62.4</i>	<i>39-115</i>	<i>0</i>			

LCSD		Sample ID: DLCSDS1-36939-36939				Units: mg/Kg		Analysis Date: 11/1/2011 06:09 AM		
Client ID:		Run ID: GC8_111030A				SeqNo: 1803049		Prep Date: 10/28/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	168.1	4.2	166.7	0	101	60-130	149.7	11.6	30	
<i>Surr: 4-Terphenyl-d14</i>	<i>1.125</i>	<i>0</i>	<i>1.667</i>	<i>0</i>	<i>67.5</i>	<i>39-115</i>	<i>1.04</i>	<i>7.85</i>	<i>30</i>	

The following samples were analyzed in this batch:

1110946-01B	1110946-02B	1110946-03B
1110946-04B		

Client: HRL Compliance Solutions
 Work Order: 1110946
 Project: Williams Cottonwood Frac Pit 10/25/11

QC BATCH REPORT

Batch ID: **R96942** Instrument ID **GC9** Method: **SW8015**

MBLK	Sample ID: MBLK-R96942-R96942					Units: µg/L		Analysis Date: 10/28/2011 04:43 PM		
Client ID:	Run ID: GC9_111028A				SeqNo: 1799221		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	200								
Surr: Toluene-d8	106.5	0	100	0	106	70-130	0			

LCS	Sample ID: LCS-R96942-R96942					Units: µg/L		Analysis Date: 10/28/2011 03:25 PM		
Client ID:	Run ID: GC9_111028A				SeqNo: 1799219		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	22640	200	25000	0	90.6	70-130	0			
Surr: Toluene-d8	100.8	0	100	0	101	70-130	0			

LCSD	Sample ID: LCSD-R96942-R96942					Units: µg/L		Analysis Date: 10/28/2011 03:51 PM		
Client ID:	Run ID: GC9_111028A				SeqNo: 1799220		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	22110	200	25000	0	88.4	70-130	22640	2.37	30	
Surr: Toluene-d8	101.4	0	100	0	101	70-130	100.8	0.584	30	

MS	Sample ID: 1110956-03A MS					Units: µg/Kg		Analysis Date: 10/29/2011 01:50 AM		
Client ID:	Run ID: GC9_111028A				SeqNo: 1799250		Prep Date:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	1149000	2,500	1250000	0	91.9	70-130	0			
Surr: Toluene-d8	4624	0	5000	0	92.5	50-150	0			

MSD	Sample ID: 1110956-03A MSD					Units: µg/Kg		Analysis Date: 10/29/2011 02:16 AM		
Client ID:	Run ID: GC9_111028A				SeqNo: 1799252		Prep Date:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	1124000	2,500	1250000	0	89.9	70-130	1149000	2.22	30	
Surr: Toluene-d8	4538	0	5000	0	90.8	50-150	4624	1.89	30	

The following samples were analyzed in this batch: | 1110946-01A | 1110946-02A | 1110946-03A |

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
Work Order: 1110946
Project: Williams Cottonwood Frac Pit 10/25/11

QC BATCH REPORT

Batch ID: **R97068** Instrument ID **GC10** Method: **SW8015**

MBLK		Sample ID: MBLK-R97068-R97068				Units: µg/L		Analysis Date: 10/28/2011 11:25 PM		
Client ID:		Run ID: GC10_111028B				SeqNo: 1803181		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	200								
<i>Surr: Toluene-d8</i>	97.67	0	100	0	97.7	70-130	0			

LCS		Sample ID: LCS-R97068-R97068				Units: µg/L		Analysis Date: 10/28/2011 10:10 PM		
Client ID:		Run ID: GC10_111028B				SeqNo: 1803179		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	25190	200	25000	0	101	70-130	0			
<i>Surr: Toluene-d8</i>	93.14	0	100	0	93.1	70-130	0			

LCSD		Sample ID: LCSD-R97068-R97068				Units: µg/L		Analysis Date: 10/28/2011 10:35 PM		
Client ID:		Run ID: GC10_111028B				SeqNo: 1803180		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	24350	200	25000	0	97.4	70-130	25190	3.39	30	
<i>Surr: Toluene-d8</i>	95.27	0	100	0	95.3	70-130	93.14	2.26	30	

MS		Sample ID: 1110954-14A MS				Units: µg/Kg		Analysis Date: 10/29/2011 08:07 AM		
Client ID:		Run ID: GC10_111028B				SeqNo: 1803200		Prep Date:		DF: 50
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	1569000	2,500	1250000	0	126	70-130	0			
<i>Surr: Toluene-d8</i>	4256	0	5000	0	85.1	50-150	0			

MSD		Sample ID: 1110954-14A MSD				Units: µg/Kg		Analysis Date: 10/29/2011 08:32 AM		
Client ID:		Run ID: GC10_111028B				SeqNo: 1803201		Prep Date:		DF: 50
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	1347000	2,500	1250000	0	108	70-130	1569000	15.3	30	
<i>Surr: Toluene-d8</i>	4772	0	5000	0	95.4	50-150	4256	11.4	30	

The following samples were analyzed in this batch: | 1110946-04A |

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
Work Order: 1110946
Project: Williams Cottonwood Frac Pit 10/25/11

QC BATCH REPORT

Batch ID: **36938** Instrument ID **SVMS6** Method: **SW8270**

MBLK		Sample ID: SBLKS1-36938-36938				Units: µg/Kg		Analysis Date: 10/31/2011 02:41 PM		
Client ID:		Run ID: SVMS6_111031A				SeqNo: 1802178		Prep Date: 10/28/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	30								
Anthracene	ND	30								
Benzo(a)anthracene	ND	30								
Benzo(a)pyrene	ND	30								
Benzo(b)fluoranthene	ND	30								
Benzo(g,h,i)perylene	ND	30								
Benzo(k)fluoranthene	ND	30								
Chrysene	ND	30								
Dibenzo(a,h)anthracene	ND	30								
Fluoranthene	ND	30								
Fluorene	ND	30								
Indeno(1,2,3-cd)pyrene	ND	30								
Naphthalene	ND	30								
Pyrene	ND	30								
<i>Surr: 2,4,6-Tribromophenol</i>	1343	0	1667	0	80.6	34-140		0		
<i>Surr: 2-Fluorobiphenyl</i>	1175	0	1667	0	70.5	12-100		0		
<i>Surr: 2-Fluorophenol</i>	1470	0	1667	0	88.2	33-117		0		
<i>Surr: 4-Terphenyl-d14</i>	1584	0	1667	0	95.1	25-137		0		
<i>Surr: Nitrobenzene-d5</i>	1159	0	1667	0	69.5	37-107		0		
<i>Surr: Phenol-d6</i>	1429	0	1667	0	85.7	40-106		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
Work Order: 1110946
Project: Williams Cottonwood Frac Pit 10/25/11

QC BATCH REPORT

Batch ID: **36938** Instrument ID **SVMS6** Method: **SW8270**

LCS		Sample ID: SLCSS1-36938-36938				Units: µg/Kg		Analysis Date: 10/31/2011 12:27 PM		
Client ID:		Run ID: SVMS6_111031A				SeqNo: 1802176		Prep Date: 10/28/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1060	30	1333	0	79.5	45-110	0			
Anthracene	1173	30	1333	0	88	55-105	0			
Benzo(a)anthracene	1296	30	1333	0	97.2	50-110	0			
Benzo(a)pyrene	1196	30	1333	0	89.7	50-110	0			
Benzo(b)fluoranthene	1052	30	1333	0	78.9	45-115	0			
Benzo(g,h,i)perylene	1281	30	1333	0	96.1	40-125	0			
Benzo(k)fluoranthene	1384	30	1333	0	104	45-115	0			
Chrysene	1210	30	1333	0	90.7	55-110	0			
Dibenzo(a,h)anthracene	1298	30	1333	0	97.4	40-125	0			
Fluoranthene	1189	30	1333	0	89.2	55-115	0			
Fluorene	1212	30	1333	0	90.9	50-110	0			
Indeno(1,2,3-cd)pyrene	1304	30	1333	0	97.8	40-120	0			
Naphthalene	1062	30	1333	0	79.7	40-105	0			
Pyrene	1119	30	1333	0	84	45-125	0			
Surr: 2,4,6-Tribromophenol	1523	0	1667	0	91.4	34-140	0			
Surr: 2-Fluorobiphenyl	1278	0	1667	0	76.7	12-100	0			
Surr: 2-Fluorophenol	1392	0	1667	0	83.5	33-117	0			
Surr: 4-Terphenyl-d14	1513	0	1667	0	90.8	25-137	0			
Surr: Nitrobenzene-d5	1305	0	1667	0	78.3	37-107	0			
Surr: Phenol-d6	1561	0	1667	0	93.6	40-106	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
Work Order: 1110946
Project: Williams Cottonwood Frac Pit 10/25/11

QC BATCH REPORT

Batch ID: **36938** Instrument ID **SVMS6** Method: **SW8270**

LCSD					Sample ID: SLCSDS1-36938-36938		Units: µg/Kg		Analysis Date: 10/31/2011 12:54 PM	
Client ID:			Run ID: SVMS6_111031A			SeqNo: 1802177		Prep Date: 10/28/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1057	30	1333	0	79.3	45-110	1060	0.283	25	
Anthracene	1146	30	1333	0	86	55-105	1173	2.27	25	
Benzo(a)anthracene	1280	30	1333	0	96	50-110	1296	1.24	25	
Benzo(a)pyrene	1178	30	1333	0	88.3	50-110	1196	1.57	25	
Benzo(b)fluoranthene	1055	30	1333	0	79.1	45-115	1052	0.285	25	
Benzo(g,h,i)perylene	1255	30	1333	0	94.1	40-125	1281	2.05	25	
Benzo(k)fluoranthene	1329	30	1333	0	99.7	45-115	1384	4.06	25	
Chrysene	1173	30	1333	0	88	55-110	1210	3.05	25	
Dibenzo(a,h)anthracene	1280	30	1333	0	96	40-125	1298	1.42	25	
Fluoranthene	1180	30	1333	0	88.5	55-115	1189	0.732	25	
Fluorene	1201	30	1333	0	90.1	50-110	1212	0.884	25	
Indeno(1,2,3-cd)pyrene	1286	30	1333	0	96.5	40-120	1304	1.36	25	
Naphthalene	1094	30	1333	0	82.1	40-105	1062	2.97	25	
Pyrene	1109	30	1333	0	83.2	45-125	1119	0.958	25	
Surr: 2,4,6-Tribromophenol	1464	0	1667	0	87.9	34-140	1523	3.95	40	
Surr: 2-Fluorobiphenyl	1296	0	1667	0	77.8	12-100	1278	1.42	40	
Surr: 2-Fluorophenol	1371	0	1667	0	82.3	33-117	1392	1.52	40	
Surr: 4-Terphenyl-d14	1445	0	1667	0	86.7	25-137	1513	4.62	40	
Surr: Nitrobenzene-d5	1350	0	1667	0	81	37-107	1305	3.42	40	
Surr: Phenol-d6	1537	0	1667	0	92.2	40-106	1561	1.53	40	

The following samples were analyzed in this batch:

1110946-01B	1110946-02B	1110946-03B
1110946-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
Work Order: 1110946
Project: Williams Cottonwood Frac Pit 10/25/11

QC BATCH REPORT

Batch ID: **R97064** Instrument ID **VMS6** Method: **SW8260**

MBLK		Sample ID: VBLKW2-111101-R97064				Units: µg/L		Analysis Date: 11/2/2011 04:30 AM		
Client ID:		Run ID: VMS6_111101B				SeqNo: 1803001		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
o-Xylene	ND	1.0								
Toluene	ND	1.0								
Xylenes, Total	ND	3.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>104.3</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>104</i>	<i>70-120</i>	<i>0</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.43</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>97.4</i>	<i>75-120</i>	<i>0</i>			
<i>Surr: Dibromofluoromethane</i>	<i>100.5</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>100</i>	<i>85-115</i>	<i>0</i>			
<i>Surr: Toluene-d8</i>	<i>99.27</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>99.3</i>	<i>85-120</i>	<i>0</i>			

LCS		Sample ID: VLCSW2-111101-R97064				Units: µg/L		Analysis Date: 11/2/2011 03:15 AM		
Client ID:		Run ID: VMS6_111101B				SeqNo: 1802999		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.99	1.0	20	0	105	80-120	0			
Ethylbenzene	20.94	1.0	20	0	105	75-125	0			
m,p-Xylene	39.13	2.0	40	0	97.8	75-130	0			
o-Xylene	19.44	1.0	20	0	97.2	80-120	0			
Toluene	21.45	1.0	20	0	107	75-120	0			
Xylenes, Total	58.57	3.0	60	0	97.6	75-130	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>101.7</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>102</i>	<i>70-120</i>	<i>0</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.71</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>97.7</i>	<i>75-120</i>	<i>0</i>			
<i>Surr: Dibromofluoromethane</i>	<i>103.6</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>104</i>	<i>85-115</i>	<i>0</i>			
<i>Surr: Toluene-d8</i>	<i>99.23</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>99.2</i>	<i>85-120</i>	<i>0</i>			

LCSD		Sample ID: VLCSDW2-111101-R97064				Units: µg/L		Analysis Date: 11/2/2011 03:40 AM		
Client ID:		Run ID: VMS6_111101B				SeqNo: 1803000		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.07	1.0	20	0	105	80-120	20.99	0.38	30	
Ethylbenzene	20.8	1.0	20	0	104	75-125	20.94	0.671	30	
m,p-Xylene	38.81	2.0	40	0	97	75-130	39.13	0.821	30	
o-Xylene	19.42	1.0	20	0	97.1	80-120	19.44	0.103	30	
Toluene	21.38	1.0	20	0	107	75-120	21.45	0.327	30	
Xylenes, Total	58.23	3.0	60	0	97	75-130	58.57	0.582	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>101.1</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>101</i>	<i>70-120</i>	<i>101.7</i>	<i>0.572</i>	<i>30</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>96.18</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>96.2</i>	<i>75-120</i>	<i>97.71</i>	<i>1.58</i>	<i>30</i>	
<i>Surr: Dibromofluoromethane</i>	<i>102.6</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>103</i>	<i>85-115</i>	<i>103.6</i>	<i>1.02</i>	<i>30</i>	
<i>Surr: Toluene-d8</i>	<i>97.69</i>	<i>0</i>	<i>100</i>	<i>0</i>	<i>97.7</i>	<i>85-120</i>	<i>99.23</i>	<i>1.56</i>	<i>30</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
 Work Order: 1110946
 Project: Williams Cottonwood Frac Pit 10/25/11

QC BATCH REPORT

Batch ID: **R97064** Instrument ID **VMS6** Method: **SW8260**

MS					Sample ID: 1110955-02A MS			Units: µg/L		Analysis Date: 11/2/2011 12:00 PM	
Client ID:			Run ID: VMS6_111101B			SeqNo: 1803848		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	20.71	1.0	20	0	104	80-120	0				
Ethylbenzene	20.36	1.0	20	0	102	75-125	0				
m,p-Xylene	38.73	2.0	40	0	96.8	75-130	0				
o-Xylene	19.27	1.0	20	0	96.4	80-120	0				
Toluene	20.84	1.0	20	0	104	75-120	0				
Xylenes, Total	58	3.0	60	0	96.7	75-130	0				
Surr: 1,2-Dichloroethane-d4	98.06	0	100	0	98.1	70-120	0				
Surr: 4-Bromofluorobenzene	103	0	100	0	103	75-120	0				
Surr: Dibromofluoromethane	100	0	100	0	100	85-115	0				
Surr: Toluene-d8	97.92	0	100	0	97.9	85-120	0				

MSD				Sample ID: 1110955-02A MSD				Units: µg/L			Analysis Date: 11/2/2011 12:25 PM			
Client ID:				Run ID: VMS6_111101B				SeqNo: 1803849			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	20.28	1.0	20	0	101	80-120	20.71	2.1	30					
Ethylbenzene	19.72	1.0	20	0	98.6	75-125	20.36	3.19	30					
m,p-Xylene	36.84	2.0	40	0	92.1	75-130	38.73	5	30					
o-Xylene	18.49	1.0	20	0	92.4	80-120	19.27	4.13	30					
Toluene	20.25	1.0	20	0	101	75-120	20.84	2.87	30					
Xylenes, Total	55.33	3.0	60	0	92.2	75-130	58	4.71	30					
Surr: 1,2-Dichloroethane-d4	97.33	0	100	0	97.3	70-120	98.06	0.747	30					
Surr: 4-Bromofluorobenzene	100.6	0	100	0	101	75-120	103	2.35	30					
Surr: Dibromofluoromethane	100.5	0	100	0	101	85-115	100	0.479	30					
Surr: Toluene-d8	98.6	0	100	0	98.6	85-120	97.92	0.692	30					

The following samples were analyzed in this batch:

1110946-01A	1110946-02A	1110946-03A
1110946-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522


Chain-of-Custody



Form 202r8

[illegible]

Time Zone (Circle):	EST	CST	MST	PST	Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

<div> <div>Comments:</div> <div> <div>5.02</div> <div>  </div> </div> </div>	QC PACKAGE (check below)	
	X	LEVEL II (Standard QC)
		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)
Preservative Key:		1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Dan Pinegar	10/26/2011	5:00 PM
RECEIVED BY		Diane F. Shaw	10/27/11	1000
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



Environmental

Subcontractor:

A & L Great Lakes Agricultural La
3505 Conestoga Dr
Fl. Wayne, IN 46808

TEL: (260) 483-4759
FAX: (260) 483-5274
Acct #: 91000

CHAIN-OF-CUSTODY RECORD

Date: 28-Oct-11
COC ID: 3255
Due Da 02-Nov-11

Page 1 of 1

Salesperson

Debbie Fazio

Customer Information		Project Information		Parameter/Method Request for Analysis											
Purchase Order	Project Name	Project Number	Subcontracted Analyses (SUBCONTRACT)	SAR-EC											
Work Order	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp												
Send Report To	Ann Preston	Inv Attn	Accounts Payable												
Address	3352 128th Avenue	Address	3352 128th Avenue												
City/State/Zip	Holland, Michigan 49424-9263	City/State/Zip	Holland, Michigan 49424-9263												
Phone	(616) 399-6070	Phone	(616) 399-6070												
Fax	(616) 399-6185	Fax	(616) 399-6185												
eMail Address	ann.preston@alsglobal.com	eMail CC													
Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J		
1110946-02C	Soil	25/Oct/2011 10:45	(1) 16OZGNEAT	X											
1110946-03C	Soil	25/Oct/2011 10:55	(1) 16OZGNEAT	X											

Comments:

Please analyze for SAR-EC. Email results to Ann Preston.

Ann Preston 10/28/11 1600

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level

Std

Relinquished by:

Date/Time

Received by:

Date/Time

Alex Csaszar

From: Ann Preston
Sent: Friday, October 28, 2011 3:55 PM
To: Alex Csaszar
Subject: FW: Williams Cottowood Frac Pit

From: Kris Rowe [mailto:krowe@hrlcomp.com]
Sent: Thursday, October 27, 2011 1:31 PM
To: Ann Preston
Cc: DPinegar@hrlcomp.com
Subject: Williams Cottowood Frac Pit

Ann,

You should be receiving some samples today named Williams Cottonwood Frac Pit. There are two locations that we need SAR/EC/pH analyzed in addition to the analysis provided on the COC. Those locations are;

Pit Bottom East Half
South Wall (West Half)

Two 16 oz jars and an 8 oz was provided for each location, let me know if that is enough soil to have SAR/EC/pH analyzed as well.

Kris Rowe

Waste Management Project Manager
HRL Compliance Solutions Inc.
744 Horizon Ct. Suite 140
Grand Junction, CO 81506
www.hrlcomp.com
970-243-3271
970-261-2015

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ALS Group: Click [here](#) to report this email as spam.

10/28/2011

Sample Receipt Checklist

Client Name: HRL

Date/Time Received: 27-Oct-11 10:00

Work Order: 1110946

Received by: DS

Checklist completed by Diane Shaw 27-Oct-11
eSignature Date

Reviewed by: Alex Csaszar 27-Oct-11
eSignature Date

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>5.0 c</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



07-Nov-2011

Kris Rowe
HRL Compliance Solutions
744 Horizon Ct. Suite 140
Grand Junction, CO 81506

Re: **Williams Cottonwood Frac Pit 11/2/11**

Work Order: **1111138**

Dear Kris,

ALS Environmental received 3 samples on 03-Nov-2011 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 13.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston
Project Manager



Certificate No: IL100452

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental The ALS logo, a stylized blue triangle with a yellow flame.

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 11/2/11
Work Order: 1111138

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>
1111138-01	South Wall - East Half	Soil		11/2/2011 17:00	11/3/2011	<input type="checkbox"/>
1111138-02	Pit Bottom - West Half	Soil		11/2/2011 17:00	11/3/2011	<input type="checkbox"/>
1111138-03	Stockpile	Soil		11/2/2011 17:00	11/3/2011	<input type="checkbox"/>

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 11/2/11
WorkOrder: 1111138

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
as noted	
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 11/2/11

Work Order: 1111138

Sample ID: South Wall - East Half

Lab ID: 1111138-01

Collection Date: 11/2/2011 05:00 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SUBCONTRACTED ANALYSES			SUBCONTRACT			Analyst: A&LGL
Subcontracted Analyses	Rcvd 11/5/11			as noted	1	11/5/2011

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 11/2/11

Work Order: 1111138

Sample ID: Pit Bottom - West Half

Lab ID: 1111138-02

Collection Date: 11/2/2011 05:00 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SUBCONTRACTED ANALYSES			SUBCONTRACT			Analyst: A&LGL
Subcontracted Analyses	Rcvd 11/5/11			as noted	1	11/5/2011

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 11/2/11

Work Order: 1111138

Sample ID: Stockpile

Lab ID: 1111138-03

Collection Date: 11/2/2011 05:00 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020A		Prep Date: 11/3/2011	Analyst: CES
Arsenic	8.4		0.97	mg/Kg-dry	2	11/4/2011 02:32 PM
MOISTURE			A2540 G			Analyst: CG
Moisture	13		0.050	% of sample	1	11/3/2011 01:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Report Number: F11307-0729

Account Number: 91000

A & L GREAT LAKES LABORATORIES, INC.

3505 Conestoga Drive • Fort Wayne, Indiana 46808-4413 • Phone 260-483-4759 • Fax 260-483-5274
www.algreatlakes.com • lab@algreatlakes.com



QUALITY ANALYSES FOR INFORMED DECISIONS

TO: ALS LABORATORY GROUP
3352 128TH AVE
HOLLAND, MI 49424-9263

RE: 1111138

DATE RECEIVED: 11/03/2011

DATE REPORTED: 11/05/2011

PAGE: 1

P.O. NUMBER: 20-122011158

REPORT OF ANALYSIS

ATTN: ANN PRESTON

LAB NO.	SAMPLE ID	ANALYSIS	RESULT	UNIT	METHOD
43748	01A	Sat'd Paste Extraction with DIW	1		USDA Handbook 60
		pH (Sat'd Paste)	8.3	Std. Unit	USDA Handbook 60
		Conductivity (ECe)	4.99	mmho/cm	USDA Handbook 60
		Calcium (Sat'd Paste)	331	ppm	USDA Handbook 60
		Magnesium (Sat'd Paste)	65	ppm	USDA Handbook 60
		Sodium (Sat'd Paste)	4453	ppm	USDA Handbook 60
		Sodium Adsorption Ratio	58.4	-	USDA Handbook 60
43749	02A	Sat'd Paste Extraction with DIW	1		USDA Handbook 60
		pH (Sat'd Paste)	8.5	Std. Unit	USDA Handbook 60
		Conductivity (ECe)	1.44	mmho/cm	USDA Handbook 60
		Calcium (Sat'd Paste)	31	ppm	USDA Handbook 60
		Magnesium (Sat'd Paste)	21	ppm	USDA Handbook 60
		Sodium (Sat'd Paste)	1124	ppm	USDA Handbook 60
		Sodium Adsorption Ratio	38.0	-	USDA Handbook 60

Client: HRL Compliance Solutions

Work Order: 1111138

Project: Williams Cottonwood Frac Pit 11/2/11

QC BATCH REPORT

Batch ID: 37118

Instrument ID ICPMS1

Method: SW6020A

MBLK		Sample ID: MBLK-37118-37118				Units: mg/Kg		Analysis Date: 11/4/2011 02:16 PM		
Client ID:		Run ID: ICPMS1_111103A				SeqNo: 1807409		Prep Date: 11/3/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								

LCS		Sample ID: LCS-37118-37118				Units: mg/Kg		Analysis Date: 11/4/2011 02:22 PM		
Client ID:		Run ID: ICPMS1_111103A				SeqNo: 1807410		Prep Date: 11/3/2011		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.438	0.50	5	0	88.8	80-120	0			

LCSD		Sample ID: LCSD-37118-37118				Units: mg/Kg		Analysis Date: 11/4/2011 02:27 PM		
Client ID:		Run ID: ICPMS1_111103A				SeqNo: 1807411		Prep Date: 11/3/2011		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.478	0.50	5	0	89.6	80-120	4.438	0.897	20	

MS		Sample ID: 1111109-03BMS				Units: mg/Kg		Analysis Date: 11/4/2011 03:17 PM		
Client ID:		Run ID: ICPMS1_111103A				SeqNo: 1807952		Prep Date: 11/3/2011		DF: 4
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	8.637	1.6	8.13	1.983	81.8	80-120	0			

MSD		Sample ID: 1111109-03BMSD				Units: mg/Kg		Analysis Date: 11/4/2011 03:23 PM		
Client ID:		Run ID: ICPMS1_111103A				SeqNo: 1807953		Prep Date: 11/3/2011		DF: 4
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	8.871	1.6	8.157	1.983	84.4	80-120	8.559	3.58	25	

The following samples were analyzed in this batch:

1111138-03A

Client: HRL Compliance Solutions
Work Order: 1111138
Project: Williams Cottonwood Frac Pit 11/2/11

QC BATCH REPORT

Batch ID: **R97216** Instrument ID **MOIST** Method: **A2540 G**

MBLK		Sample ID: WBLKS1-R97216				Units: % of sample			Analysis Date: 11/3/2011 01:47 PM		
Client ID:		Run ID: MOIST_111103A				SeqNo: 1806931			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture ND 0.050

LCS		Sample ID: LCS-R97216				Units: % of sample			Analysis Date: 11/3/2011 01:47 PM		
Client ID:		Run ID: MOIST_111103A				SeqNo: 1806930			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1111102-01ADUP				Units: % of sample			Analysis Date: 11/3/2011 01:47 PM		
Client ID:		Run ID: MOIST_111103A				SeqNo: 1806908			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 11.77 0.050 0 0 0 0-0 11.82 0.424 20

DUP		Sample ID: 1111132-01ADUP				Units: % of sample			Analysis Date: 11/3/2011 01:47 PM		
Client ID:		Run ID: MOIST_111103A				SeqNo: 1806928			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 5.16 0.050 0 0 0 0-0 4.99 3.35 20

The following samples were analyzed in this batch:

1111138-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Environmental

Subcontractor:

A & L Great Lakes Agricultural La
3505 Conestoga Dr

TEL: (260) 483-4759

FAX: (260) 483-5274

Acct #: 91000

Ft Wayne, IN 46808

Salesperson Debbie Fazio

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 03-Nov-11

COC ID: 3277

Due D 04-Nov-11

Customer Information		Project Information		Parameter/Method Request for Analysis												
		Project Name	Project Number	Subcontracted Analyses (SUBCONTRACT)												
Purchase Order			1111138	A	B	C	D	E	F	G	H	I	J			
Work Order				B												
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp	C												
Send Report To	Ann-Preston	Inv Attn	Accounts Payable	D												
Address	3352 128th Avenue	Address	3352 128th Avenue	E												
City/State/Zip	Holland, Michigan 49424-9263	City/State/Zip	Holland, Michigan 49424-9263	F												
Phone	(616) 399-6070	Phone	(616) 399-6070	G												
Fax	(616) 399-6185	Fax	(616) 399-6185	H												
eMail Address	ann.preston@alsglobal.com	eMail CC		I												
Sample ID		Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J		
1111138-01A	Soil		2/Nov/2011 17:00	(1) NONE	X											
1111138-02A	Soil		2/Nov/2011 17:00	(1) NONE	X											

Comments:

Please analyze for SAR-EC and pH. Email results to Ann Preston.

Relinquished by:

Date/Time

11/3/11

Received by:

Date/Time

Relinquished by:

Date/Time

Received by:

Cooler IDs

Report/QC Level

Std

Sample Receipt Checklist

Client Name: HRL

Date/Time Received: 03-Nov-11 00:00

Work Order: 1111138

Received by: DS

Checklist completed by *Ann Preston* 03-Nov-11
eSignature Date

Reviewed by: *Alex Csaszar* 03-Nov-11
eSignature Date

Matrices: soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>5.6°</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:			

Login Notes: samples sent directly to A&L

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

CUSTODY SEAL

SIGNATURE

QEC

Quality Environmental Control
800-255-3950 • 304/55-3900

FedEx NEW Package
Express® US Airbill

FedEx Tracking Number

8769 1479 5783

0200 Form ID No.

FedEx Retrieval Copy

1 From

Date 11-2-11

Sender's FedEx Account Number

Sender's Name Kris Rowe

Phone 970.343.3371

Company HRL Compliance solutions INC.

Address 744 Horizon CT

Dept./Floor/Suite/Room

City Grand Junction State CO ZIP 81506

2 Your Internal Billing Reference

3 To Recipient's Name

Company Sample Preserving

Phone 616 399-6600

Company ALS Group Laboratory

Address 3352 128th Ave

Dept./Room/Suite/Room

City Holland State MI ZIP 49424

Address

Use this line for the HOLD location address or for continuation of your shipping address.

HOLD Weekday
REQUIRED. NOT available for FedEx First Overnight.
HOLD Saturday
REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

4 Express Package Service

*To most locations. Note: Service order has changed. Please select carefully.

Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

FedEx First Overnight

Earliest next business morning delivery available. Delivery guaranteed by 8:00 a.m. Monday unless SATURDAY Delivery is selected.

06 ☐ FedEx First Overnight

01 ☒ FedEx Priority Overnight

Next business morning. *Friday afternoon delivery will be delayed to Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight

Next business afternoon. *Saturday Delivery NOT available.

03 ☐ FedEx 2Day

Next business day. *Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver

Next business day. *Saturday Delivery NOT available.

2 or 3 Business Days

49 ☐ NEW FedEx 2Day A.M.

Saturday Delivery NOT available.

03 ☐ FedEx 2Day

Next business day. *Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver

Next business day. *Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

06 ☐ FedEx Envelope*

02 ☐ FedEx Pak*

03 ☐ FedEx Box

04 ☐ FedEx Tube

01 ☒ Other

6 Special Handling and Delivery Signature Options

03 ☐ SATURDAY DELIVERY

No Signature Required

10 ☐ Direct Signature

Someone at recipient's address may sign for delivery. Fee applies.

34 ☐ Indirect Signature

Someone at recipient's address may sign for delivery. Fee applies. Residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No 04 ☐ Yes

Yes ☐ Shipper's Declaration 06 ☐ Dry Ice

Shippers Declaration. Not required. Dry Ice, 2, UN 1845

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip. Acct. No.

1 ☒ Sender

2 ☒ Recipient

3 ☐ Third Party

4 ☐ Credit Card

5 ☐ Cash/Check

Total Packages

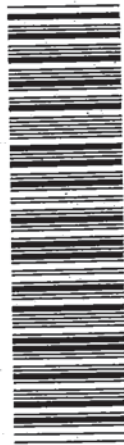
Total Weight

lbs.

Credit Card Auth.

Your liability is limited to \$100 unless you declare a higher value. See the current FedEx Service Guide for details.

612



8769 1479 5783

Appendix 2: Background Raw Analytical Data



07-Nov-2011

Kris Rowe
HRL Compliance Solutions
744 Horizon Ct. Suite 140
Grand Junction, CO 81506

Re: **Williams Cottonwood Frac Pit 10/27/11**

Work Order: **1110980**

Dear Kris,

ALS Environmental received 3 samples on 28-Oct-2011 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston
Project Manager



Certificate No: IL100452

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental The ALS logo, a small blue triangle with a yellow flame.

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/27/11
Work Order: 1110980

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>
1110980-01	Background 1	Soil		10/27/2011 09:30	10/28/2011 10:00	<input type="checkbox"/>
1110980-02	Background 2	Soil		10/27/2011 09:40	10/28/2011 10:00	<input type="checkbox"/>
1110980-03	Background 3	Soil		10/27/2011 09:55	10/28/2011 10:00	<input type="checkbox"/>

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/27/11
Work Order: 1110980

Case Narrative

This revised report does not include the Metals analyses.

Client: HRL Compliance Solutions
Project: Williams Cottonwood Frac Pit 10/27/11
WorkOrder: 1110980

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
% of sample as noted	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
s.u.	Standard Units

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 10/27/11

Work Order: 1110980

Sample ID: Background 1

Lab ID: 1110980-01

Collection Date: 10/27/2011 09:30 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			A2540 G			Analyst: LR
Moisture	13		0.050	% of sample	1	10/28/2011 06:50 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 07-Nov-11**Client:** HRL Compliance Solutions**Project:** Williams Cottonwood Frac Pit 10/27/11**Work Order:** 1110980**Sample ID:** Background 2**Lab ID:** 1110980-02**Collection Date:** 10/27/2011 09:40 AM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>						
SUBCONTRACTED ANALYSES			SUBCONTRACT			Analyst: A&LGL
Subcontracted Analyses	Rcvd 11/02/11		as noted		1	11/2/2011
MOISTURE			A2540 G			Analyst: LR
Moisture	16		0.050	% of sample	1	10/28/2011 06:50 PM
PH			SW9045D			Analyst: JJG
pH	8.84			s.u.	1	10/28/2011 08:30 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Nov-11

Client: HRL Compliance Solutions

Project: Williams Cottonwood Frac Pit 10/27/11

Work Order: 1110980

Sample ID: Background 3

Lab ID: 1110980-03

Collection Date: 10/27/2011 09:55 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			A2540 G			Analyst: LR
Moisture	11		0.050	% of sample	1	10/28/2011 06:50 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Report Number: F11304-0645

Account Number: 91000

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3505 Conestoga Drive • Fort Wayne, Indiana 46808-4413 • Phone 260-483-4759 • Fax 260-483-5274
www.algreatlakes.com • lab@algreatlakes.com



QUALITY ANALYSES FOR INFORMED DECISIONS

TO: ALS LABORATORY GROUP
3352 128TH AVE
HOLLAND, MI 49424-9263

RE: 1110980

DATE RECEIVED: 10/31/2011

DATE REPORTED: 11/02/2011

PAGE: 1

P.O. NUMBER: 20-122011103

REPORT OF ANALYSIS

ATTN: ANN PRESTON

LAB NO.	SAMPLE ID	ANALYSIS	RESULT	UNIT	METHOD
16984	02B	Sat'd Paste Extraction with DIW	1		USDA Handbook 60
		Conductivity (ECe)	0.26	mmho/cm	USDA Handbook 60
		Calcium (Sat'd Paste)	23	ppm	USDA Handbook 60
		Magnesium (Sat'd Paste)	8	ppm	USDA Handbook 60
		Sodium (Sat'd Paste)	141	ppm	USDA Handbook 60
		Sodium Adsorption Ratio	6.4	-	USDA Handbook 60

Client: HRL Compliance Solutions

Work Order: 1110980

Project: Williams Cottonwood Frac Pit 10/27/11

QC BATCH REPORT

Batch ID: **R96890**

Instrument ID **WETCHEM**

Method: **A4500-H B**

LCS		Sample ID: LCS-R96890-R96890				Units: s.u.		Analysis Date: 10/28/2011 08:30 AM		
Client ID:		Run ID: WETCHEM_111028G				SeqNo: 1797908		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	4.39	0	4.4	0	99.8	90-110	0			

LCS		Sample ID: LCS-R96890-R96890				Units: s.u.		Analysis Date: 10/28/2011 08:30 AM		
Client ID:		Run ID: WETCHEM_111028G				SeqNo: 1797914		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	4.39	0	4.4	0	99.8	90-110	0			

LCS		Sample ID: LCS-R96890-R96890				Units: s.u.		Analysis Date: 10/28/2011 08:30 AM		
Client ID:		Run ID: WETCHEM_111028G				SeqNo: 1797918		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	4.39	0	4.4	0	99.8	90-110	0			

DUP		Sample ID: 1110971-01A DUP				Units: s.u.		Analysis Date: 10/28/2011 08:30 AM		
Client ID:		Run ID: WETCHEM_111028G				SeqNo: 1797910		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.14	0	0	0	0	0-0	8.14	0	20	

DUP		Sample ID: 1110987-01A DUP				Units: s.u.		Analysis Date: 10/28/2011 08:30 AM		
Client ID:		Run ID: WETCHEM_111028G				SeqNo: 1797917		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.54	0	0	0	0	0-0	7.54	0	20	

DUP		Sample ID: 1110983-01A DUP				Units: s.u.		Analysis Date: 10/28/2011 08:30 AM		
Client ID:		Run ID: WETCHEM_111028G				SeqNo: 1797921		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.78	0	0	0	0	0-0	6.78	0	20	

The following samples were analyzed in this batch:

1110980-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
Work Order: 1110980
Project: Williams Cottonwood Frac Pit 10/27/11

QC BATCH REPORT

Batch ID: **R96908** Instrument ID **MOIST** Method: **A2540 G**

MBLK	Sample ID: WBLKS1-R96908					Units: % of sample		Analysis Date: 10/28/2011 06:50 PM		
Client ID:		Run ID: MOIST_111028C			SeqNo: 1798347		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

LCS	Sample ID: LCS-R96908					Units: % of sample			Analysis Date: 10/28/2011 06:50 PM		
Client ID:			Run ID: MOIST_111028C			SeqNo: 1798343		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP	Sample ID: 1110956-03BDUP1					Units: % of sample		Analysis Date: 10/28/2011 06:50 PM		
Client ID:		Run ID: MOIST_111028C			SeqNo: 1798324		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 48.08 0.050 0 0 0 0-0 46.67 2.98 20

DUP	Sample ID: 1110956-03BDUP2					Units: % of sample		Analysis Date: 10/28/2011 06:50 PM		
Client ID:		Run ID: MOIST_111028C			SeqNo: 1798325		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 50.39 0.050 0 0 0 0-0 46.67 7.67 20

DUP	Sample ID: 1110990-01ADUP					Units: % of sample			Analysis Date: 10/28/2011 06:50 PM		
Client ID:		Run ID: MOIST_111028C			SeqNo: 1798340		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 2.69 0.050 0 0 0 0-0 2.63 2.26 20

The following samples were analyzed in this batch:

1110980-01A	1110980-02A	1110980-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Chain-of-Custody

[illegible]

*Time Zone (Circle): EST CST PST

For metals or anions, please detail analytes below.

Comments:	4.0% 		QC PACKAGE (check below)	
			X	LEVEL II (Standard QC)
				LEVEL III (Std QC + forms)
				LEVEL IV (Std QC + forms + raw data)
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035				

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Dan Pinegar	10/27/2011	5:00 PM
RECEIVED BY		Diane Shaw	10/28/11	1:00
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



Environmental

Subcontractor:

A & L Great Lakes Agricultural La
3505 Conestoga Dr
Ft Wayne, IN 46808

TEL: (260) 483-4759
FAX: (260) 483-5274
Acct #: 91000

Salesperson Debbie Fazio

CHAIN-OF-CUSTODY RECORD

Date: 28-Oct-11
COC ID: 3253
Due Da 03-Nov-11

Page 1 of 1

Customer Information		Project Information		Parameter/Method Request for Analysis											
Subcontracted Analyses (SUBCONTRACT)		SAR - EC													
Purchase Order	20-122011103	Project Name	1110980	A	B	C	D	E	F	G	H	I	J		
Work Order		Project Number													
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp												
Send Report To	Ann Preston	Inv Attn	Accounts Payable												
Address	3352 128th Avenue	Address	3352 128th Avenue												
City/State/Zip	Holland, Michigan 49424-9263	City/State/Zip	Holland, Michigan 49424-9263												
Phone	(616) 399-6070	Phone	(616) 399-6070												
Fax	(616) 399-6185	Fax	(616) 399-6185												
eMail Address	ann.preston@alsglobal.com	eMail CC													
Sample ID	1110980-02B	Matrix	Soil	A	B	C	D	E	F	G	H	I	J		
		Collection Date	27/Oct/2011 9:40	X											
		Bottle	(1) MISC												

Comments:

Please analyze for SAR-EC. Email results to Ann Preston.

Relinquished by: Ann Preston Date/Time: 10/28/11 1400

Received by:

Received by:

Report/QC Level

Std

Sample Receipt Checklist

Client Name: HRL

Date/Time Received: 28-Oct-11 10:00

Work Order: 1110980

Received by: DS

Checklist completed by Diane Shaw 28-Oct-11
eSignature Date

Reviewed by: Alex Csaszar 28-Oct-11
eSignature Date

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.0 c</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

1 From
Date 10-27-11 Sender's FedEx
Account Number

Sender's Name
DAN RINEGAR

Phone

970 243-327

Company
ACST

Address
744 HORIZON CH. ST. 140

City
GRAND JUNCTION

State

CO ZIP 81506

2 Your Internal Billing Reference

3 To

Recipient's Name

Phone

616 399-602

Company
ALS GROUP

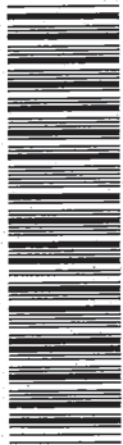
Address
3352 126th AVE

City

Address

State

MI ZIP 49424



8769 1483 5302

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

4 Express Package Service
NOTE: Service order has changed. Please select carefully.

Next Business Day

FedEx First Overnight
Business Day delivery to select
businesses. Federal holidays will be delivered on
Monday unless SATURDAY Delivery is selected.

FedEx Priority Overnight
Next business day morning delivery. Packages will be
delivered on Monday unless SATURDAY Delivery
is selected.

FedEx Standard Overnight
Saturday Delivery NOT available.

5 Packaging *Declared value limit \$200.

FedEx Envelope* 02 FedEx Pak* 03 FedEx Box 04 FedEx Tube 01 Other

6 Special Handling and Delivery Signature Options

SATURDAY DELIVERY

No Signature Required 10 Direct Signature 34 Indirect Signature
Someone at recipient's address may sign for delivery. Fee applies. Residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

No 04 Yes 06 Dry Ice
As per attached Shipper's Declaration, not required. Dry Ice, 3. UN 1845

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. Cargo Aircraft Only

7 Payment Bill to:

Sender 1 Acct. No. in Section 2 Recipient 3 Third Party 4 Credit Card 5 Cash/Check

Enter FedEx Acct. No. or Credit Card No. below.

Total Packages 1

Total Weight 3.7

lbs.

Credit Card Auth:

672

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