



Mr. Stan Spencer
Colorado Oil and Gas Conservation Commission
796 Megan Avenue, Suite 201
Rifle, Colorado 81650
970.685.2497

22 May 2015

RE: Form 27; Pepper, M. et al #1; API #05-103-0778
Spill Tracking #400820094
Rangely, Colorado

To Mr. Stan Spencer:

Whiting Oil and Gas (WOG) has completed and reviewed the information gathered from our investigation of the historic release at the Pepper, M. et al #1 located in Rangely, Colorado. WOG has characterized and developed a remediation and monitoring plan for this incident. A Colorado Oil and Gas Conservation Commission (COGCC) Form 27 has been completed and included in this correspondence for your review.

Upon approval of the Form 27, I will provide the work plan to the Town of Rangely and to Rio Blanco County.

If you have any questions or concerns, please feel free to contact me at 970.319.0498 or edward.winters@whiting.com.

Respectfully,

Edward T. Winters
Environmental Coordinator III
Whiting Oil and Gas
2500 County Road 26
Rifle, Colorado 81650
970.319.0498
edward.winters@whiting.com

Encl.
Form 27 Packet

Whiting Petroleum Corporation
and its wholly owned subsidiary
Whiting Oil and Gas Corporation

1700 Broadway, Suite 2300, Denver, Colorado 80290-2300 Office: 303.837.1661 Fax: 303.861.4023

State of Colorado
Oil and Gas Conservation Commission



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

FOR OGCC USE ONLY
Document 2143348
Received 5/27/2015
REM 9102

SITE INVESTIGATION AND REMEDIATION WORKPLAN

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

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

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

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

OGCC Operator Number: 96155

Name of Operator: Whiting Oil & Gas Corporation

Address: 2500 County Road 26

City: Rifle

State: CO Zip: 81650

Contact Name and Telephone:

Edward T. Winters

No: 970.319.0498

Fax: _____

API Number: 05-103-07788

County: Rio Blanco

Facility Name: Pepper, M. ET AL

Facility Number: 315030

Well Name: Pepper, M. ET AL #1

Well Number: 1

Location: (QtrQtr, Sec, Twp, Rng, Meridian): NWNW, Sec 6, T1N, R101W, 6th PM Latitude: 40.09003 Longitude: -108.77764

TECHNICAL CONDITIONS

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

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.): Farm lan, residential

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Torrifluvents, gullied

Potential receptors (water wells within 1/4 mi, surface waters, etc.):

Douglas Creek lies ~280 ft E, White River lies ~1,200 ft NW, GW Well Permit #67236 lies ~1,120 ft W

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

Impacted Media (check):



Soils

Extent of Impact:

20 x 30 x 4

How Determined:

Analytical results, field screen readings, soil borings



Vegetation



Groundwater

TBD



Surface Water

REMEDIALTION WORKPLAN

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

Spill Tracking #400820094. See Attachment A.

Describe how source is to be removed:

See Attachment A.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

See Attachment A.



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

Page 2

REMEDIATION WORKPLAN (Cont.)

OGCC Employee: _____

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

See Attachment A.

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 Attachment A.

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 Attachment A.

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

See Attachment A.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 4/15/15 Date Site Investigation Completed: 4/16/15 Date Remediation Plan Submitted: 22 May 2015
Remediation Start Date: 8 June 2015 Anticipated Completion Date: TBD Actual Completion Date: TBD

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

Print Name: Edward T. Winters

Signed: _____

Title: Environmental Coordinator III

Date: 22 May 2015

OGCC Approved: _____ Title: EPS Northwest Date: 5/27/15

Facility Name: Pepper. M. ET. AL #1
Facility ID#: 315030
Spill/Release Doc #: 400820094

Name of Operator: Whiting Oil & Gas Corporation
Latitude: 40.09003 Longitude: -108.77764
NWNW, Sec 6, T1N, R101W, 6th PM

COGCC Operator #: 96155
County: Rio Blanco

Form 27 Attachment:

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

Refer to the previously submitted COGCC Spill/Release Report Form 19 #400520094 submitted on 21 April 2015.

A site characterization event was conducted on 15 April and 16 April, 2015 to determine the vertical and lateral extent of hydrocarbon impacts. A total of 21 soil borings (BH-1 through BH-21) were advanced into the subsurface soil around the area of the historic pit. Field screen readings, visual observations and analytical results were utilized to determine the extent of the impacts. Refer to the attached map for soil boring locations.

Describe how source is to be removed:

The hydrocarbon impacted soil will be excavated and managed in accordance with all applicable rules and regulations regarding solid waste. Field screen equipment will be utilized to guide excavation activities to ensure compliance with Table 910-1 of the COGCC 900 series rule. Confirmation soil samples will be collected from the north, south, east, and west side walls and from the bottom of the excavation and analyzed for full COGCC Table 910-1 parameters.

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, in-situ bioremediation, burning of oily vegetation, etc.:

The excavated soil will be stockpiled onsite and disposed of at an approved waste management facility as consistent with Rule 907. If it is determined that disposal of the impacts is not practical, the impacted material will be placed into a land treatment unit (LTU) and remediated to below COGCC Table 910-1 standards by and utilizing ex-situ remediation technologies.

Ex-situ remediation practices may include applying bioremediation product to the impacted soil and tilling the impacted soil via a tractor mounted tiller. Field screen readings and soil samples will be collected from the LTU to monitor the status of the impacts. When field screen readings indicate that the soil is below COGCC Table 910-1 standards, confirmation samples will be collected from the impacted soil and submitted for the COGCC Table 910-1 analytical suite.

The final disposition of impacted material will be dependent on identified contaminants, contaminant concentration, land availability, land owner approval and waste volume.

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

During the site characterization event, groundwater was encountered at a depth of approximately 4 feet below the ground surface. A groundwater sample was collected from one of the impacted soil borings (BH-15) during the site characterization event and analyzed for BTEX, TDS, chloride, and sulfate constituents of COGCC Table 910-1. Results were below Table 910-1 allowable standards (See attached analytical data). However, a site specific monitoring plan will be submitted for approval.

Scope of Work

- One call line locates will be made through the Utility Notification Center of Colorado 811 service prior to drilling activities commencing;
- A CME 55 Track Rig will be moved to the Morton Pepper #1 location;
- Drill and install five (5) piezometers at pre-determined locations on the up gradient and down gradient sides of the area of impact. See the exhibit A for proposed soil borings locations;
- Each boring will be logged and examined to document soil lithology, moisture content, color, and indications of potential environmental impacts;
- The piezometers will then be developed and sampled to determine whether or not there are any impacts to groundwater.
- Water samples will be collected from each piezometer utilizing a peristaltic pump quarterly;
- Each sample will be analyzed for Table 910-1 constituents from groundwater. DRO, GRO and BTEX parameters.
- Water samples collected for analysis will be placed in laboratory provided containers, preserved in ice, and shipped overnight for analysis;
- All sampling activities will be completed in accordance with the recommended protocol specified by Whiting, CPGCC and EPA sampling criteria.
- Fieldwork will be performed using OSHA Level D and fire resistant personal protective clothing.
- All safety measures will be taken to ensure that work is completed in accordance with the safety protocol specified by all federal, county, and private requirements.
- All activities conducted in the field will be thoroughly documented. Documentation in the field will include written records and photographs documenting the activities taking place. GPS mapping will be used when applicable.
- Once four quarters of analytical data demonstrates no groundwater contamination this project can be closed.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

The excavation will be backfilled with clean backfill material and reclaimed as outlined in the COGCC 1000 series rule.

Facility Name: Pepper. M. ET. AL #1
Facility ID#: 315030
Spill/Release Doc #: 400820094

Name of Operator: Whiting Oil & Gas Corporation
Latitude: 40.09003 Longitude: -108.77764
NWNW, Sec 6, T1N, R101W, 6th PM

COGCC Operator #: 96155
County: Rio Blanco

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:

Confirmation soil samples will be collected from the north, south, east, and west side walls and from the bottom of the excavation to comply with COGCC Table 910-1 standards. Confirmation soil samples will be collected from the impacted soil within the LTU upon completion of the ex-situ remediation. All samples locations will be mapped with a Trimble GPS unit.

Five temporary wells will be installed to establish the direction of groundwater flow and to determine if impacts are present downgradient of the impacted area. The wells will be monitored on a quarterly basis as noted above.

Final documentation of investigation and closure activities will be submitted within thirty (30) days after the conclusion of all remediation and reclamation activity in accordance with all applicable sections of Rule 909.

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

The impacted soil will be disposed of at an approved waste management facility.

Appendix A
Analytical Data and Sample Location Map



22-Apr-2015

Mark Mumby
HRL Compliance Solutions, Inc
2385 F 1/2 Road
Grand Junction, CO 81505

Re: **Whiting Morton Pepper #1**

Work Order: **15041165**

Dear Mark,

ALS Environmental received 3 samples on 21-Apr-2015 09:00 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.

Sample results are compliant with NELAP standard requirements and QC results achieved 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 20.

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

Sincerely,

Chad Whelton

Electronically approved by: Les Arnold

Chad Whelton
Project Manager



Certificate No: MN 532786

Report of Laboratory Analysis

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, Inc
Project: Whiting Morton Pepper #1
Work Order: 15041165

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>
15041165-01	BH 15, 3-5'	Soil		4/16/2015 09:35	4/21/2015 09:00	<input type="checkbox"/>
15041165-02	BH 17, 3-5'	Soil		4/16/2015 10:22	4/21/2015 09:00	<input type="checkbox"/>
15041165-03	BH 15	Groundwater		4/16/2015 12:45	4/21/2015 09:00	<input type="checkbox"/>

Client: HRL Compliance Solutions, Inc
Project: Whiting Morton Pepper #1
WorkOrder: 15041165

**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 is present at an estimated concentration between the MDL and Report 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
X	Analyte was detected in the Method Blank between the MDL and PQL, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter

Client: HRL Compliance Solutions, Inc
Project: Whiting Morton Pepper #1
Work Order: 15041165

Case Narrative

Batch 70092, Method DRO_8015_S, Sample 15041165-01A: Surrogate high due to matrix interference.

Batch 70092, Method DRO_8015_S, Sample 15041165-02A: Surrogate high due to matrix interference.

Batch R161733A, Method VOC_8260_W, Sample 15041165-03A: Sample run at a dilution due to high concentration of target analytes.

ALS Group USA, Corp

Date: 22-Apr-15

Client: HRL Compliance Solutions, Inc

Project: Whiting Morton Pepper #1

Work Order: 15041165

Sample ID: BH 15, 3-5'

Lab ID: 15041165-01

Collection Date: 4/16/2015 09:35 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	1,800		SW8015M		Prep Date: 4/21/2015	Analyst: IT
<i>Surr: 4-Terphenyl-d14</i>	172	S	5.1	mg/Kg-dry	1	4/22/2015 12:59 PM
			39-133	%REC	1	4/22/2015 12:59 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	190		SW8015D		Prep Date: 4/21/2015	Analyst: IT
<i>Surr: Toluene-d8</i>	114		3.1	mg/Kg-dry	1	4/21/2015 02:28 PM
			50-150	%REC	1	4/21/2015 02:28 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260B		Prep Date: 4/21/2015	Analyst: LSY
Benzene	ND		37	µg/Kg-dry	1	4/21/2015 01:52 PM
Ethylbenzene	45		37	µg/Kg-dry	1	4/21/2015 01:52 PM
m,p-Xylene	ND		74	µg/Kg-dry	1	4/21/2015 01:52 PM
o-Xylene	ND		37	µg/Kg-dry	1	4/21/2015 01:52 PM
Toluene	ND		37	µg/Kg-dry	1	4/21/2015 01:52 PM
Xylenes, Total	ND		110	µg/Kg-dry	1	4/21/2015 01:52 PM
<i>Surr: 1,2-Dichloroethane-d4</i>	96.4		70-130	%REC	1	4/21/2015 01:52 PM
<i>Surr: 4-Bromofluorobenzene</i>	122		70-130	%REC	1	4/21/2015 01:52 PM
<i>Surr: Dibromofluoromethane</i>	92.3		70-130	%REC	1	4/21/2015 01:52 PM
<i>Surr: Toluene-d8</i>	96.5		70-130	%REC	1	4/21/2015 01:52 PM
MOISTURE						
Moisture	19		E160.3M			Analyst: EVB
			0.050	% of sample	1	4/21/2015 03:36 PM

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

ALS Group USA, Corp

Date: 22-Apr-15

Client: HRL Compliance Solutions, Inc

Project: Whiting Morton Pepper #1

Work Order: 15041165

Sample ID: BH 17, 3-5'

Lab ID: 15041165-02

Collection Date: 4/16/2015 10:22 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	4,400		SW8015M		Prep Date: 4/21/2015	Analyst: IT
Surr: 4-Terphenyl-d14	160	S	54	mg/Kg-dry	10	4/22/2015 01:30 AM
			39-133	%REC	10	4/22/2015 01:30 AM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	400		SW8015D		Prep Date: 4/21/2015	Analyst: IT
Surr: Toluene-d8	111		16	mg/Kg-dry	5	4/21/2015 04:06 PM
			50-150	%REC	5	4/21/2015 04:06 PM
VOLATILE ORGANIC COMPOUNDS						
Benzene	230		SW8260B		Prep Date: 4/21/2015	Analyst: LSY
Ethylbenzene	720		39	µg/Kg-dry	1	4/21/2015 02:17 PM
m,p-Xylene	3,200		39	µg/Kg-dry	1	4/21/2015 02:17 PM
o-Xylene	330		78	µg/Kg-dry	1	4/21/2015 02:17 PM
Toluene	100		39	µg/Kg-dry	1	4/21/2015 02:17 PM
Xylenes, Total	3,600		39	µg/Kg-dry	1	4/21/2015 02:17 PM
Surr: 1,2-Dichloroethane-d4	91.8		120	µg/Kg-dry	1	4/21/2015 02:17 PM
Surr: 4-Bromofluorobenzene	121		70-130	%REC	1	4/21/2015 02:17 PM
Surr: Dibromofluoromethane	91.9		70-130	%REC	1	4/21/2015 02:17 PM
Surr: Toluene-d8	115		70-130	%REC	1	4/21/2015 02:17 PM
MOISTURE						
Moisture	23		E160.3M			Analyst: EVB
			0.050	% of sample	1	4/21/2015 03:36 PM

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

ALS Group USA, Corp

Date: 22-Apr-15

Client: HRL Compliance Solutions, Inc

Project: Whiting Morton Pepper #1

Work Order: 15041165

Sample ID: BH 15

Lab ID: 15041165-03

Collection Date: 4/16/2015 12:45 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			SW8260			Analyst: LSY
Benzene	ND		5.0	µg/L	5	4/21/2015 06:06 PM
Ethylbenzene	ND		5.0	µg/L	5	4/21/2015 06:06 PM
m,p-Xylene	ND		10	µg/L	5	4/21/2015 06:06 PM
o-Xylene	ND		5.0	µg/L	5	4/21/2015 06:06 PM
Toluene	ND		5.0	µg/L	5	4/21/2015 06:06 PM
Xylenes, Total	ND		15	µg/L	5	4/21/2015 06:06 PM
Surr: 1,2-Dichloroethane-d4	92.6		75-120	%REC	5	4/21/2015 06:06 PM
Surr: 4-Bromofluorobenzene	99.8		80-110	%REC	5	4/21/2015 06:06 PM
Surr: Dibromofluoromethane	91.0		85-115	%REC	5	4/21/2015 06:06 PM
Surr: Toluene-d8	99.6		85-110	%REC	5	4/21/2015 06:06 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Chloride	230		50	mg/L	50	4/21/2015 06:00 PM
Sulfate	3,600		500	mg/L	500	4/21/2015 04:19 PM
TOTAL DISSOLVED SOLIDS			A2540 C-97		Prep Date: 4/22/2015	Analyst: STP
Total Dissolved Solids	6,000		100	mg/L	1	4/22/2015 01:30 PM

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

ALS Group USA, Corp

Date: 22-Apr-15

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: 70092 Instrument ID GC8 Method: SW8015M

MBLK		Sample ID: DBLKS1-70092-70092				Units: mg/Kg		Analysis Date: 4/21/2015 10:59 PM		
Client ID:		Run ID: GC8_150421B				SeqNo: 3236762		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
Surr: 4-Terphenyl-d14	1.69	0	2	0	84.5	39-133	0			

LCS		Sample ID: DLCSS1-70092-70092				Units: mg/Kg		Analysis Date: 4/21/2015 11:29 PM		
Client ID:		Run ID: GC8_150421B				SeqNo: 3236764		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	187.6	5.0	200	0	93.8	61-109	0			
Surr: 4-Terphenyl-d14	1.477	0	2	0	73.9	39-133	0			

MS		Sample ID: 15041165-01A MS				Units: mg/Kg		Analysis Date: 4/21/2015 11:59 PM		
Client ID: BH 15, 3-5'		Run ID: GC8_150421B				SeqNo: 3236765		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	1471	7.8	313.9	1487	-5.05	48-110	0			SO
Surr: 4-Terphenyl-d14	2.598	0	3.139	0	82.8	39-133	0			

MSD		Sample ID: 15041165-01A MSD				Units: mg/Kg		Analysis Date: 4/22/2015 12:29 PM		
Client ID: BH 15, 3-5'		Run ID: GC8_150421B				SeqNo: 3236774		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	1416	8.0	319.6	1487	-22	48-110	1471	3.78	30	SO
Surr: 4-Terphenyl-d14	2.505	0	3.196	0	78.4	39-133	2.598	3.62	30	

The following samples were analyzed in this batch:

15041165-01A	15041165-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: **70077** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-70077-70077				Units: µg/Kg		Analysis Date: 4/21/2015 12:23 PM		
Client ID:		Run ID: GC9_150421A				SeqNo: 3236065		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	4630	0	5000	0	92.6	50-150	0			

LCS		Sample ID: LCS-70077-70077				Units: µg/Kg		Analysis Date: 4/21/2015 11:59 AM		
Client ID:		Run ID: GC9_150421A				SeqNo: 3236064		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	441300	2,500	500000	0	88.3	70-130	0			
Surr: Toluene-d8	5276	0	5000	0	106	50-150	0			

MS		Sample ID: 15041124-01A MS				Units: µg/Kg		Analysis Date: 4/21/2015 03:17 PM		
Client ID:		Run ID: GC9_150421A				SeqNo: 3236071		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	488500	2,500	500000	0	97.7	70-130	0			
Surr: Toluene-d8	5464	0	5000	0	109	50-150	0			

MSD		Sample ID: 15041124-01A MSD				Units: µg/Kg		Analysis Date: 4/21/2015 03:41 PM		
Client ID:		Run ID: GC9_150421A				SeqNo: 3236087		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	438800	2,500	500000	0	87.8	70-130	488500	10.7	30	
Surr: Toluene-d8	4448	0	5000	0	89	50-150	5464	20.5	30	

The following samples were analyzed in this batch:

15041165-01A	15041165-02A
--------------	--------------

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

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: **70076** Instrument ID **VMS7** Method: **SW8260B**

MBLK		Sample ID: MBLK-70076-70076				Units: µg/Kg		Analysis Date: 4/21/2015 12:44 PM		
Client ID:		Run ID: VMS7_150421A				SeqNo: 3236480		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30								
Ethylbenzene	ND	30								
m,p-Xylene	ND	60								
o-Xylene	ND	30								
Toluene	ND	30								
Xylenes, Total	ND	90								
Surr: 1,2-Dichloroethane-d4	1031	0	1000	0	103	70-130	0			
Surr: 4-Bromofluorobenzene	993.5	0	1000	0	99.4	70-130	0			
Surr: Dibromofluoromethane	998.5	0	1000	0	99.8	70-130	0			
Surr: Toluene-d8	995.5	0	1000	0	99.6	70-130	0			

LCS		Sample ID: LCS-70076-70076				Units: µg/Kg		Analysis Date: 4/21/2015 10:34 AM		
Client ID:		Run ID: VMS7_150421A				SeqNo: 3236479		Prep Date: 4/21/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1082	30	1000	0	108	75-125	0			
Ethylbenzene	1085	30	1000	0	108	75-125	0			
m,p-Xylene	2130	60	2000	0	106	80-125	0			
o-Xylene	1070	30	1000	0	107	75-125	0			
Toluene	1092	30	1000	0	109	70-125	0			
Xylenes, Total	3200	90	3000	0	107	75-125	0			
Surr: 1,2-Dichloroethane-d4	1002	0	1000	0	100	70-130	0			
Surr: 4-Bromofluorobenzene	995.5	0	1000	0	99.6	70-130	0			
Surr: Dibromofluoromethane	999.5	0	1000	0	100	70-130	0			
Surr: Toluene-d8	999	0	1000	0	99.9	70-130	0			

The following samples were analyzed in this batch:

15041165-01A	15041165-02A
--------------	--------------

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

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: **R161733A** Instrument ID **VMS9** Method: **SW8260**

MBLK		Sample ID: VLKW1-150421-R161733A				Units: µg/L		Analysis Date: 4/21/2015 01:26 PM		
Client ID:		Run ID: VMS9_150421A				SeqNo: 3236180		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								
Surr: 1,2-Dichloroethane-d4	19.26	0	20	0	96.3	75-120	0			
Surr: 4-Bromofluorobenzene	18.89	0	20	0	94.4	80-110	0			
Surr: Dibromofluoromethane	19.28	0	20	0	96.4	85-115	0			
Surr: Toluene-d8	19.68	0	20	0	98.4	85-110	0			

LCS		Sample ID: VLCSW1-150421-R161733A				Units: µg/L		Analysis Date: 4/21/2015 12:10 PM		
Client ID:		Run ID: VMS9_150421A				SeqNo: 3236179		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.35	1.0	20	0	102	85-125	0			
Ethylbenzene	20.81	1.0	20	0	104	85-125	0			
m,p-Xylene	42.41	2.0	40	0	106	75-130	0			
o-Xylene	21.07	1.0	20	0	105	80-125	0			
Toluene	20.64	1.0	20	0	103	85-125	0			
Xylenes, Total	63.48	3.0	60	0	106	80-126	0			
Surr: 1,2-Dichloroethane-d4	18.75	0	20	0	93.8	75-120	0			
Surr: 4-Bromofluorobenzene	20.26	0	20	0	101	80-110	0			
Surr: Dibromofluoromethane	19.87	0	20	0	99.4	85-115	0			
Surr: Toluene-d8	19.84	0	20	0	99.2	85-110	0			

MS		Sample ID: 15041169-02B MS				Units: µg/L		Analysis Date: 4/21/2015 10:21 PM		
Client ID:		Run ID: VMS9_150421A				SeqNo: 3236200		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.4	1.0	20	0	97	85-125	0			
Ethylbenzene	20.92	1.0	20	0	105	85-125	0			
m,p-Xylene	42.76	2.0	40	0	107	75-130	0			
o-Xylene	20.37	1.0	20	0	102	80-125	0			
Toluene	20.28	1.0	20	0	101	85-125	0			
Xylenes, Total	63.13	3.0	60	0	105	80-126	0			
Surr: 1,2-Dichloroethane-d4	18.37	0	20	0	91.8	75-120	0			
Surr: 4-Bromofluorobenzene	20.62	0	20	0	103	80-110	0			
Surr: Dibromofluoromethane	19.66	0	20	0	98.3	85-115	0			
Surr: Toluene-d8	20.15	0	20	0	101	85-110	0			

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

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: **R161733A** Instrument ID **VMS9** Method: **SW8260**

MSD		Sample ID: 15041169-02B MSD				Units: µg/L		Analysis Date: 4/21/2015 10:46 PM		
Client ID:		Run ID: VMS9_150421A				SeqNo: 3236201		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	18.46	1.0	20	0	92.3	85-125	19.4	4.97	30	
Ethylbenzene	19.41	1.0	20	0	97	85-125	20.92	7.49	30	
m,p-Xylene	38.69	2.0	40	0	96.7	75-130	42.76	9.99	30	
o-Xylene	19.23	1.0	20	0	96.2	80-125	20.37	5.76	30	
Toluene	19.05	1.0	20	0	95.2	85-125	20.28	6.25	30	
Xylenes, Total	57.92	3.0	60	0	96.5	80-126	63.13	8.61	30	
Surr: 1,2-Dichloroethane-d4	18.85	0	20	0	94.2	75-120	18.37	2.58	30	
Surr: 4-Bromofluorobenzene	20.27	0	20	0	101	80-110	20.62	1.71	30	
Surr: Dibromofluoromethane	19.55	0	20	0	97.8	85-115	19.66	0.561	30	
Surr: Toluene-d8	19.76	0	20	0	98.8	85-110	20.15	1.95	30	

The following samples were analyzed in this batch:

15041165-03A

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

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: **70106** Instrument ID **TDS** Method: **A2540 C-97**

MBLK	Sample ID: MBLK-70106-70106				Units: mg/L		Analysis Date: 4/22/2015 01:30 PM			
Client ID:	Run ID: TDS_150422A				SeqNo: 3237058		Prep Date: 4/22/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	ND	10								

LCS	Sample ID: LCS-70106-70106				Units: mg/L		Analysis Date: 4/22/2015 01:30 PM			
Client ID:	Run ID: TDS_150422A				SeqNo: 3237057		Prep Date: 4/22/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	495	10	495	0	100	80-120	0			

DUP	Sample ID: 1504950-01B DUP				Units: mg/L		Analysis Date: 4/22/2015 01:30 PM			
Client ID:	Run ID: TDS_150422A				SeqNo: 3237045		Prep Date: 4/22/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1074	20	0	0	0	0-0	1070	0.373	20	

The following samples were analyzed in this batch:

15041165-03B

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

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: **R161800** Instrument ID **IC4** Method: **SW9056A**

MBLK		Sample ID: CCB/MBLK-R161800			Units: mg/L		Analysis Date: 4/21/2015 10:31 AM			
Client ID:		Run ID: IC4_150421A			SeqNo: 3236134		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								
Sulfate	ND	1.0								

LCS		Sample ID: LCS-R161800			Units: mg/L		Analysis Date: 4/21/2015 10:51 AM			
Client ID:		Run ID: IC4_150421A			SeqNo: 3236135		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.441	1.0	10	0	94.4	88-110	0			
Sulfate	9.992	1.0	10	0	99.9	85-110	0			

MS		Sample ID: 15041036-13C MS			Units: mg/L		Analysis Date: 4/21/2015 03:39 PM			
Client ID:		Run ID: IC4_150421A			SeqNo: 3236149		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.905	1.0	10	0.5951	93.1	75-125	0			
Sulfate	10.37	1.0	10	0.3076	101	75-125	0			

MSD		Sample ID: 15041036-13C MSD			Units: mg/L		Analysis Date: 4/21/2015 03:59 PM			
Client ID:		Run ID: IC4_150421A			SeqNo: 3236150		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.01	1.0	10	0.5951	94.2	75-125	9.905	1.08	20	
Sulfate	10.39	1.0	10	0.3076	101	75-125	10.37	0.195	20	

The following samples were analyzed in this batch:

15041165-03B

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

Client: HRL Compliance Solutions, Inc
Work Order: 15041165
Project: Whiting Morton Pepper #1

QC BATCH REPORT

Batch ID: **R161817** Instrument ID **MOIST** Method: **E160.3M**

MBLK	Sample ID: WBLKS-R161817				Units: % of sample			Analysis Date: 4/21/2015 03:36 PM		
Client ID:	Run ID: MOIST_150421A				SeqNo: 3236806			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-R161817				Units: % of sample			Analysis Date: 4/21/2015 03:36 PM		
Client ID:	Run ID: MOIST_150421A				SeqNo: 3236805			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: 15041165-01A DUP				Units: % of sample			Analysis Date: 4/21/2015 03:36 PM		
Client ID: BH 15, 3-5'	Run ID: MOIST_150421A				SeqNo: 3236777			Prep Date: DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.92	0.050	0	0	0		19.43	2.66	20	

DUP	Sample ID: 1504970-03A DUP				Units: % of sample			Analysis Date: 4/21/2015 03:36 PM		
Client ID:	Run ID: MOIST_150421A				SeqNo: 3236790			Prep Date: DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	10.56	0.050	0	0	0		10.43	1.24	20	

The following samples were analyzed in this batch:

15041165-01A	15041165-02A
--------------	--------------

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



Chain-of-Custody

Form 20250

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

For metals or anions, please detail analytes below.

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-NaHSO₄ 7-Other 8-4 degrees C 9-50C5

CUSTODY SEAL

DATE

SIGNATURE

Holland

QEC

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

FedEx NEW Package
Express US Airmail

1 From

Date

Sender's Name

Company

Address

City

State

ZIP

805-723-8755

Phone 970-243-3271

Company HRL Compliance Solutions

Address 2385 E 1/2 Rd

City Grand Junction

State CO

ZIP 81505

Phone 616-399-6070

2 To

Recipient's Name

Company

Address

City

State

ZIP

Phone 616-399-6070

Company ALE Group

Address 3352 128th Ave

City Holland

State MT

ZIP 59424

Recipient's Copy

4 Express Package Service

2 or 3 Business Days

FedEx 2Day AM

FedEx 2Day

FedEx Express Saver

FedEx Envelope

FedEx Pak

FedEx Box

FedEx Tube

Other

6 Special Handling and Delivery Signature Options

SATURDAY Delivery

No Signature Required

Direct Signature

Indirect Signature

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required

Signature Required



8059 2387 6536

644

Align Open End of FedEx Pouch Here

FedEx.com 1.800.GoFedEx 1.800.463.3339

FedEx.com 1.800.GoFedEx 1.800.463.3339



Courier or Driver:
Place Astra or Barcoded Label Here

P.O. boxes or P.O. ZIP codes.

ZIP Country

© 2011 FedEx 150454 REV 10/11 RAD

ORIGIN ID:GJTA (618) 398-8070
ALS ENVIRONMENTAL HOLLAND LAB
3352 128TH AVE
HOLLAND, MI 494249263
UNITED STATES US

SHIP DATE: 20APR15
ACTWGT: 41.1 LB
CAD: /POS1801
DIMS: 24x15x14 IN
BILL SENDER

Put # 150257-436 RT2 1/13

TO

ALS ENVIRONMENTAL
3352 128TH AVE

HOLLAND MI 49424

(618) 398-8070
MI
PO1

REF 1

DEPT



FedEx
Express



TRK# 8059 2387 5536
0200

XX HLMA

TUE - 21 APR AA
STANDARD OVERNIGHT

49424

MI-US GRR



Sample Receipt Checklist

Client Name: HRL

Date/Time Received: 21-Apr-15 09:00

Work Order: 15041165

Received by: DS

Checklist completed by: <u>Diane Shaw</u>	21-Apr-15	Reviewed by: <u>Chad Whelton</u>	21-Apr-15
eSignature	Date	eSignature	Date

Matrices: Soil, Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☒ No ☐ Not Present ☐

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Container/Temp Blank temperature in compliance? Yes ☒ No ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): 3.0 c SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 4/21/2015 10:16:41 AM

Water - VOA vials have zero headspace? Yes ☒ No ☐ No VOA vials submitted ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ N/A ☐

pH adjusted? Yes ☐ No ☒ N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

TABLE 1: SITE CHARACTERIZATION SOIL ANALYTICAL RESULTS

Sample ID	Date	PID	DRO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
BH 02, 3-5"	4/15/15	0.2	27	ND	ND	ND	ND	ND
BH 04, 3-5"	4/15/15	0.0	23	ND	ND	ND	ND	ND
BH 11, 3-5"	4/15/15	0.2	64	ND	ND	ND	ND	ND
BH 12, 3-5"	4/16/15	69.4	100	ND	ND	ND	ND	ND
BH 13, 3-5"	4/16/15	3.8	31	ND	ND	ND	ND	ND
BH 14, 3-5"	4/16/15	0.4	210	ND	ND	ND	ND	ND
BH 15, 3-5"	4/16/15	234	1,800	190	ND	ND	0.045	ND
BH 17, 3-5"	4/16/15	516	4,400	400	0.23	0.10	0.72	3.6
BH 18, 3-5"	4/16/15	9.6	250	ND	ND	ND	ND	ND
BH 19, 3-5"	4/16/15	24.6	17	ND	ND	ND	ND	ND
Table 910-1 Standard		NA	500	500	0.17	85	100	175

Note:

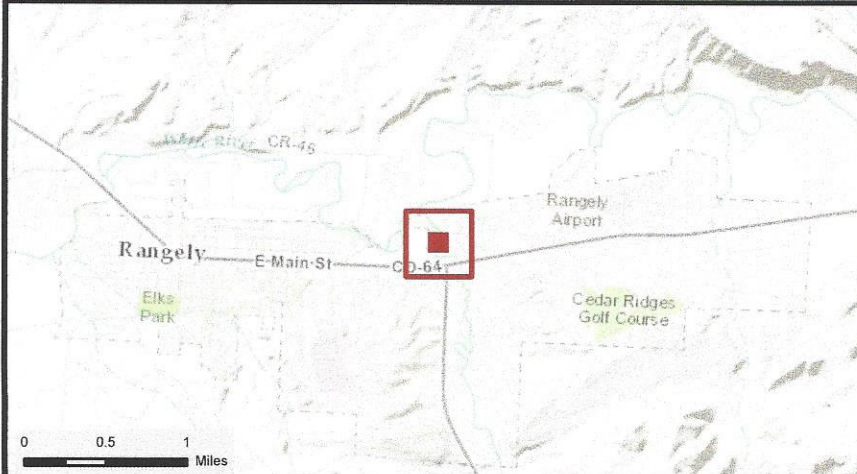
All results in mg/kg

Highlight indicates elevated reading

PID – Photoionization Detector

TABLE 2: GROUNDWATER ANALYTICAL RESULTS

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TDS (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
BH 15	4/16/15	ND	ND	ND	ND	6,000	230	3,600
Table 910-1 Standard		5	560 to 1,000	700	1,400 to 10,000	<1.25 x background	<1.25 x background	<1.25 x background



Proposed Boring Map

Morton Pepper 1

41.831950 -108.022706
Section 6, Township 1 North, Range 101 West



Soil Borings



Drill Pit



Well Head



Excavation
Area



HRI COMPLIANCE SOLUTIONS, INC.
Environmental Consultants

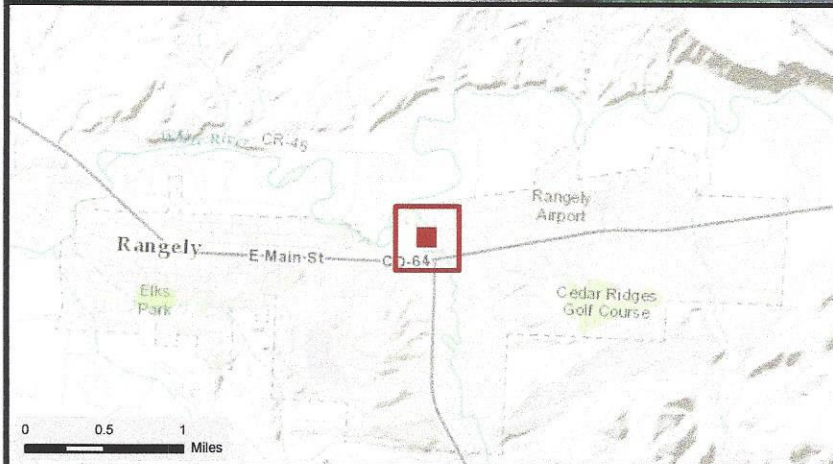
Author: E. Fought

Revision: 0

Date: 4/21/2015

T:\CLIENTS\WHITING PETROLEUM\MORTON PEPPER REMEDIATION\Morton Pepper 1 Soil Boring Locations 4-21-15.mxd

Exhibit A
Proposed Piezometer Location Map



Proposed Piezometer Map

Morton Pepper 1

41.831950 -108.022706

Section 6, Township 1 North, Range 101 West

- Soil Borings
- Piezometer
- Well Head

- Drill Pit
- Excavation Area



H&I COMPLIANCE SOLUTIONS, INC.
Environmental Consultants

Author: E. Fought

Revision: 0

Date: 4/23/2015