



October 5, 2015

Colorado Oil & Gas Conservation Commission
Attn: Stan Spencer
796 Megan Ave, Suite 201
Rifle, Colorado 81650

Re: Form 27 Site Investigation and Remediation Workplan
Facility #100877 Husky 8-6

Whiting Oil and Gas Corporation respectfully submits the attached form 27 for remediation plans at the Husky 8-6 facility (#100877).

Should you have any questions, you may reach Jed Smith (Environmental Professional III) at (303) 390-1340, or John Keller (Operations Manager) at (303) 390-4277.

Regards,

Cara Mezydlo
Engineering Technician III – Central Rockies Asset Group

*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

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FOR OGCC USE ONLY
Document 2144304
Received 10/6/2015
REM 9280

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: 442662

OGCC Operator Number: 96155	Contact Name and Telephone: Jed Smith
Name of Operator: Whiting Oil & Gas Corporation	No: (303)-390-1340
Address: 1700 Broadway Ste 2300	Fax: _____
City: Denver State: CO Zip: 80290	
API Number: 05-103-07941	County: Rio Blanco
Facility Name: Husky 8-6	Facility Number: 100877
Well Name: Federal	Well Number: 8-6
Location: (QtrQtr, Sec, Twp, Rng, Meridian): SENE Sec 6 T1N R101W 6th PM Latitude: 40.087369 Longitude: -108.765103	

TECHNICAL CONDITIONS

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

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.): open rangeland/oil & gas operations

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Cliffdown-Cliffdown variant complex

Potential receptors (water wells within 1/4 mi, surface waters, etc.): No water wells within 1/4 mile, The White River is located approximately 3,850 feet to the northwest.

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

Impacted Media (check):	Extent of Impact:	How Determined:
<input checked="" type="checkbox"/> Soils	Refer to attached map	Soil Borings
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface Water	_____	_____

REMEDIALTION WORKPLAN

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

See initial Form 19, Spill Tracking Number 400875469

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



REMEDIATION WORKPLAN (Cont.)

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

OGCC Employee: _____

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

Based on the topographical setting of the location, and visual observations from the completed soil borings, groundwater has not been impacted.

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:

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: 6/17/2015 Date Site Investigation Completed: 6/18/2015 Date Remediation Plan Submitted: 10/5/2015
Remediation Start Date: Oct 2015 Anticipated Completion Date: Nov 2015 Actual Completion Date: _____

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

Print Name: Jed Smith

Signed: _____

Title: Env. Professional III

Date: 10/5/15

OGCC Approved: _____

Title: _____

EPS Northwest

Date: 10/6/15



October 5, 2015

**Whiting Oil & Gas Corporation
Federal 8-6 - Pit Remediation
HRL Job #15-163**

INTRODUCTION

HRL Compliance Solutions, Inc. (HRL) was contracted by Whiting Oil and Gas Corporation (Whiting) to conduct a site characterization and remediation of a historic pit located at the Federal 8-6 well pad. The site characterization event was conducted on June 17, 2015. Upon discovery of impacted material, a Form 19 Spill/Release Report was submitted to the Colorado Oil and Gas Conservation Commission (COGCC) (Spill/Release #44266, Document #400845469)

BACKGROUND

A CME 55 track mounted drill rig was utilized to advance a series of soil borings within and around the area of the pit to identify the vertical and lateral extent of hydrocarbon impacts associated with the pit. A total of nineteen (19) soil borings were advanced with samples being collected at 4-6 feet-below ground surface (ft-bgs) and 9-11 ft-bgs. Samples from BH 02, BH 04, BH 07, BH 11, BH 14, BH 18, and BH 19 were submitted to ALS Laboratory and analyzed for Diesel Range Organics (DRO), Gasoline Range Organics (GRO) and Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) constituents of the COGCC Table 910-1 to delineate the area of impact. Each sample was submitted from 4-6 ft-bgs. All analytical results were below Table 910-1 standards with the exception of BH 18, which exceeded DRO (Table 1). Since BH 18 was on the edge of the delineation area, it is expected that the impacted area will be determined during the proposed soil excavation activities. It is not anticipated that additional impacted areas will be encountered in the surrounding soils.

Based on analytical results, there is approximately 30-50 cubic yards of impacted soil on location. The impacted soil is approximately 3-7 ft-bgs around soil boring location BH 18. A GIS map of the soil boring locations and estimated impacted area is referenced in Figure 1.

The majority of the soil consisted of hard weathered shale mixed silts and sand. Groundwater was not encountered from any boring during the site investigation.

REMEDIATION

Remediation plans of the impacted soil were discussed during a site visit with Whiting, HRL and COGCC personnel on August 11, 2015. The planned remediation of impacted soil was discussed and approved of by Stan Spencer of the COGCC during the site visit.

The impacted soil will be excavated and amended to below COGCC Table 910-1 allowable standards. A trackhoe or backhoe will be used for excavation activities. During the excavation of impacted material, field screen readings will be collected to monitor the status of the excavation. Visual and olfactory observations, as well as a Photoionization Detector (PID) and a PetroFLAGTM test kit, will be utilized for field screening activities. When field screening indicates likelihood of compliance with regulatory standards, confirmation soil samples will be collected and submitted for analysis. Confirmation samples will be collected from the side walls (north, south, east, and west) and from the bottom of the excavation.

The excavated soil will be stockpiled and tested. If the stockpile does not meet the applicable cleanup standards it will be further mixed and mildly aerated using a soil screening machine. Given the low concentrations of impacts, it is expected that this approach will achieve compliance with the COGCC Table 910-1 soil standards. Following the additional earthwork activities, a sample will be collected from the stockpile for laboratory analysis. When sample results from both the excavation and the soil stockpile indicate that the Table 910-1 cleanup levels have been attained, the excavation will be backfilled.

All soil samples will be collected and placed into laboratory provided containers, placed on ice, in a sample cooler and shipped overnight to ALS Environmental in Kelso, Washington (or another NELAC-certified environmental laboratory, if needed), following laboratory chain-of-custody protocol. The confirmation samples will be analyzed for the COGCC Table 910-1 constituents that either exceeded or were not analyzed during the site characterization event. The samples will be analyzed for the full Table 910-1 parameter list.

REPORTING

Following the receipt of final analytical reports, a COGCC Form 4 will be submitted presenting the project data and a request for closure.

TABLE 1: SITE CHARACTERIZATION SOIL ANALYTICAL RESULTS

		Sample Location						
COGCC Table 910-1 Analyte Suite	Table 910-1 Standard	BH 02, 4-6'	BH 04, 4-6'	BH 07, 4-6'	BH 11, 4-6'	BH 14, 4-6'	BH 18, 4-6'	BH 19, 4-6'
Sample Date		6/17/2015	6/17/2015	6/17/2015	6/17/2015	6/17/2015	6/17/2015	6/17/2015
Organics								
TEPH (DRO)	500	95	36	130	130	79	760	200
TVPH (GRO)	500	230	ND	31	ND	ND	ND	ND
TPH (DRO+GRO)	500	325	36	161	130	79	760	200
BENZENE	0.17	ND	ND	ND	ND	ND	ND	ND
TOLUENE	85	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	100	0.049	ND	ND	ND	ND	ND	ND
XYLENE TOTAL	175	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	1,000	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	1,000	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	0.22	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.022	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	0.22	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	2.2	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	22	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.022	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	1,000	NA	NA	NA	NA	NA	NA	NA
FLUORENE	1,000	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	0.22	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	23	NA	NA	NA	NA	NA	NA	NA
PYRENE	1,000	NA	NA	NA	NA	NA	NA	NA
Metals								
MERCURY	23	NA	NA	NA	NA	NA	NA	NA
ARSENIC	0.39	NA	NA	NA	NA	NA	NA	NA
BARIUM	15,000	NA	NA	NA	NA	NA	NA	NA
CADMIUM	70	NA	NA	NA	NA	NA	NA	NA
CHROMIUM (III)	120,000	NA	NA	NA	NA	NA	NA	NA
CHROMIUM (IV)	23	NA	NA	NA	NA	NA	NA	NA
COPPER	3,100	NA	NA	NA	NA	NA	NA	NA
LEAD	400	NA	NA	NA	NA	NA	NA	NA
NICKEL	1,600	NA	NA	NA	NA	NA	NA	NA
SELENIUM	390	NA	NA	NA	NA	NA	NA	NA
SILVER	390	NA	NA	NA	NA	NA	NA	NA
ZINC	23,000	NA	NA	NA	NA	NA	NA	NA
Inorganics								
Sodium Absorption Ratio (unitless)	<12 ⁵	NA	NA	NA	NA	NA	NA	NA
Electric Conductivity (mmhos/cm)	<4mmhos/cm or 2x background	NA	NA	NA	NA	NA	NA	NA
pH (unitless)	6 to 9	NA	NA	NA	NA	NA	NA	NA
Moisture (%)	NA	24.0	11.0	21.0	12.0	12.0	11.0	11.0

all results in mg/kg unless noted

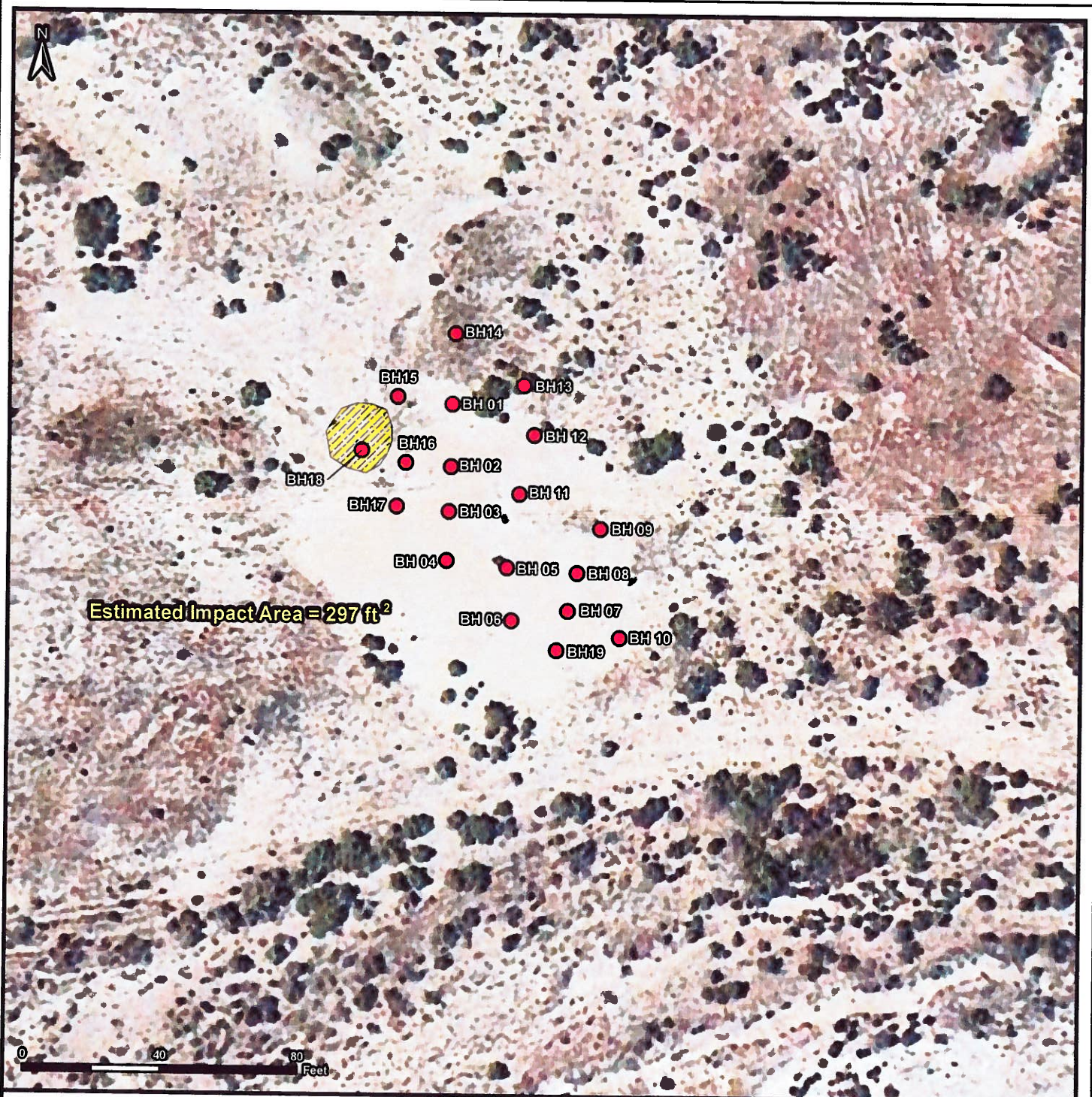
highlight indicates reading above COGCC Table 910-1 standards

NA=not analyzed

ND=non detect

FIGURE 1: SAMPLE LOCATION MAP





NOTES / COMMENTS:



SAMPLE LOCATION MAP

Whiting Federal 8-6

40.087369 -108.765103
Section 6, Township 1 North, Range 101 West

● Borehole Location



Impacted Area



HRL COMPLIANCE SOLUTIONS, INC.
Environmental Consultants

Author: E. Foughi

Revision: 1

Date: 9/24/2015

DISCLAIMER: This representation and the geographic information system (GIS) used to create it are designed as a source of reference and are not intended to provide official records and/or legal surveys. HRL assumes no responsibility for any risks, dangers, or liabilities that may result from its use and makes no guarantees as to the quality or accuracy of the underlying data.