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June 30, 2013 #5321437.1.4-6

Mr. Jim Griswold
Senior Hydrologist
EMNRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505
(505) 476-3465
jim.griswold@state.nm.us

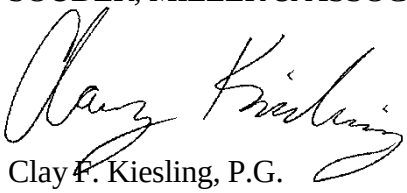
RE: MONITORING WELL INSTALLATION & SITE CLEANUP REPORT, BLACKROCK OIL STATE CY LEASE SITE, 14 MILES WEST OF TATUM, LEA COUNTY, NEW MEXICO

Dear Mr. Griswold:

Enclosed please find the Monitoring Well Installation & Site Cleanup Report for the Blackrock Oil State CY Lease (Blackrock Oil) site located approximately 14 miles west of Tatum, New Mexico. This report for the Blackrock Oil site is being submitted pursuant to the State of New Mexico General Services Department Purchasing Division Price agreement #10-805-00-07208 and Purchase Order (PO) #52100-0000039023 issued by the New Mexico Energy, Minerals & Natural Resources (EMNRD) Oil Conservation Division (OCD). All work was completed in accordance with the Souder, Miller & Associates (SMA) workplan dated October 16, 2012 and previously approved by OCD.

SMA appreciates this opportunity to provide continuing environmental consulting services to OCD. If you have any questions or comments concerning this report, please feel free to call me at (800) 647-0799 or contact me via e-mail at the address provided below.

Sincerely,
MILLER ENGINEERS, INC. D/B/A
SOUDER, MILLER & ASSOCIATES



Clay P. Kiesling, P.G.
Senior Geoscientist
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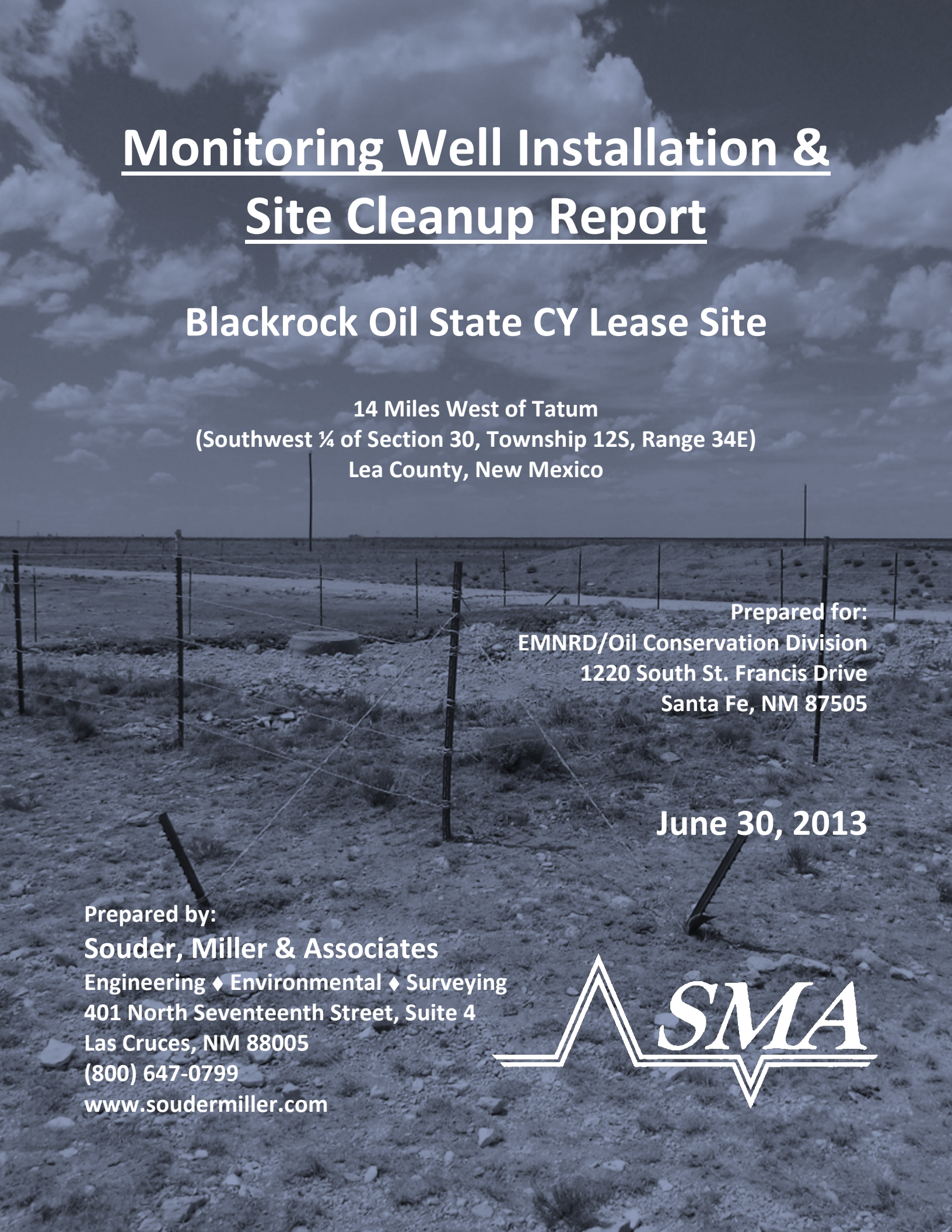
x1304

Monitoring Well Installation & Site Cleanup Report

Blackrock Oil State CY Lease Site

14 Miles West of Tatum
(Southwest ¼ of Section 30, Township 12S, Range 34E)
Lea County, New Mexico



Prepared for:
EMNRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

June 30, 2013

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1.0 EXECUTIVE SUMMARY

Souder, Miller & Associates (SMA), in accordance with the State of New Mexico General Services Department Purchasing Division Price Agreement #10-805-00-07208 and Purchase Order (PO) #52100-0000039023 issued by the New Mexico Energy, Minerals & Natural Resources (EMNRD) Oil Conservation Division (OCD), has completed monitoring well installation and site cleanup of the Blackrock Oil State CY Lease (Blackrock Oil) site. The Blackrock Oil site is located in the Southwest ¼ of Section 30, Township 12S, Range 34E in Lea County, New Mexico and is approximately 14 miles west of Tatum, New Mexico. The Blackrock Oil site consists of an abandoned, former work-over or production pit. Prior investigations of the site included initial site assessment and remediation activities performed by Kleinfelder West, Inc. (Kleinfelder) in 2007 and an additional site investigation performed by SMA in 2012 to delineate the extent of the petroleum, naturally occurring radioactive materials (NORM) and chloride contaminated soils found at the site during the initial Kleinfelder site assessment. The following Monitoring Well Installation & Site Cleanup Report summarizes the results of the recent monitoring well installation and site cleanup activities performed at the Blackrock Oil site.

Various photographs of monitoring well installation and site cleanup activities at the Blackrock Oil site, 14 miles west of Tatum, Lea County, New Mexico

2.0 BACKGROUND

Work previously completed at the site included the initial assessment and remediation of the site by Kleinfelder between May 31, 2007 and June 28, 2007. At the time, approximately 440 cubic yards (yd^3) of petroleum, chloride and NORM impacted soil was excavated and disposed of at the Gandy-Marley, Inc. (Gandy-Marley) landfarm facility. The NORM impacted soil transported to the Gandy Marley landfarm facility was determined to be below the applicable New Mexico Radiation Control Bureau (NMRCB) standards described in 20.3.14.1403.C New Mexico Administrative Code (NMAC). Additionally, approximately 440 yd^3 of clean backfill material was transported to the site and stockpiled north of the caliche road adjacent to the site for future use as backfill material. Kleinfelder also collected two (2) soil samples from the bottom of the approximately 40 feet square by approximately 10 feet deep excavation. Results from the soil sample collected in the southeast portion of the pit, at a location where the field screening levels for NORM exceeded the NMRCB standard and where the excavation followed a vertical fissure of visibly petroleum stained soil, indicated total petroleum hydrocarbon (TPH) concentrations in excess of the applicable standard. During the initial assessment and remediation performed by Kleinfelder, a lined and bermed area immediately west of the excavation area was also constructed at the site to stockpile contaminated soil prior to transport of the soil to the Gandy-Marley landfarm.

An additional site investigation was completed by SMA on March 13, 2012 and included oversight of pot-holing activities within and near the former production/work-over pit and collection of field and laboratory soil samples to delineate the extent of petroleum and chloride impacted soil and NORM previously encountered at the site. The results of the additional site investigation activities, as documented in the SMA report dated April 19, 2012, indicated the primary contaminant of concern at this site appeared to be petroleum contamination and not NORM or chloride contamination and that the majority of petroleum contamination was located in the southeast and northeast portion of the former production/work-over pit area and extended to a depth of at least 20 to 25 feet below ground surface (bgs).

3.0 SITE CLEANUP ACTIVITIES

Site cleanup activities were performed by Gandy Corporation on May 6 and 7, 2013 under oversight by SMA personnel. No sampling or PID readings were taken during site cleanup activities. Site cleanup activities consisted of several tasks to restore the site, as much as possible, to productive rangeland. Site cleanup activities consisted of:

- Removal and disposal of the existing fencing and fence posts enclosing the site;
- Construction of a new, five (5) wire, steel "T-Post" and barbed-wire fence around the former production/work-over pit area;
- Removal of the existing black plastic liner from the former contaminated soil stockpile area;
- Grading, leveling and re-seeding the former contaminated soil stockpile area with disposal of 36 yd^3 of contaminated soil remaining on liner.

The site location is shown in Figure 1 and a site map is provided in Figure 2. Figure 2 includes the location and operator information for the pipelines running adjacent to the site and also illustrates which pipeline is active or inactive. During site cleanup activities it was also determined that the overhead power line at the site is not energized and appears to be abandoned in place. Photographs of site cleanup and monitoring well installation activities are included in Appendix A. Gandy Corporation provided the heavy equipment, operators and laborers necessary for cleanup activities at the site. SMA and Gandy Corporation also obtained utility clearance from New Mexico One-Call prior to the start of site cleanup activities. In addition to the health and safety requirements of individual contractors, a site specific Health and Safety Plan (HASP) was also produced by SMA and a copy is included as Appendix D. Copies of all field notes are included in Appendix E.

4.0 MONITORING WELL INSTALLATION

In order to assess the vertical and horizontal extent of potential soil and groundwater contamination, three (3) monitoring wells, designated MW-1, MW-2 and MW-3 were installed at the site on May 6, 7 and 8, 2013. Geomechanics Southwest, Inc. (GSI) performed all drilling/monitoring well installation activities at

the Blackrock Oil site. All drilling and monitoring well installation activities were conducted under the direction and oversight of SMA field personnel. Utility clearances from New Mexico One-Call and applicable New Mexico Office of the State Engineer (NMOSE) permits were obtained by SMA prior to the start of drilling activities. As discussed in Section 3.0, a site specific HASP was developed for site cleanup and drilling activities and a copy is included in Appendix D. All site personnel were briefed on the HASP by SMA personnel prior to initiating drilling activities.

Due to the presence of caliche and other consolidated to semi-consolidated formations, the air rotary drilling method was used for advancement of each soil boring. Following soil boring installation, each boring was completed as a monitoring well by installing 2" i.d. poly-vinyl chloride (PVC) casing to near total borehole depth with an end-cap and 15 feet of 0.010" machine slotted screen followed by 2" i.d. PVC blank to at least two (2) feet above ground surface with a locking compression cap. Subsurface completion for each of the three (3) wells was composed of filter pack consisting of 10-20 grade silica sand placed from total depth to approximately two (2) feet above the top of the screen followed by a minimum two (2) foot thick bentonite seal and then cement grout to the surface. Surface completions of each well consisted of a locking steel shroud set approximately three (3) feet above ground surface in a concrete pad with a minimum of four (4) bollards set in concrete to protect the wellheads.

Following the completion and proper development of all three (3) monitoring wells, the top of casing elevations for each monitoring well was surveyed to the nearest 1/100th of a foot relative to one another and the horizontal locations were established using a hand-held GPS unit. Depth to water measurements were then collected to allow for determination of groundwater gradient and flow direction and a groundwater sample was collected from each monitoring well on May 9, 2013 for laboratory analysis. The attached site map (Figure 2) illustrates the monitoring well locations relative to the site and Figure 5 is a potentiometric surface map constructed from the groundwater elevation data provided in Table 4. Soil boring logs and monitoring well completion diagrams are provided in Appendix B.

4.1 Soil Sampling Procedures

Soil sampling using a split spoon sampling device was conducted on each soil boring, as subsurface conditions allowed, at generally five (5) foot intervals until the total depth of each soil boring. During soil sampling activities, a properly calibrated photo-ionization detector (PID) was used to conduct field headspace testing of field soil samples for petroleum contamination. Field headspace testing for petroleum contamination was conducted in accordance with the New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) *Guidelines for Corrective Action* (March 13, 2000), Chapter 1.4.1.1.

SMA also collected two (2) soil samples from each soil boring (6 soil samples total) at depths with the highest observed contamination (visual and/or highest PID reading) and just above the water table of each boring for analysis of a variety of hydrocarbon constituents using EPA Method 8021B, for TPH (full

range) using EPA Method 8015B, for chloride using EPA Method 300.0 and for the Resource Conservation and Recovery Act eight-metal suite (RCRA 8 metals) using EPA Method 6010/6020/7470. All soil samples were collected in new, 4-ounce glass jars, labeled, immediately placed on ice and shipped under standard chain of custody procedures to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for analysis.

4.2 Soil Sampling Results

Field headspace results are provided in Table 1 and are also included on the soil boring logs provided in Appendix B. A summary of the soil laboratory analytical results are provided in Table 2. Table 1 and Table 2 both contain various published standards for soil contamination with references to the applicable New Mexico Administrative Code (NMAC) or guideline publication. A soil contamination concentration map is provided in Figure 3. A copy of the laboratory analytical report is provided in Appendix C.

Petroleum & Chloride Contamination (Soil)

Field soil screening results for petroleum contamination indicated that the maximum values were measured in soil boring MW-1 from 10 to 11.5 feet bgs with a PID reading of 30.9 parts per million by volume (ppmv), in soil boring MW-2 from 45 to 45.5 feet bgs with a PID reading of 20.6 ppmv and in soil boring MW-3 from 10 to 12 feet bgs with a PID reading of 32.7 ppmv. However, corresponding soil samples collected from the areas of highest PID readings, as well as just above the water table in each soil boring, were below the laboratory practical quantitation limit (PQL) for all analyzed petroleum contaminants of concern with the exception of MW-2 at 65 to 65.5 feet bgs where Diesel Range Organics (DRO) was detected at a concentration of 17 milligrams per kilogram (mg/Kg), which is less than the OCD permanent pit release confirmation standard of 100 mg/Kg for TPH.

Chloride was detected above the laboratory PQL in all three (3) soil borings. However, chloride concentrations did not exceed the applicable OCD standard of 250 mg/kg for a permanent pit release confirmation as described in 19.15.17.13.C(3) NMAC in any of the three (3) soil borings. Chloride concentrations ranged from 4.0 to 22 mg/Kg in MW-1, from 2.2 to 2.7 mg/Kg in MW-2 and 3.0 to 8.3 mg/Kg in MW-3.

Metals Contamination (Soil)

Various RCRA 8 metals were detected in the soil samples from all three (3) soil borings. However, all detected metals concentrations were below the NMED Soil Screening Levels (August 2009, Revision 5.0) for a residential, and thus most conservative, scenario.

4.3 Groundwater Sampling Procedures

Following proper well development, groundwater samples were collected from each monitoring well using clean, disposable bailers after obtaining depth to water measurements and after purging a minimum of three (3) well volumes. The groundwater samples collected from all three (3) monitoring wells were analyzed for various hydrocarbon constituents using EPA Method 8260B, for TPH (full range) using EPA Method 8015B, for chloride using EPA Method 300.0 and for RCRA 8 metals using

EPA Method 6010/6020/7470. All groundwater samples were collected in new, laboratory provided containers with the appropriate preservative, labeled, immediately placed on ice and shipped under standard chain of custody procedures to HEAL in Albuquerque, New Mexico for analysis.

4.4 Groundwater Sampling Results

A summary of the groundwater laboratory analytical results with comparison to the applicable New Mexico Water Quality Control Commission Regulations (NMWQCCR) standards is provided in Table 3. A groundwater contamination concentration map is provided in Figure 4. A copy of the laboratory analytical report is provided in Appendix C.

Petroleum & Chloride Contamination (Groundwater)

Based on the results from laboratory testing of groundwater samples, all analyzed petroleum contaminants of concern were below the laboratory PQL in all three monitoring wells.

Chloride was detected in the groundwater collected from all three monitoring wells at concentrations of 38, 39 and 40 milligrams per liter (mg/L) in MW-1, MW-2 and MW-3, respectively, which is less than the applicable NMWQCCR standard of 250 mg/L.

Metals Contamination (Groundwater)

The RCRA 8 metal mercury was detected above the laboratory PQL in the groundwater samples from monitoring wells MW-1 and MW-3. Barium was detected above the laboratory PQL in all three monitoring wells while chromium was detected above the laboratory PQL in monitoring well MW-2 only. The barium concentration (1.2 mg/L) in monitoring well MW-2 exceeded the applicable NMWQCCR standard of 1.0 mg/L and the chromium concentration (0.077 mg/L) in MW-2 exceeded the applicable NMWQCCR standard of 0.05 mg/L.

5.0 Conclusions/Recommendations

Site cleanup activities were completed in accordance with the approved workplan in order to restore the site, as much as possible, to productive rangeland. Additionally, the excavated pit area was left open pending the results of this soil and groundwater investigation but was properly fenced in to prevent livestock and/or unauthorized personnel from accessing, or possibly falling into the open pit.

Based on the field soil screening and results from laboratory testing of soil samples, all detectable amounts of petroleum contaminants of concern were below the OCD permanent pit release confirmation standards and the chloride concentrations detected in each soil boring were also below the applicable OCD standard.

Average depth to water at the Blackrock Oil site is 72.01 feet below the top of casings and groundwater flow direction was calculated to be toward the southeast at a gradient of 0.0017 feet/foot (Figure 5), which places monitoring well MW-3 down-gradient of the former work over/production pit. Based on the results from laboratory testing of groundwater samples, all analyzed petroleum contaminants of concern were below the laboratory PQL in all three (3) monitoring wells and the chloride concentration was also below the NMWQCCR standard of 250 mg/L in all three (3) monitoring wells. However, the barium and chromium concentrations in monitoring well MW-2 (which may be naturally occurring) exceeded the applicable NMWQCCR standards.

Based on available data, it appears that soil and groundwater contamination in the vicinity of the Blackrock Oil site is minimal. However, SMA recommends that additional groundwater monitoring be performed in order to verify groundwater flow direction and gradient and also to detect contaminant concentration trends, if any. SMA also recommends that both total and dissolved analysis of barium and chromium in monitoring well MW-2 be performed during any future groundwater monitoring event to determine if the exceedances are naturally occurring and are the result of suspended sediment. In the event that additional groundwater monitoring results remain below applicable NMWQCCR standards, or are determined to be naturally occurring, SMA recommends that the fencing around the pit area be removed and the pit be backfilled with clean soil previously stockpiled at the site (north of caliche road) followed by proper plugging and abandonment of all monitoring wells and ultimate site closure.

Figures

N

0' 1,000' 2,000'

Scale: 1"=2,000'

Note:
Base maps are the Dallas Store & Frier Ranch, New Mexico USGS 7.5 minute series topographic maps (2010)

Site Vicinity Map
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

Figure 1

#5321437
06/21/13

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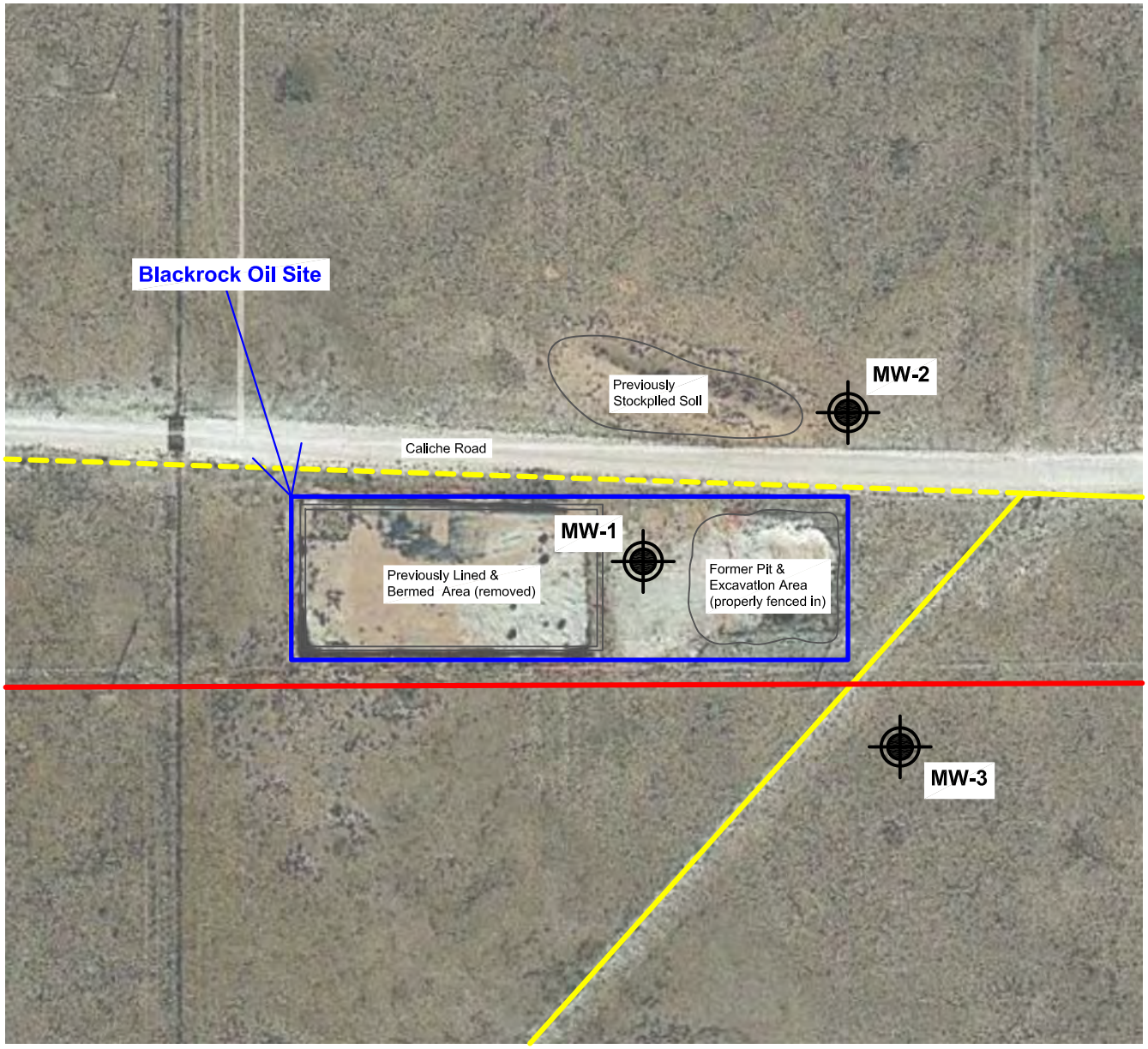

N

0' 40' 80'

Scale: 1"=80'

Legend

- Approximate Site Boundary
- Active Gas Pipeline (Targa Midstream Srv.)
- Inactive Gas Pipeline (Warren Petroleum Co.)
- Overhead Electric Line (not energized)
- Monitoring Well Location

Note:
Aerial photograph obtained from Google Earth image dated 2013

Site Map
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

Figure 2

#5321437
06/21/13

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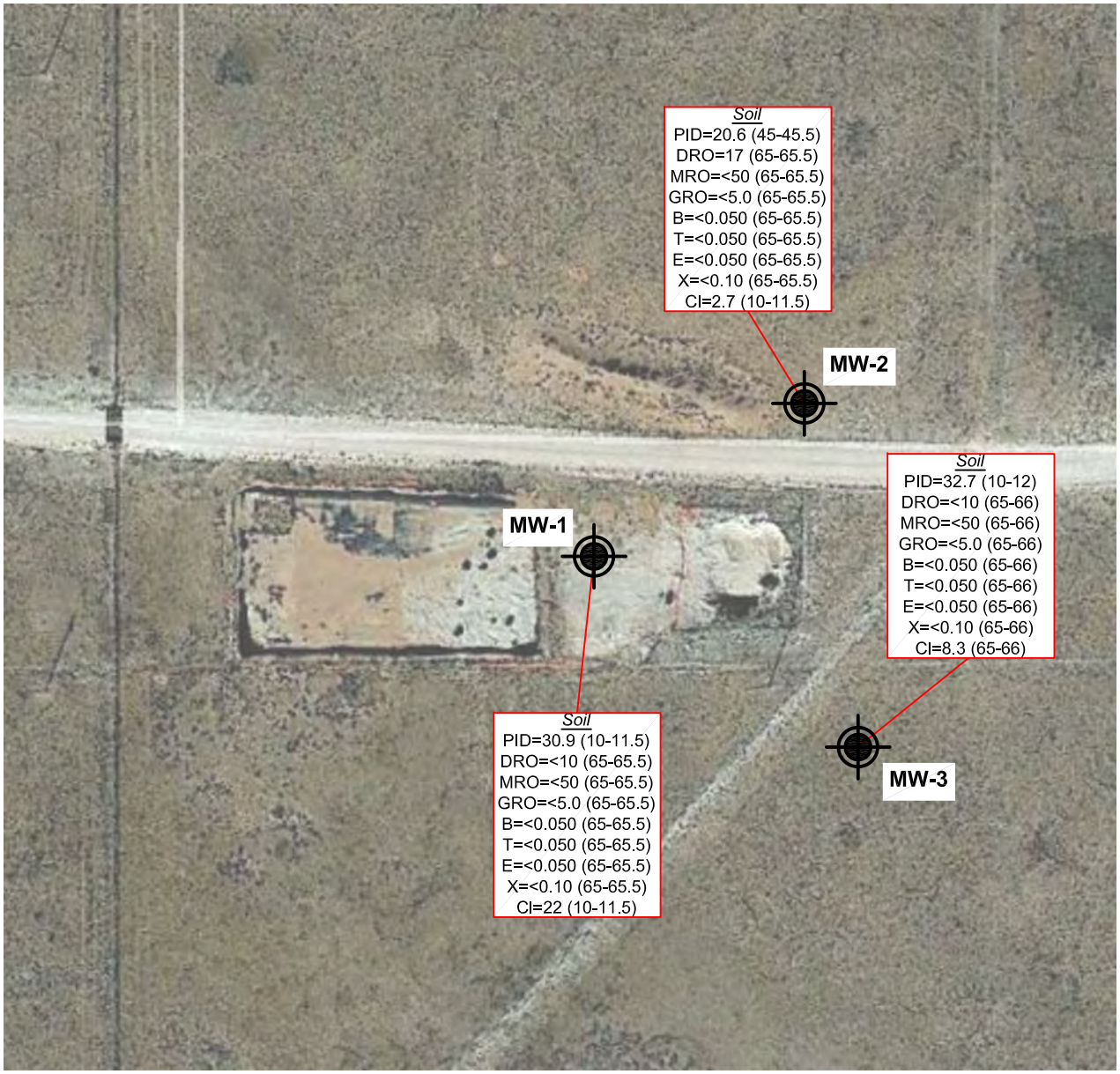

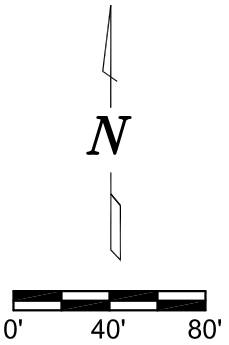

Scale: 1"=80'

Legend

Monitoring Well

PID	Photo-ionization detector reading
DRO	Diesel range organics
MRO	Motor oil range organics
GRO	Gasoline range organics
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
Cl	Chloride

Notes:
Values represent maximum concentrations present in each soil boring at depth indicated. Concentrations equal or exceeding applicable standards are highlighted in red

Contaminant concentrations reported in mg/Kg except PID:ppmv.

Soil Contamination Concentration Map
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

Figure 3

#5321437
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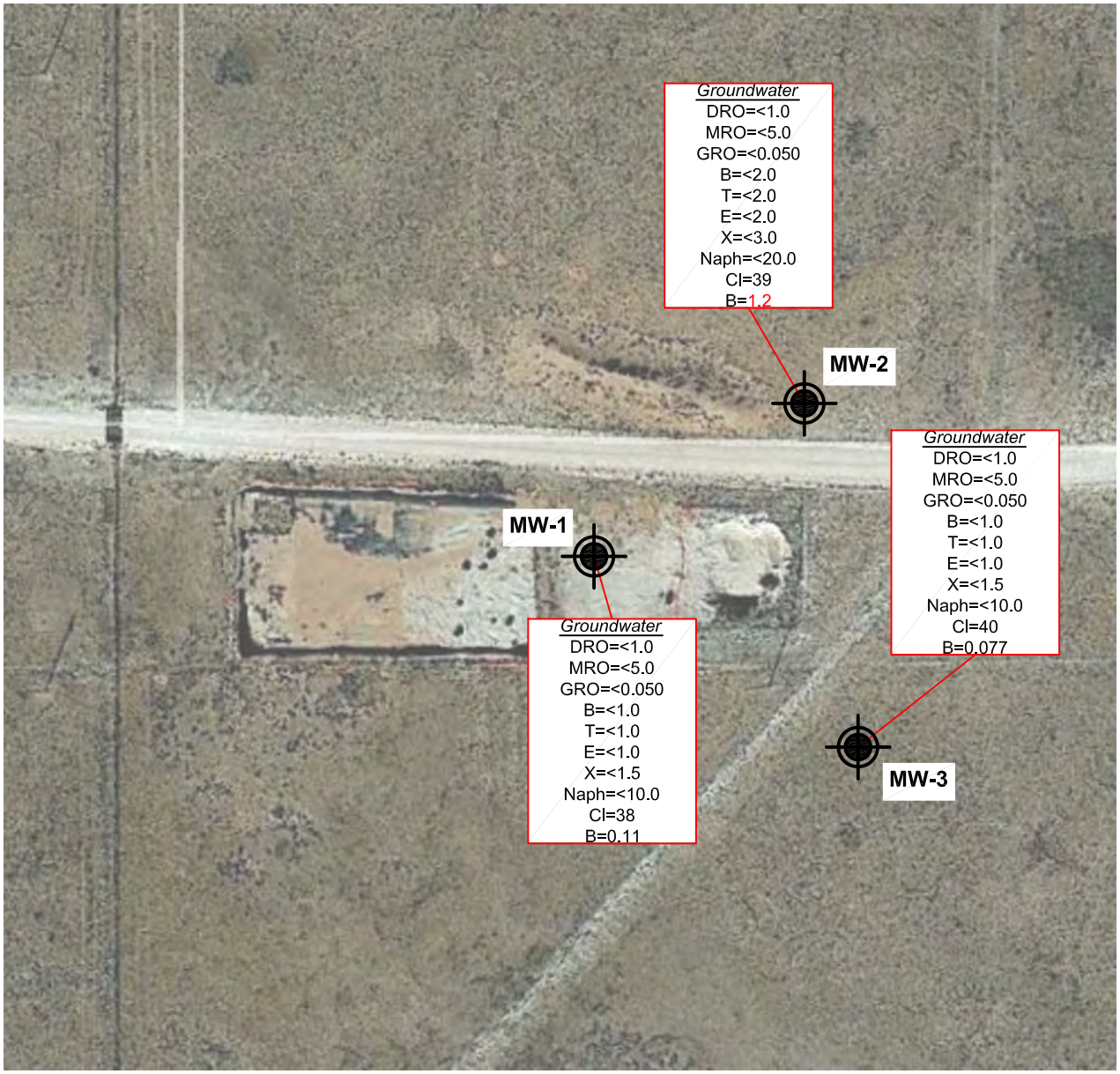

N

0' 40' 80'

Scale: 1"=80'

Legend

Monitoring Well

DRO	Diesel range organics
MRO	Motor oil range organics
GRO	Gasoline range organics
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
Naph	Naphthalenes (total)
Cl	Chloride
B	Barium

Notes:
Concentrations equal or exceeding applicable standard are highlighted in red. (NA=Not Analyzed)

Contaminant concentrations reported in mg/L except BTEX & Naph:ug/L.

Groundwater Contamination Concentration Map
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

Figure 4

#5321437
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N

0' 40' 80'

Scale: 1"=80'

Legend

4340.23 Monitoring Well w/ Groundwater Elevation (feet)

Potentiometric Surface Contour (feet)

Notes:
Vertical elevation of MW-1 determined to first order accuracy using GPS unit with relative elevations of all monitoring wells determined using a transit to an accuracy of a hundredth of a foot.

Potentiometric Surface Map
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

Figure 5

#5321437
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Tables

Table 1
Soil Field Screening Results
OCD Blackrock Oil Cleanup Site
14 Miles West of Tatum, Lea County, New Mexico

Identification	Depth (feet)	PID Reading (ppmv)
MW-1	0-0.5	4.4
	5-5.5	17.2
	10-11.5	30.9
	20-21	25.4
	25-25.5	6.2
	30-30.5	2.1
	35-35.5	17.7
	40-41	7.3
	45-46	8.2
	50-51	24
	55-55.5	23.6
	60-60.5	22.8
	65-65.5	18.9
MW-2	0-1	19.2
	5-7	19.8
	10-12	19.1
	15-15.5	20
	20-21	19.9
	25-25.5	20
	30-30.5	20
	35-35.5	16.3
	40-41	15.2
	45-45.5	20.6
	50-51	17.2
	55-55.5	16.7
	60-61	2.6
	65-65.5	3.7
MW-3	0-2	13.1
	5-7	20.7
	10-12	32.7
	20-20.5	27.3
	25-26	25.5
	30-30.5	23.8
	35-35.5	21.6
	40-40.5	18.5
	45-46	12.8
	50-50.5	19.6
	55-55.5	20.6
	60-60.5	17.9
	65-66	19.8
NMPSTB Guideline		**100[1]**

Notes:

1) [1] = New Mexico Petroleum Storage Tank Bureau (NMPSTB) guideline for petroleum release confirmation (*PSTB Guidelines for Corrective Action* , March 2000) and *NMOCD Guidelines for Remediation of Leaks, Spills & Releases (* August 1993)
2) **red** = equals or exceeds one or more published standard listed

Table 2

Soil Laboratory Analytical Results

OCD Blackrock Oil Site

14 Miles West of Tatum, Lea County, New Mexico

Laboratory Results	Sample	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	NMOCD Standards		NMED Soil Screening Level[3]
	Date	05-May-13	05-May-13	06-May-13	06-May-13	07-May-13	07-May-13			
	Type	Grab	Grab	Grab	Grab	Grab	Grab	(Permanent Pit Release Confirmation)[1]	(Remediation Guidelines, Site Rank=>19)[2]	
	Depth	10-11.5'	65-65.5'	45-45.5'	65-65.5'	10-12'	65-66'			
Total Petroleum Hydrocarbons (mg/Kg)										
Diesel Range Organics		<10	<10	<10	17	<10	<10	100	100	--
Motor Oil Range Organics		<50	<50	<50	<50	<50	<50			--
Gasoline Range Organics		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			--
BTEX (mg/Kg)										
Benzene		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	Benzene = 0.2 BTEX = 50	Benzene = 10 BTEX = 50	--
Toluene		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050			--
Ethylbenzene		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050			--
Total Xylenes		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			--
Anions (mg/Kg)										
Chloride		22	4.0	2.2	2.7	3.0	8.3	250	--	--
Metals (mg/Kg)										
Mercury		<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	--	--	7.71
Arsenic		<5.0	<2.5	<2.5	<2.5	<5.0	<2.5	--	--	3.9
Barium		97	16	38	27	36	19	--	--	15,600
Cadmium		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	--	77.9
Chromium		3.1	2.2	3.7	2.5	2.5	3.2	--	--	219
Lead		<0.25	1.4	1.3	0.98	<0.25	1.2	--	--	400
Selenium		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	391
Silver		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	--	--	391

Notes:

1) [1] = New Mexico Oil Conservation Division (NMOCD) standard for permanent pit release confirmation (19.15.17.13.C.3 NMAC)

2) [2] = *NMOCD Guidelines for Remediation of Leaks, Spills & Releases* (August 1993)

3) [3] = New Mexico Environment Department (NMED) Soil Screening Levels (August 2009, Revision 5.0) for a residential scenario (most conservative)

4) **red** = equals or exceeds one or more published standard listed

Table 3
Groundwater Laboratory Analytical Results
OCD Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

Laboratory Results	Sample	MW-1	MW-2	MW-3	NMWQCCR Standard[1]
	Date	09-May-13	09-May-13	09-May-13	
	Type	Grab	Grab	Grab	
	Groundwater Depth	71.63' below TOC	71.82' below TOC	72.58' below TOC	
Total Petroleum Hydrocarbons (mg/L)					
Diesel Range Organics		<1.0	<1.0	<1.0	--
Motor Oil Range Organics		<5.0	<5.0	<5.0	--
Gasoline Range Organics		<0.050	<0.050	<0.050	--
BTEX & Total Naphthalenes (ug/L)					
Benzene		<1.0	<2.0	<1.0	10
Toluene		<1.0	<2.0	<1.0	750
Ethylbenzene		<1.0	<2.0	<1.0	750
Total Xylenes		<1.5	<3.0	<1.5	620
Naphthalene		<2.0	<4.0	<2.0	30
1-Methylnaphthalene		<4.0	<8.0	<4.0	
2-methylnaphthalene		<4.0	<8.0	<4.0	
Anions (mg/L)					
Chloride		38	39	40	250
Metals (mg/L)					
Mercury		0.00065	<0.00020	0.00033	0.002
Arsenic		<0.020	<0.020	<0.020	0.1
Barium		0.11	**1.2**	0.077	1.0
Cadmium		<0.0020	<0.0020	<0.0020	0.01
Chromium		<0.0060	**0.077**	<0.0060	0.05
Lead		<0.0050	<0.0050	<0.0050	0.05
Selenium		<0.050	<0.050	<0.050	0.05
Silver		<0.0050	<0.0050	<0.0050	0.05

Notes:
1) [1] = New Mexico Water Quality Control Commission Regulations (NMWQCCR) standard
2) **red** = equals or exceeds one or more published standard listed
3) TOC = top of casing

Table 4

Monitoring Well Completion and Groundwater Elevation Data

OCD Blackrock Oil Site

14 Miles West of Tatum, Lea County, New Mexico

								Potentiometric Surface Elevation *(in feet)*			
Monitoring Well	Casing		Surveyed Elevation	Top of Screen	Completion Elevation	GPS Coordinates		9-May-13			
	Material	I.D.				Latitude	Longitude	Elevation	D.T.W.		
MW-1	PVC	2	4225.00	4158.5	4143.5	N 33° 14' 37.59"	W 103° 33' 28.65"	4153.37	71.63		
MW-2	PVC	2	4225.12	4158.3	4143.3	N 33° 14' 38.30"	W 103° 33' 27.65"	4153.30	71.82		
MW-3	PVC	2	4225.69	4158.1	4143.1	N 33° 14' 36.79"	W 103° 33' 27.33"	4153.11	72.58		
Gradient (in feet/foot) and Direction								0.0017 SE			

Notes:

nm = not measured

D.T.W. = Depth to Water

Appendix A – Photographs

Photograph #1: View of the site prior to cleanup, looking east with plastic liner in foreground.

Photograph #2: View of pit remaining from previous excavation activities and temporary fencing no longer in place, prior to cleanup activities.

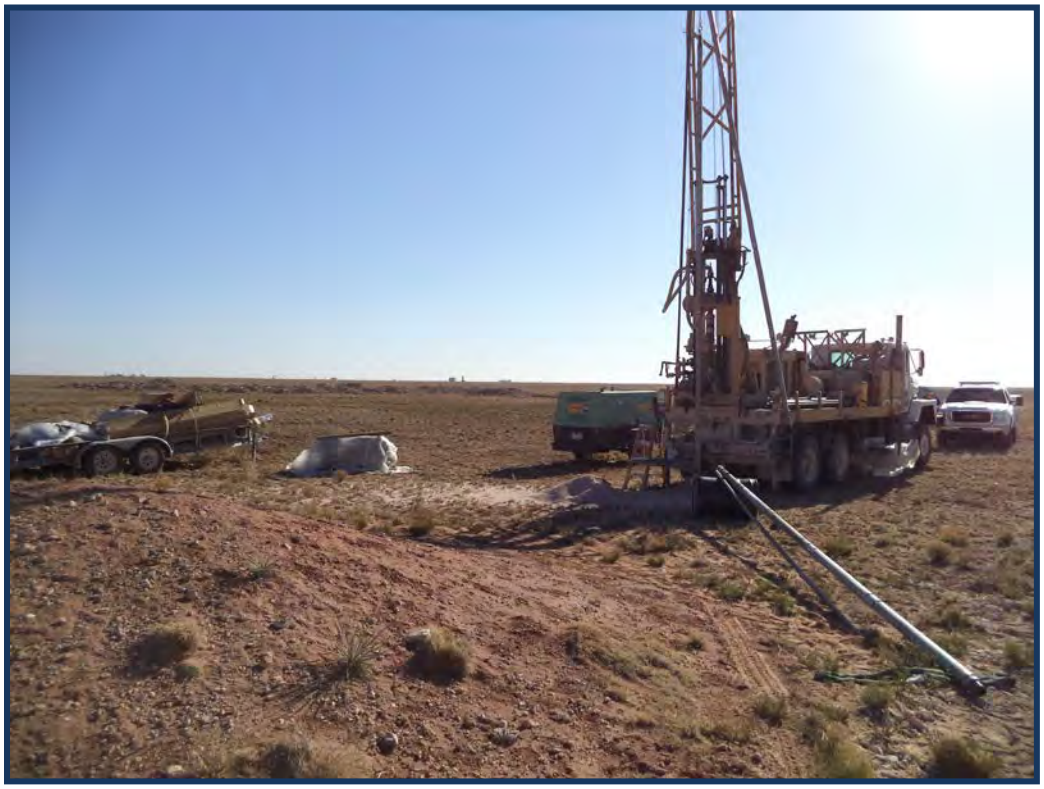
Photograph #3: View of monitoring well MW-1 drilling.

Photograph #4: View of split-spoon soil sample collected from MW-1.

Photograph #5: View of monitoring well MW-1 installation with soil remaining on liner being stockpiled for eventual disposal.

Photograph #6: Additional view of monitoring well MW-1 installation.

Photograph #7: View of monitoring well MW-2 drilling.



Photograph #8: Additional view of monitoring well MW-2 drilling.

Photograph #9: View of drilling rig set-up on monitoring well MW-3.

Photograph #10: View of monitoring well MW-3 drilling.

Photograph #11: View of cleanup of contaminated soil previously stockpiled on plastic liner.

Photograph #12: Cleanup of temporary fencing.

Photograph #13: Removal of existing fence, plastic liner and contaminated soil stockpiled for eventual removal in background.

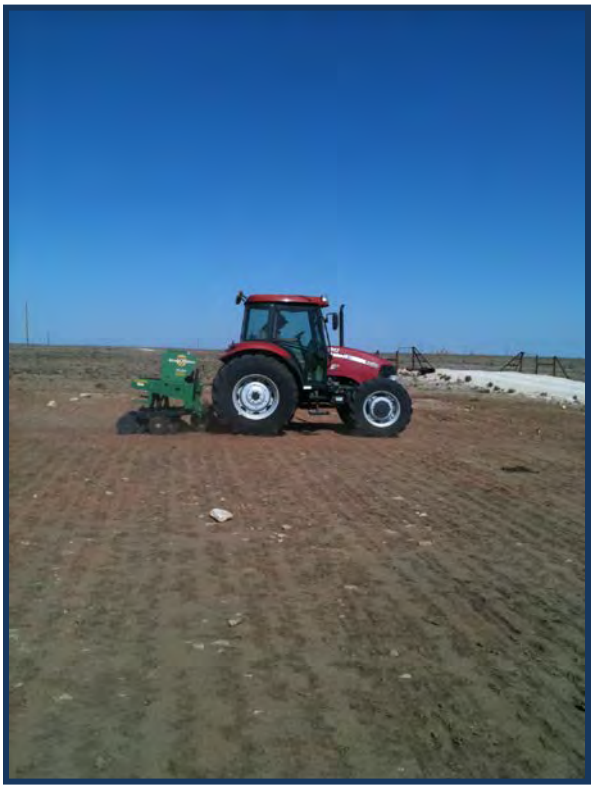
Photograph #14: Air compressor used for installation of T-Posts in rocky terrain.

Photograph #15: View of new fence installation around pit excavation area.

Photograph #16: View of completed fence surrounding the previous excavation area.

Photograph #17: View of monitoring well MW-2 surface completion (typical).

Photograph #18: View of area formerly covered by plastic sheeting.

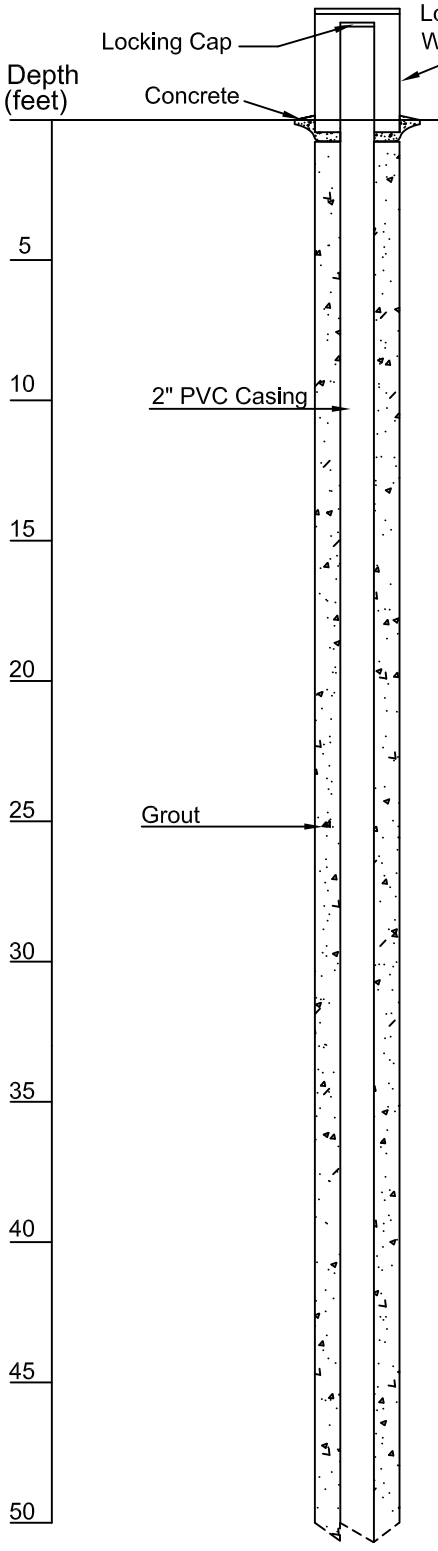


Photograph #19: View of the re-seeding of Blackrock Oil site (area formerly covered by plastic sheeting).

Photograph #20: Close-up view after re-seeding and watering.

Appendix B – Soil Boring Logs & Monitoring Well Completion Diagrams

Well Completion Data



Soil Boring Log

Depth (feet)	PID	Soil Type	Sample Description	Depth (feet)
0	4.4		Light white-brown sandy silt, caliche cemented w/ hard caliche concretions, dry, cobbles near the surface	0
5	17.2			5
10	30.9		Light red-brown silty sand, slightly cemented w/ caliche, no odor	10
15			Hard caliche layer or caliche cobbles at 15', no recovery	15
20	25.4		Light red-brown silty sand, slightly cemented w/ caliche, no odor	20
25	6.2		Light brown silty sand w/ gravel sized caliche nodules/concretions, slightly cemented, slightly moist, no odor	25
30	2.1			30
35	17.7		Light brown silty sand w/ gravel sized caliche nodules/concretions and thin caliche layers, slightly cemented, slightly moist, no odor	35
40	7.3		Light red-brown silty sand, no caliche, unconsolidated, slightly moist, no odor	40
45	8.2			45
50	24.0			50

Appendix B.1(a)

Soil Boring Log & Monitoring Well Completion Diagram - MW-1
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

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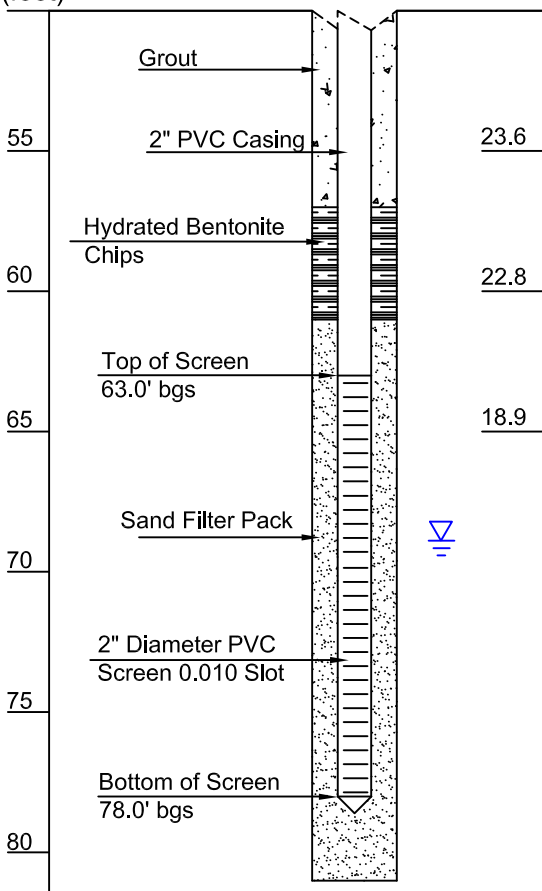
Revisions
By: Date: Descr.:
By: Date: Descr.:

#532153206-21-13

Well Completion Data

Soil Boring Log



PID	Soil Type	Sample Description	Depth (feet)
23.6		Light red-brown silty sand, no caliche, unconsolidated, slightly moist, no odor	55
22.8			60
18.9			65
		Dark yellow-brown silty sand, no caliche, consolidated, slightly moist, no odor	70
			75
			80
			85
			90
			95
			100

Notes

Driller: Geomechanics Southwest, Inc.
Date Completed: May 6, 2013
Borehole Diameter: 6.0-8.0 inches I.D.
Drilling Method: Hollow-Stem/Air rotary
Sampling Method: Split-Spoon
Depth to Water: 71.63' below TOC (May 9, 2013)
Total Boring Depth: 81 feet

Log Legend

- Predominantly sand
- Predominantly silt
- Predominantly clay
- Predominantly caliche

Appendix B.1(b)

Soil Boring Log & Monitoring Well Completion Diagram - MW-1 (continued)
Blackrock Oil Site
14 Miles West of tatum, Lea County, New Mexico

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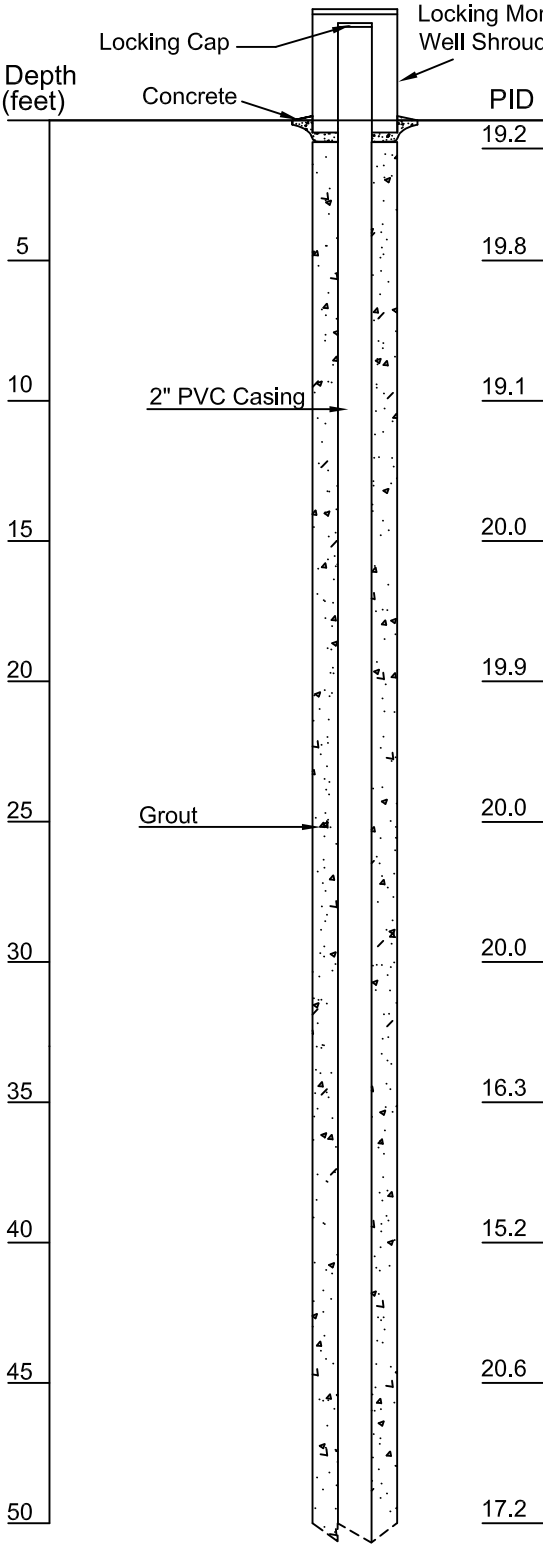
06-21-13
#8321532

Well Completion Data



Soil Boring Log

Depth (feet)	PID	Soil Type	Sample Description	Depth (feet)
0	19.2		Beige sandy silt, caliche cemented w/ hard caliche layers, dry	0
5	19.8			5
10	19.1		Beige silty sand, slightly cemented w/ caliche, no odor	10
15	20.0		Beige silty sand, dense w/ moderately cemented caliche layers, slightly moist, no odor	15
20	19.9		Light brown silty sand w/ slightly cemented caliche layers, no odor	20
25	20.0			25
30	20.0		Light brown silty sand w/ gravel sized caliche nodules/concretions and cemented caliche layers, no odor	30
35	16.3		Light brown silty sand, dense, slightly cemented caliche layers, slightly moist, no odor	35
40	15.2		Light brown silty sand w/ trace caliche nodules/concretions, dense, slightly cemented caliche layers, slightly moist, no odor	40
45	20.6			45
50	17.2			50

Soil Boring Log & Monitoring Well Completion Diagram - MW-2
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

Appendix B.2(a)

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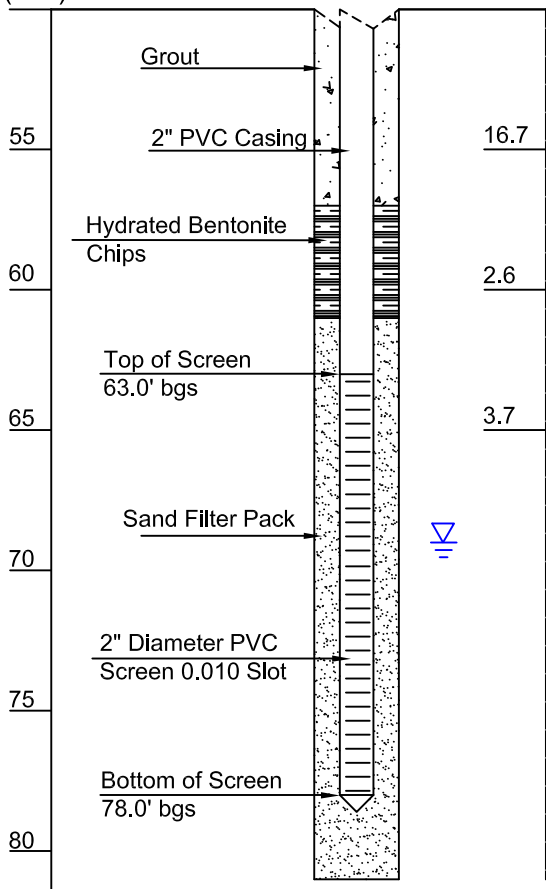
#532153206-21-13

Well Completion Data

Soil Boring Log



PID	Soil Type	Sample Description	Depth (feet)
16.7		Light brown silty sand w/ trace caliche nodules/concretions, dense, slightly cemented caliche layers, slightly moist, no odor	55
2.6			60
3.7		Light brown silty sand w/ trace caliche nodules/concretions, dense, slightly cemented caliche layers, slightly moist, no odor	65
			70
			75
			80
			85
			90
			95
			100

Notes

Driller: Geomechanics Southwest, Inc.
Date Completed: May 7, 2013
Borehole Diameter: 6.0-8.0 inches I.D.
Drilling Method: Hollow-Stem/Air rotary
Sampling Method: Split-Spoon
Depth to Water: 71.82' below TOC (May 9, 2013)
Total Boring Depth: 81 feet

Log Legend

- Predominantly sand
- Predominantly silt
- Predominantly clay
- Predominantly caliche

Appendix B.2(b)

Soil Boring Log & Monitoring Well Completion Diagram - MW-2 (continued)
Blackrock Oil Site
14 Miles West of tatum, Lea County, New Mexico

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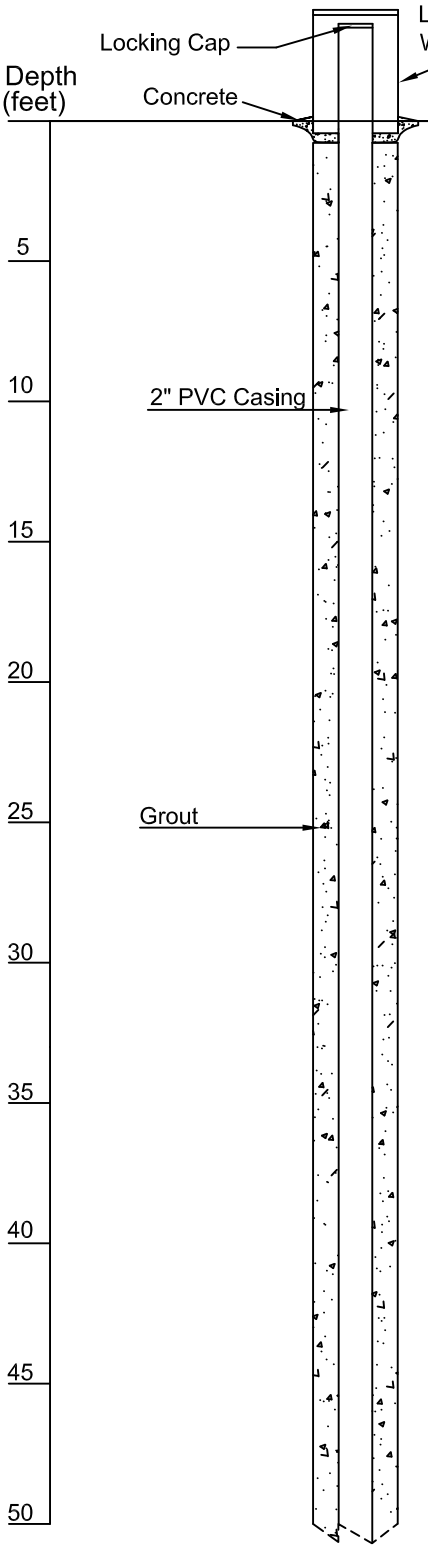
Well Completion Data



Soil Boring Log

Depth (feet)	PID	Soil Type	Sample Description	Depth (feet)
0	13.1		Light white-brown sandy silt, caliche cemented w/ hard caliche concretions, dry, no odor	0
5	20.7			5
10	32.7		Cream colored silty sand, slightly cemented w/ caliche and trace amounts of hard caliche nodules, no odor	10
15			Hard caliche layer or caliche cobbles at 15', no recovery	15
20	27.3		Light brown silty sand, slightly cemented w/ caliche, gravel sized caliche nodules/concretions, slightly moist, no odor	20
25	25.5			25
30	23.8		Cream to white-brown colored silty sand, moderate caliche cementation, slightly moist, no odor	30
35	21.6			35
40	18.5		Light brown silty sand, dense, slight caliche cementation w/ trace gravel sized caliche nodules/concretions, slightly moist, no odor	40
45	12.8			45
50	19.6			50

Appendix B.3(a)

Soil Boring Log & Monitoring Well Completion Diagram - MW-3
Blackrock Oil Site
14 Miles West of Tatum, Lea County, New Mexico

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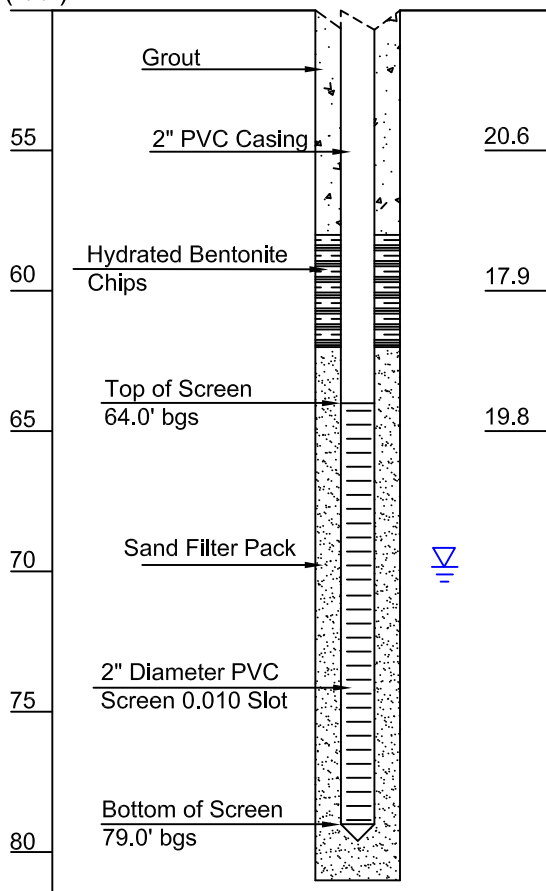
#532153
06-21-13

Well Completion Data

Soil Boring Log



Depth (feet)	PID	Soil Type	Sample Description
55	20.6		Light brown silty sand, dense, slight caliche cementation w/ trace gravel sized caliche nodules/concretions, slightly moist, no odor
60	17.9		
65	19.8		Light brown silty sand, no caliche, unconsolidated, moist, no odor
70			
75			
80			
85			
90			
95			
100			

Notes

Driller: Geomechanics Southwest, Inc.
Date Completed: May 7, 2013
Borehole Diameter: 6.0-8.0 inches I.D.
Drilling Method: Hollow-Stem/Air rotary
Sampling Method: Split-Spoon
Depth to Water: 72.58' below TOC (May 9, 2013)
Total Boring Depth: 81 feet

Log Legend

- Predominantly sand
- Predominantly silt
- Predominantly clay
- Predominantly caliche

Appendix B.3(b)

Soil Boring Log & Monitoring Well Completion Diagram - MW-3 (continued)
Blackrock Oil Site
14 Miles West of tatum, Lea County, New Mexico

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Appendix C – Laboratory Analytical Report

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 04, 2013

Clay Kiesling

Souder, Miller & Associates
401 17th St. Suite 4
Las Cruces, NM 88005
TEL: (575) 647-0799
FAX (575) 647-0680

RE: OCD Blackrock Oil OrderNo.: 1305502

Dear Clay Kiesling:

Hall Environmental Analysis Laboratory received 11 sample(s) on 5/14/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-1 @ 10-11.5'
Project: OCD Blackrock Oil
Collection Date: 5/5/2013 11:16:00 AM
Lab ID: 1305502-001
Matrix: MEOH (SOIL)
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/16/2013 4:29:00 PM	7452
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/16/2013 4:29:00 PM	7452
Surr: DNOP	103	63-147		%REC	1	5/16/2013 4:29:00 PM	7452
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/15/2013 11:44:11 PM	R10656
Surr: BFB	103	80-120		%REC	1	5/15/2013 11:44:11 PM	R10656
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	5/15/2013 11:44:11 PM	R10656
Toluene	ND	0.050		mg/Kg	1	5/15/2013 11:44:11 PM	R10656
Ethylbenzene	ND	0.050		mg/Kg	1	5/15/2013 11:44:11 PM	R10656
Xylenes, Total	ND	0.10		mg/Kg	1	5/15/2013 11:44:11 PM	R10656
Surr: 4-Bromofluorobenzene	100	80-120		%REC	1	5/15/2013 11:44:11 PM	R10656
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	22	7.5		mg/Kg	5	5/16/2013 4:10:48 PM	7472
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/22/2013 9:50:57 AM	7539
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	5/23/2013 9:15:45 AM	7471
Barium	97	0.20		mg/Kg	2	5/23/2013 9:15:45 AM	7471
Cadmium	ND	0.10		mg/Kg	1	5/23/2013 9:13:00 AM	7471
Chromium	3.1	0.30		mg/Kg	1	5/23/2013 9:13:00 AM	7471
Lead	ND	0.25		mg/Kg	1	5/23/2013 9:13:00 AM	7471
Selenium	ND	2.5		mg/Kg	1	5/23/2013 9:13:00 AM	7471
Silver	ND	0.25		mg/Kg	1	5/23/2013 9:13:00 AM	7471

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-1 @ 65-65.5'
Project: OCD Blackrock Oil
Collection Date: 5/5/2013 2:12:00 PM
Lab ID: 1305502-002
Matrix: MEOH (SOIL)
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/16/2013 5:53:51 PM	7452
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/16/2013 5:53:51 PM	7452
Surr: DNOP	106	63-147		%REC	1	5/16/2013 5:53:51 PM	7452
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/16/2013 12:12:45 AM	R10656
Surr: BFB	96.8	80-120		%REC	1	5/16/2013 12:12:45 AM	R10656
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	5/16/2013 12:12:45 AM	R10656
Toluene	ND	0.050		mg/Kg	1	5/16/2013 12:12:45 AM	R10656
Ethylbenzene	ND	0.050		mg/Kg	1	5/16/2013 12:12:45 AM	R10656
Xylenes, Total	ND	0.10		mg/Kg	1	5/16/2013 12:12:45 AM	R10656
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	5/16/2013 12:12:45 AM	R10656
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	4.0	1.5		mg/Kg	1	5/16/2013 11:12:53 AM	7472
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/22/2013 9:52:44 AM	7539
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/23/2013 9:18:30 AM	7471
Barium	16	0.10		mg/Kg	1	5/23/2013 9:18:30 AM	7471
Cadmium	ND	0.10		mg/Kg	1	5/23/2013 9:18:30 AM	7471
Chromium	2.2	0.30		mg/Kg	1	5/23/2013 9:18:30 AM	7471
Lead	1.4	0.25		mg/Kg	1	5/23/2013 9:18:30 AM	7471
Selenium	ND	2.5		mg/Kg	1	5/23/2013 9:18:30 AM	7471
Silver	ND	0.25		mg/Kg	1	5/23/2013 9:18:30 AM	7471

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-2 @ 45-45.5'
Project: OCD Blackrock Oil
Collection Date: 5/6/2013 1:39:00 PM
Lab ID: 1305502-003
Matrix: MEOH (SOIL)
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/16/2013 6:21:58 PM	7452
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/16/2013 6:21:58 PM	7452
Surr: DNOP	117	63-147		%REC	1	5/16/2013 6:21:58 PM	7452
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/16/2013 12:41:16 AM	R10656
Surr: BFB	95.8	80-120		%REC	1	5/16/2013 12:41:16 AM	R10656
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	5/16/2013 12:41:16 AM	R10656
Toluene	ND	0.050		mg/Kg	1	5/16/2013 12:41:16 AM	R10656
Ethylbenzene	ND	0.050		mg/Kg	1	5/16/2013 12:41:16 AM	R10656
Xylenes, Total	ND	0.10		mg/Kg	1	5/16/2013 12:41:16 AM	R10656
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	5/16/2013 12:41:16 AM	R10656
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	2.2	1.5		mg/Kg	1	5/16/2013 11:37:43 AM	7472
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/22/2013 9:54:32 AM	7539
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/23/2013 9:23:52 AM	7471
Barium	38	0.20		mg/Kg	2	5/23/2013 9:44:12 AM	7471
Cadmium	ND	0.10		mg/Kg	1	5/23/2013 9:23:52 AM	7471
Chromium	3.7	0.30		mg/Kg	1	5/23/2013 9:23:52 AM	7471
Lead	1.3	0.25		mg/Kg	1	5/23/2013 9:23:52 AM	7471
Selenium	ND	2.5		mg/Kg	1	5/23/2013 9:23:52 AM	7471
Silver	ND	0.25		mg/Kg	1	5/23/2013 9:23:52 AM	7471

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-2 @ 65-65.5
Project: OCD Blackrock Oil
Collection Date: 5/6/2013 3:15:00 PM
Lab ID: 1305502-004
Matrix: MEOH (SOIL)
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	17	10		mg/Kg	1	5/16/2013 6:49:58 PM	7452
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/16/2013 6:49:58 PM	7452
Surr: DNOP	111	63-147		%REC	1	5/16/2013 6:49:58 PM	7452
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/16/2013 1:09:56 AM	R10656
Surr: BFB	93.7	80-120		%REC	1	5/16/2013 1:09:56 AM	R10656
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	5/16/2013 1:09:56 AM	R10656
Toluene	ND	0.050		mg/Kg	1	5/16/2013 1:09:56 AM	R10656
Ethylbenzene	ND	0.050		mg/Kg	1	5/16/2013 1:09:56 AM	R10656
Xylenes, Total	ND	0.10		mg/Kg	1	5/16/2013 1:09:56 AM	R10656
Surr: 4-Bromofluorobenzene	99.2	80-120		%REC	1	5/16/2013 1:09:56 AM	R10656
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	2.7	1.5		mg/Kg	1	5/16/2013 2:06:40 PM	7472
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/22/2013 9:56:21 AM	7539
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/23/2013 9:54:53 AM	7471
Barium	27	0.10		mg/Kg	1	5/23/2013 9:54:53 AM	7471
Cadmium	ND	0.10		mg/Kg	1	5/23/2013 9:54:53 AM	7471
Chromium	2.5	0.30		mg/Kg	1	5/23/2013 9:54:53 AM	7471
Lead	0.98	0.25		mg/Kg	1	5/23/2013 9:54:53 AM	7471
Selenium	ND	2.5		mg/Kg	1	5/23/2013 9:54:53 AM	7471
Silver	ND	0.25		mg/Kg	1	5/23/2013 9:54:53 AM	7471

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-3 @ 10-12'
Project: OCD Blackrock Oil
Collection Date: 5/7/2013 11:16:00 AM
Lab ID: 1305502-005
Matrix: MEOH (SOIL)
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/16/2013 7:18:02 PM	7452
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/16/2013 7:18:02 PM	7452
Surr: DNOP	107	63-147		%REC	1	5/16/2013 7:18:02 PM	7452
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/16/2013 1:38:38 AM	R10656
Surr: BFB	95.3	80-120		%REC	1	5/16/2013 1:38:38 AM	R10656
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	5/16/2013 1:38:38 AM	R10656
Toluene	ND	0.050		mg/Kg	1	5/16/2013 1:38:38 AM	R10656
Ethylbenzene	ND	0.050		mg/Kg	1	5/16/2013 1:38:38 AM	R10656
Xylenes, Total	ND	0.10		mg/Kg	1	5/16/2013 1:38:38 AM	R10656
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	5/16/2013 1:38:38 AM	R10656
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	3.0	1.5		mg/Kg	1	5/16/2013 2:31:30 PM	7472
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/22/2013 9:58:10 AM	7539
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	2	5/23/2013 10:02:54 AM	7471
Barium	36	0.10		mg/Kg	1	5/23/2013 10:00:15 AM	7471
Cadmium	ND	0.10		mg/Kg	1	5/23/2013 10:00:15 AM	7471
Chromium	2.5	0.30		mg/Kg	1	5/23/2013 10:00:15 AM	7471
Lead	ND	0.25		mg/Kg	1	5/23/2013 10:00:15 AM	7471
Selenium	ND	2.5		mg/Kg	1	5/23/2013 10:00:15 AM	7471
Silver	ND	0.25		mg/Kg	1	5/23/2013 10:00:15 AM	7471

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-3 @ 65-66'
Project: OCD Blackrock Oil
Collection Date: 5/7/2013 2:24:00 PM
Lab ID: 1305502-006
Matrix: MEOH (SOIL)
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/16/2013 7:46:04 PM	7452
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/16/2013 7:46:04 PM	7452
Surr: DNOP	99.8	63-147		%REC	1	5/16/2013 7:46:04 PM	7452
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/16/2013 4:29:06 PM	R10679
Surr: BFB	95.9	80-120		%REC	1	5/16/2013 4:29:06 PM	R10679
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	5/16/2013 4:29:06 PM	R10679
Toluene	ND	0.050		mg/Kg	1	5/16/2013 4:29:06 PM	R10679
Ethylbenzene	ND	0.050		mg/Kg	1	5/16/2013 4:29:06 PM	R10679
Xylenes, Total	ND	0.10		mg/Kg	1	5/16/2013 4:29:06 PM	R10679
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	5/16/2013 4:29:06 PM	R10679
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	8.3	1.5		mg/Kg	1	5/16/2013 2:56:19 PM	7472
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/22/2013 10:00:03 AM	7539
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/23/2013 10:05:31 AM	7471
Barium	19	0.10		mg/Kg	1	5/23/2013 10:05:31 AM	7471
Cadmium	ND	0.10		mg/Kg	1	5/23/2013 10:05:31 AM	7471
Chromium	3.2	0.30		mg/Kg	1	5/23/2013 10:05:31 AM	7471
Lead	1.2	0.25		mg/Kg	1	5/23/2013 10:05:31 AM	7471
Selenium	ND	2.5		mg/Kg	1	5/23/2013 10:05:31 AM	7471
Silver	ND	0.25		mg/Kg	1	5/23/2013 10:05:31 AM	7471

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-1 @ 71.63'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:00:00 PM
Lab ID: 1305502-007 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/15/2013 2:22:22 PM	7453
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/15/2013 2:22:22 PM	7453
Surr: DNOP	117	75.4-146		%REC	1	5/15/2013 2:22:22 PM	7453
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/15/2013 7:05:03 PM	R10655
Surr: BFB	96.4	51.5-151		%REC	1	5/15/2013 7:05:03 PM	R10655
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	38	5.0		mg/L	10	5/15/2013 4:05:35 PM	R10660
EPA METHOD 7470: MERCURY						Analyst: **IDC**	
Mercury	0.00065	0.00020		mg/L	1	5/21/2013 11:04:43 AM	7507
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **JLF**	
Arsenic	ND	0.020		mg/L	1	5/21/2013 12:08:59 PM	7445
Barium	0.11	0.020		mg/L	1	5/21/2013 12:08:59 PM	7445
Cadmium	ND	0.0020		mg/L	1	5/21/2013 12:08:59 PM	7445
Chromium	ND	0.0060		mg/L	1	5/21/2013 12:08:59 PM	7445
Lead	ND	0.0050		mg/L	1	5/21/2013 12:08:59 PM	7445
Selenium	ND	0.050		mg/L	1	5/21/2013 12:08:59 PM	7445
Silver	ND	0.0050		mg/L	1	5/21/2013 12:08:59 PM	7445
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Toluene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Ethylbenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Naphthalene	ND	2.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1-Methylnaphthalene	ND	4.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
2-Methylnaphthalene	ND	4.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Acetone	ND	10		µg/L	1	5/15/2013 3:46:05 PM	R10653
Bromobenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Bromodichloromethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Bromoform	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Bromomethane	ND	3.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
2-Butanone	ND	10		µg/L	1	5/15/2013 3:46:05 PM	R10653
Carbon disulfide	ND	10		µg/L	1	5/15/2013 3:46:05 PM	R10653
Carbon Tetrachloride	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-1 @ 71.63'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:00:00 PM
Lab ID: 1305502-007 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Chlorobenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Chloroethane	ND	2.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Chloroform	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Chloromethane	ND	3.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
2-Chlorotoluene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
4-Chlorotoluene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
cis-1,2-DCE	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Dibromochloromethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Dibromomethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,1-Dichloroethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,1-Dichloroethene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2-Dichloropropane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,3-Dichloropropane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
2,2-Dichloropropane	ND	2.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,1-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Hexachlorobutadiene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
2-Hexanone	ND	10		µg/L	1	5/15/2013 3:46:05 PM	R10653
Isopropylbenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
4-Isopropyltoluene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
4-Methyl-2-pentanone	ND	10		µg/L	1	5/15/2013 3:46:05 PM	R10653
Methylene Chloride	ND	3.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
n-Butylbenzene	ND	3.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
n-Propylbenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
sec-Butylbenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Styrene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
tert-Butylbenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
trans-1,2-DCE	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-1 @ 71.63'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:00:00 PM
Lab ID: 1305502-007 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Trichlorofluoromethane	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Vinyl chloride	ND	1.0		µg/L	1	5/15/2013 3:46:05 PM	R10653
Xylenes, Total	ND	1.5		µg/L	1	5/15/2013 3:46:05 PM	R10653
Surr: 1,2-Dichloroethane-d4	79.3	70-130		%REC	1	5/15/2013 3:46:05 PM	R10653
Surr: 4-Bromofluorobenzene	91.1	69.5-130		%REC	1	5/15/2013 3:46:05 PM	R10653
Surr: Dibromofluoromethane	94.3	70-130		%REC	1	5/15/2013 3:46:05 PM	R10653
Surr: Toluene-d8	90.9	70-130		%REC	1	5/15/2013 3:46:05 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-2 @ 71.82'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:20:00 PM
Lab ID: 1305502-008 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/15/2013 2:50:30 PM	7453
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/15/2013 2:50:30 PM	7453
Surr: DNOP	125	75.4-146		%REC	1	5/15/2013 2:50:30 PM	7453
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	2	5/15/2013 7:35:22 PM	R10655
Surr: BFB	98.2	51.5-151		%REC	2	5/15/2013 7:35:22 PM	R10655
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	39	5.0		mg/L	10	5/15/2013 4:30:24 PM	R10660
EPA METHOD 7470: MERCURY						Analyst: **IDC**	
Mercury	ND	0.00020		mg/L	1	5/21/2013 11:06:27 AM	7507
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **JLF**	
Arsenic	ND	0.020		mg/L	1	5/21/2013 12:14:06 PM	7445
Barium	1.2	0.10		mg/L	5	5/21/2013 12:16:48 PM	7445
Cadmium	ND	0.0020		mg/L	1	5/21/2013 12:14:06 PM	7445
Chromium	0.077	0.0060		mg/L	1	5/21/2013 12:14:06 PM	7445
Lead	ND	0.0050		mg/L	1	5/21/2013 12:14:06 PM	7445
Selenium	ND	0.050		mg/L	1	5/21/2013 12:14:06 PM	7445
Silver	ND	0.0050		mg/L	1	5/21/2013 12:14:06 PM	7445
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Toluene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Ethylbenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2,4-Trimethylbenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,3,5-Trimethylbenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Naphthalene	ND	4.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1-Methylnaphthalene	ND	8.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
2-Methylnaphthalene	ND	8.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Acetone	ND	20		µg/L	2	5/15/2013 4:15:56 PM	R10653
Bromobenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Bromodichloromethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Bromoform	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Bromomethane	ND	6.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
2-Butanone	ND	20		µg/L	2	5/15/2013 4:15:56 PM	R10653
Carbon disulfide	ND	20		µg/L	2	5/15/2013 4:15:56 PM	R10653
Carbon Tetrachloride	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-2 @ 71.82'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:20:00 PM
Lab ID: 1305502-008 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Chlorobenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Chloroethane	ND	4.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Chloroform	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Chloromethane	ND	6.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
2-Chlorotoluene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
4-Chlorotoluene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
cis-1,2-DCE	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
cis-1,3-Dichloropropene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Dibromochloromethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Dibromomethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2-Dichlorobenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,3-Dichlorobenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,4-Dichlorobenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Dichlorodifluoromethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,1-Dichloroethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,1-Dichloroethene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2-Dichloropropane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,3-Dichloropropane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
2,2-Dichloropropane	ND	4.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,1-Dichloropropene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Hexachlorobutadiene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
2-Hexanone	ND	20		µg/L	2	5/15/2013 4:15:56 PM	R10653
Isopropylbenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
4-Isopropyltoluene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
4-Methyl-2-pentanone	ND	20		µg/L	2	5/15/2013 4:15:56 PM	R10653
Methylene Chloride	ND	6.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
n-Butylbenzene	ND	6.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
n-Propylbenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
sec-Butylbenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Styrene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
tert-Butylbenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,1,2,2-Tetrachloroethane	ND	4.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Tetrachloroethene (PCE)	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
trans-1,2-DCE	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
trans-1,3-Dichloropropene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2,3-Trichlorobenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2,4-Trichlorobenzene	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,1,1-Trichloroethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-2 @ 71.82'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:20:00 PM
Lab ID: 1305502-008 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1,2-Trichloroethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Trichloroethene (TCE)	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Trichlorofluoromethane	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
1,2,3-Trichloropropane	ND	4.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Vinyl chloride	ND	2.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Xylenes, Total	ND	3.0		µg/L	2	5/15/2013 4:15:56 PM	R10653
Surr: 1,2-Dichloroethane-d4	81.9	70-130		%REC	2	5/15/2013 4:15:56 PM	R10653
Surr: 4-Bromofluorobenzene	98.9	69.5-130		%REC	2	5/15/2013 4:15:56 PM	R10653
Surr: Dibromofluoromethane	94.3	70-130		%REC	2	5/15/2013 4:15:56 PM	R10653
Surr: Toluene-d8	81.1	70-130		%REC	2	5/15/2013 4:15:56 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-3 @ 72.58'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:40:00 PM
Lab ID: 1305502-009 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/15/2013 3:18:51 PM	7453
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/15/2013 3:18:51 PM	7453
Surr: DNOP	120	75.4-146		%REC	1	5/15/2013 3:18:51 PM	7453
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/15/2013 8:05:44 PM	R10655
Surr: BFB	96.3	51.5-151		%REC	1	5/15/2013 8:05:44 PM	R10655
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	40	5.0		mg/L	10	5/15/2013 4:55:13 PM	R10660
EPA METHOD 7470: MERCURY						Analyst: **IDC**	
Mercury	0.00033	0.00020		mg/L	1	5/21/2013 11:08:12 AM	7507
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **JLF**	
Arsenic	ND	0.020		mg/L	1	5/21/2013 12:19:25 PM	7445
Barium	0.077	0.020		mg/L	1	5/21/2013 12:19:25 PM	7445
Cadmium	ND	0.0020		mg/L	1	5/21/2013 12:19:25 PM	7445
Chromium	ND	0.0060		mg/L	1	5/21/2013 12:19:25 PM	7445
Lead	ND	0.0050		mg/L	1	5/21/2013 12:19:25 PM	7445
Selenium	ND	0.050		mg/L	1	5/21/2013 12:19:25 PM	7445
Silver	ND	0.0050		mg/L	1	5/21/2013 12:19:25 PM	7445
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Toluene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Ethylbenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Naphthalene	ND	2.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1-Methylnaphthalene	ND	4.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
2-Methylnaphthalene	ND	4.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Acetone	ND	10		µg/L	1	5/15/2013 4:45:58 PM	R10653
Bromobenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Bromodichloromethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Bromoform	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Bromomethane	ND	3.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
2-Butanone	ND	10		µg/L	1	5/15/2013 4:45:58 PM	R10653
Carbon disulfide	ND	10		µg/L	1	5/15/2013 4:45:58 PM	R10653
Carbon Tetrachloride	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-3 @ 72.58'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:40:00 PM
Lab ID: 1305502-009 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Chlorobenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Chloroethane	ND	2.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Chloroform	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Chloromethane	ND	3.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
2-Chlorotoluene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
4-Chlorotoluene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
cis-1,2-DCE	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Dibromochloromethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Dibromomethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,1-Dichloroethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,1-Dichloroethene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2-Dichloropropane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,3-Dichloropropane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
2,2-Dichloropropane	ND	2.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,1-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Hexachlorobutadiene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
2-Hexanone	ND	10		µg/L	1	5/15/2013 4:45:58 PM	R10653
Isopropylbenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
4-Isopropyltoluene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
4-Methyl-2-pentanone	ND	10		µg/L	1	5/15/2013 4:45:58 PM	R10653
Methylene Chloride	ND	3.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
n-Butylbenzene	ND	3.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
n-Propylbenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
sec-Butylbenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Styrene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
tert-Butylbenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
trans-1,2-DCE	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MW-3 @ 72.58'
Project: OCD Blackrock Oil
Collection Date: 5/9/2013 12:40:00 PM
Lab ID: 1305502-009 **Matrix:** AQUEOUS **Received Date:** 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Trichlorofluoromethane	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Vinyl chloride	ND	1.0		µg/L	1	5/15/2013 4:45:58 PM	R10653
Xylenes, Total	ND	1.5		µg/L	1	5/15/2013 4:45:58 PM	R10653
Surr: 1,2-Dichloroethane-d4	80.3	70-130		%REC	1	5/15/2013 4:45:58 PM	R10653
Surr: 4-Bromofluorobenzene	92.9	69.5-130		%REC	1	5/15/2013 4:45:58 PM	R10653
Surr: Dibromofluoromethane	93.3	70-130		%REC	1	5/15/2013 4:45:58 PM	R10653
Surr: Toluene-d8	84.5	70-130		%REC	1	5/15/2013 4:45:58 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: Trip Blank
Project: OCD Blackrock Oil
Collection Date:
Lab ID: 1305502-010
Matrix: TRIP BLANK
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/16/2013 3:08:08 PM	R10694
Surr: BFB	96.4	51.5-151		%REC	1	5/16/2013 3:08:08 PM	R10694
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Toluene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Ethylbenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Naphthalene	ND	2.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1-Methylnaphthalene	ND	4.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
2-Methylnaphthalene	ND	4.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Acetone	ND	10		µg/L	1	5/15/2013 5:15:53 PM	R10653
Bromobenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Bromodichloromethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Bromoform	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Bromomethane	ND	3.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
2-Butanone	ND	10		µg/L	1	5/15/2013 5:15:53 PM	R10653
Carbon disulfide	ND	10		µg/L	1	5/15/2013 5:15:53 PM	R10653
Carbon Tetrachloride	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Chlorobenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Chloroethane	ND	2.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Chloroform	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Chloromethane	ND	3.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
2-Chlorotoluene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
4-Chlorotoluene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
cis-1,2-DCE	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Dibromochloromethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Dibromomethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,1-Dichloroethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,1-Dichloroethene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2-Dichloropropane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: Trip Blank
Project: OCD Blackrock Oil
Collection Date:
Lab ID: 1305502-010
Matrix: TRIP BLANK
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
2,2-Dichloropropane	ND	2.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,1-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Hexachlorobutadiene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
2-Hexanone	ND	10		µg/L	1	5/15/2013 5:15:53 PM	R10653
Isopropylbenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
4-Isopropyltoluene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
4-Methyl-2-pentanone	ND	10		µg/L	1	5/15/2013 5:15:53 PM	R10653
Methylene Chloride	ND	3.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
n-Butylbenzene	ND	3.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
n-Propylbenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
sec-Butylbenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Styrene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
tert-Butylbenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
trans-1,2-DCE	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Trichlorofluoromethane	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Vinyl chloride	ND	1.0		µg/L	1	5/15/2013 5:15:53 PM	R10653
Xylenes, Total	ND	1.5		µg/L	1	5/15/2013 5:15:53 PM	R10653
Surr: 1,2-Dichloroethane-d4	71.3	70-130		%REC	1	5/15/2013 5:15:53 PM	R10653
Surr: 4-Bromofluorobenzene	98.6	69.5-130		%REC	1	5/15/2013 5:15:53 PM	R10653
Surr: Dibromofluoromethane	88.3	70-130		%REC	1	5/15/2013 5:15:53 PM	R10653
Surr: Toluene-d8	79.0	70-130		%REC	1	5/15/2013 5:15:53 PM	R10653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: MeOH Blank
Project: OCD Blackrock Oil
Collection Date:
Lab ID: 1305502-011
Matrix: MEOH BLAN
Received Date: 5/14/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/16/2013 4:57:44 PM	R10679
Surr: BFB	95.2	80-120		%REC	1	5/16/2013 4:57:44 PM	R10679
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	5/16/2013 4:57:44 PM	R10679
Benzene	ND	0.050		mg/Kg	1	5/16/2013 4:57:44 PM	R10679
Toluene	ND	0.050		mg/Kg	1	5/16/2013 4:57:44 PM	R10679
Ethylbenzene	ND	0.050		mg/Kg	1	5/16/2013 4:57:44 PM	R10679
Xylenes, Total	ND	0.10		mg/Kg	1	5/16/2013 4:57:44 PM	R10679
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	5/16/2013 4:57:44 PM	R10679

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**MB-7472**	SampType:	**MBLK**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**7472**		RunNo:	**10696**				
Prep Date:	**5/16/2013**	Analysis Date:	**5/16/2013**		SeqNo:	**302221**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-7472**	SampType:	**LCS**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**7472**		RunNo:	**10696**				
Prep Date:	**5/16/2013**	Analysis Date:	**5/16/2013**		SeqNo:	**302222**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.0	90	110			

Sample ID	**1305502-003BMS**	SampType:	**MS**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**MW-2 @ 45-45.5'**	Batch ID:	**7472**		RunNo:	**10696**				
Prep Date:	**5/16/2013**	Analysis Date:	**5/16/2013**		SeqNo:	**302237**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	16	1.5	15.00	2.196	90.9	64.4	117			

Sample ID	**1305502-003BMSD**	SampType:	**MSD**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**MW-2 @ 45-45.5'**	Batch ID:	**7472**		RunNo:	**10696**				
Prep Date:	**5/16/2013**	Analysis Date:	**5/16/2013**		SeqNo:	**302239**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	16	1.5	15.00	2.196	90.5	64.4	117	0.332	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID: **R10660**			RunNo: **10660**					
Prep Date:		Analysis Date: **5/15/2013**			SeqNo: **301198**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID: **R10660**			RunNo: **10660**					
Prep Date:		Analysis Date: **5/15/2013**			SeqNo: **301199**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.1	90	110			

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID: **R10660**			RunNo: **10660**					
Prep Date:		Analysis Date: **5/15/2013**			SeqNo: **301246**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID: **R10660**			RunNo: **10660**					
Prep Date:		Analysis Date: **5/15/2013**			SeqNo: **301247**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **MB-7452**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **7452**	RunNo: **10647**
Prep Date: **5/15/2013**	Analysis Date: **5/16/2013**	SeqNo: **301683** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		104	63	147			

Sample ID **LCS-7452**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **7452**	RunNo: **10647**
Prep Date: **5/15/2013**	Analysis Date: **5/16/2013**	SeqNo: **302005** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.7	77.1	128			
Surr: DNOP	5.2		5.000		105	63	147			

Sample ID **1305502-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **MW-1 @ 10-11.5'**	Batch ID: **7452**	RunNo: **10647**
Prep Date: **5/15/2013**	Analysis Date: **5/16/2013**	SeqNo: **302014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.35	0	85.2	61.3	138			
Surr: DNOP	5.4		5.035		108	63	147			

Sample ID **1305502-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **MW-1 @ 10-11.5'**	Batch ID: **7452**	RunNo: **10647**
Prep Date: **5/15/2013**	Analysis Date: **5/16/2013**	SeqNo: **302015** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	9.9	49.65	0	89.2	61.3	138	3.24	20	
Surr: DNOP	5.5		4.965		110	63	147	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **MB-7453**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **7453**	RunNo: **10612**
Prep Date: **5/15/2013**	Analysis Date: **5/15/2013**	SeqNo: **300522** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.3		1.000		132	75.4	146			

Sample ID **LCS-7453**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **7453**	RunNo: **10612**
Prep Date: **5/15/2013**	Analysis Date: **5/15/2013**	SeqNo: **300584** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.6	1.0	5.000	0	91.0	89.1	151			
Surr: DNOP	0.63		0.5000		127	75.4	146			

Sample ID **LCSD-7453**	SampType: **LCSD**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSS02**	Batch ID: **7453**	RunNo: **10612**
Prep Date: **5/15/2013**	Analysis Date: **5/15/2013**	SeqNo: **300585** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	115	89.1	151	23.6	20	R
Surr: DNOP	0.68		0.5000		136	75.4	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**MB-7440**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R10656**	RunNo:	**10656**					
Prep Date:	**5/14/2013**	Analysis Date:	**5/15/2013**	SeqNo:	**301099**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	920		1000		91.7	80	120			

Sample ID	**LCS-7440**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R10656**	RunNo:	**10656**					
Prep Date:	**5/14/2013**	Analysis Date:	**5/15/2013**	SeqNo:	**301100**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	110	62.6	136			
Surr: BFB	1000		1000		99.7	80	120			

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R10679**	RunNo:	**10679**					
Prep Date:		Analysis Date:	**5/16/2013**	SeqNo:	**302153**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	950		1000		95.0	80	120			

Sample ID	**2.5UG GRO LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R10679**	RunNo:	**10679**					
Prep Date:		Analysis Date:	**5/16/2013**	SeqNo:	**302154**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	9.5	5.0	25.00	0	37.9	62.6	136			S
Surr: BFB	960		1000		96.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBW**	Batch ID:	**R10655**	RunNo:	**10655**					
Prep Date:		Analysis Date:	**5/15/2013**	SeqNo:	**301049**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		97.9	51.5	151			

Sample ID	**2.5UG GRO LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSW**	Batch ID:	**R10655**	RunNo:	**10655**					
Prep Date:		Analysis Date:	**5/15/2013**	SeqNo:	**301051**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	73.2	124			
Surr: BFB	21		20.00		103	51.5	151			

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBW**	Batch ID:	**R10694**	RunNo:	**10694**					
Prep Date:		Analysis Date:	**5/16/2013**	SeqNo:	**302192**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		95.4	51.5	151			

Sample ID	**2.5UG GRO LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSW**	Batch ID:	**R10694**	RunNo:	**10694**					
Prep Date:		Analysis Date:	**5/16/2013**	SeqNo:	**302193**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.0	73.2	124			
Surr: BFB	20		20.00		102	51.5	151			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **MB-7440**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **R10656**	RunNo: **10656**
Prep Date: **5/14/2013**	Analysis Date: **5/15/2013**	SeqNo: **301131** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		98.9	80	120			

Sample ID **LCS-7440**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **R10656**	RunNo: **10656**
Prep Date: **5/14/2013**	Analysis Date: **5/15/2013**	SeqNo: **301132** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	108	80	120			
Toluene	1.1	0.050	1.000	0	108	80	120			
Ethylbenzene	1.1	0.050	1.000	0	108	80	120			
Xylenes, Total	3.2	0.10	3.000	0	108	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **R10679**	RunNo: **10679**
Prep Date:	Analysis Date: **5/16/2013**	SeqNo: **302165** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **R10679**	RunNo: **10679**
Prep Date:	Analysis Date: **5/16/2013**	SeqNo: **302166** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.1	0.10	1.000	0	110	72.6	114			
Benzene	1.1	0.050	1.000	0	114	80	120			
Toluene	1.1	0.050	1.000	0	114	80	120			
Ethylbenzene	1.1	0.050	1.000	0	113	80	120			
Xylenes, Total	3.4	0.10	3.000	0	114	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **5ml rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R10653**	RunNo: **10653**
Prep Date:	Analysis Date: **5/15/2013**	SeqNo: **300975** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **5ml rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R10653**	RunNo: **10653**
Prep Date:	Analysis Date: **5/15/2013**	SeqNo: **300975** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	7.2		10.00		72.0	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.4	69.5	130			
Surr: Dibromofluoromethane	9.2		10.00		91.9	70	130			
Surr: Toluene-d8	9.1		10.00		90.9	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R10653**	RunNo: **10653**
Prep Date:	Analysis Date: **5/15/2013**	SeqNo: **300988** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	22	1.0	20.00	0	108	80	120			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	95.6	85.8	133			
Trichloroethene (TCE)	22	1.0	20.00	0	109	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R10653**	RunNo: **10653**
Prep Date:	Analysis Date: **5/15/2013**	SeqNo: **300988** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	7.5		10.00		75.0	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.0	69.5	130			
Surr: Dibromofluoromethane	9.9		10.00		98.8	70	130			
Surr: Toluene-d8	8.3		10.00		83.1	70	130			

Sample ID **b6**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R10653**	RunNo: **10653**
Prep Date:	Analysis Date: **5/15/2013**	SeqNo: **301064** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **b6**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R10653**	RunNo: **10653**
Prep Date:	Analysis Date: **5/15/2013**	SeqNo: **301064** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	7.9		10.00		79.2	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.3	69.5	130			
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130			
Surr: Toluene-d8	7.8		10.00		77.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R10653**	RunNo: **10653**
Prep Date:	Analysis Date: **5/16/2013**	SeqNo: **301065** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.8	70	130			
Toluene	21	1.0	20.00	0	105	80	120			
Chlorobenzene	20	1.0	20.00	0	98.7	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	92.6	85.8	133			
Trichloroethene (TCE)	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	7.7		10.00		77.0	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.1	69.5	130			
Surr: Dibromofluoromethane	9.3		10.00		93.0	70	130			
Surr: Toluene-d8	8.3		10.00		83.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**MB-7539**	SampType:	**MBLK**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID:	**7539**	RunNo:	**10790**					
Prep Date:	**5/21/2013**	Analysis Date:	**5/22/2013**	SeqNo:	**305007**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-7539**	SampType:	**LCS**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID:	**7539**	RunNo:	**10790**					
Prep Date:	**5/21/2013**	Analysis Date:	**5/22/2013**	SeqNo:	**305008**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**MB-7507**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**7507**	RunNo:	**10774**					
Prep Date:	**5/20/2013**	Analysis Date:	**5/21/2013**	SeqNo:	**304710**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-7507**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**7507**	RunNo:	**10774**					
Prep Date:	**5/20/2013**	Analysis Date:	**5/21/2013**	SeqNo:	**304711**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	103	80	120			

Sample ID	**LCSRR-7507**	SampType:	**LCSD**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSS02**	Batch ID:	**7507**	RunNo:	**10774**					
Prep Date:	**5/20/2013**	Analysis Date:	**5/21/2013**	SeqNo:	**304712**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120	0.366	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**MB-7471**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: Soil Metals**
Client ID:	**PBS**	Batch ID:	**7471**	RunNo:	**10786**
Prep Date:	**5/16/2013**	Analysis Date:	**5/22/2013**	SeqNo:	**304936** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								

Sample ID	**LCS-7471**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: Soil Metals**
Client ID:	**LCSS**	Batch ID:	**7471**	RunNo:	**10786**
Prep Date:	**5/16/2013**	Analysis Date:	**5/22/2013**	SeqNo:	**304937** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	101	80	120			
Barium	25	0.10	25.00	0	100	80	120			
Cadmium	25	0.10	25.00	0	101	80	120			
Chromium	25	0.30	25.00	0	98.4	80	120			
Lead	25	0.25	25.00	0	99.0	80	120			
Selenium	24	2.5	25.00	0	94.8	80	120			
Silver	5.3	0.25	5.000	0	105	80	120			

Sample ID	**1305502-003BMS**	SampType:	**MS**	TestCode:	**EPA Method 6010B: Soil Metals**
Client ID:	**MW-2 @ 45-45.5'**	Batch ID:	**7471**	RunNo:	**10852**
Prep Date:	**5/16/2013**	Analysis Date:	**5/23/2013**	SeqNo:	**306428** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	24.00	0	107	75	125			
Cadmium	24	0.10	24.00	0	100	75	125			
Chromium	28	0.30	24.00	3.666	102	75	125			
Lead	25	0.25	24.00	1.339	96.5	75	125			
Selenium	20	2.5	24.00	0	85.1	75	125			
Silver	5.0	0.25	4.800	0	105	75	125			

Sample ID	**1305502-003BMSD**	SampType:	**MSD**	TestCode:	**EPA Method 6010B: Soil Metals**
Client ID:	**MW-2 @ 45-45.5'**	Batch ID:	**7471**	RunNo:	**10852**
Prep Date:	**5/16/2013**	Analysis Date:	**5/23/2013**	SeqNo:	**306429** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	24.94	0	106	75	125	2.06	20	
Cadmium	24	0.10	24.94	0	96.9	75	125	0.257	20	
Chromium	28	0.30	24.94	3.666	98.3	75	125	0.249	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**1305502-003BMSD**	SampType:	**MSD**	TestCode:	**EPA Method 6010B: Soil Metals**
Client ID:	**MW-2 @ 45-45.5'**	Batch ID:	**7471**	RunNo:	**10852**
Prep Date:	**5/16/2013**	Analysis Date:	**5/23/2013**	SeqNo:	**306429** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	24	0.25	24.94	1.339	89.5	75	125	3.58	20	
Selenium	21	2.5	24.94	0	84.0	75	125	2.60	20	
Silver	5.1	0.25	4.987	0	102	75	125	1.45	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305502**

04-Jun-13

Client: Souder, Miller & Associates

Project: OCD Blackrock Oil

Sample ID	**MB-7445**	SampType:	**MBLK**	TestCode:	**EPA 6010B: Total Recoverable Metals**
Client ID:	**PBW**	Batch ID:	**7445**	RunNo:	**10769**
Prep Date:	**5/15/2013**	Analysis Date:	**5/21/2013**	SeqNo:	**304486** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	**LCS-7445**	SampType:	**LCS**	TestCode:	**EPA 6010B: Total Recoverable Metals**
Client ID:	**LCSW**	Batch ID:	**7445**	RunNo:	**10769**
Prep Date:	**5/15/2013**	Analysis Date:	**5/21/2013**	SeqNo:	**304487** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	95.6	80	120			
Barium	0.46	0.020	0.5000	0	91.6	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.3	80	120			
Chromium	0.46	0.0060	0.5000	0	91.0	80	120			
Lead	0.44	0.0050	0.5000	0	88.9	80	120			
Selenium	0.45	0.050	0.5000	0	90.3	80	120			
Silver	0.096	0.0050	0.1000	0	96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-LC | Work Order Number: 1305502 | RcptNo: 1

Received by/date: MG 05/14/13

Logged By: **Michelle Garcia** 5/14/2013 9:40:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 5/14/2013 11:48:04 AM Michelle Garcia

Reviewed By: IO 05/14/2013

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	UPS		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☑	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

Added 1mL HNO3 to 0088 for acceptable pH. MG 05/14

# of preserved bottles checked for pH: 3

(<2 or >12 unless noted)

Adjusted? Yes at 1525

Checked by: MG

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: | Date:

By Whom: | Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: per CC use collection times on Sample ID labels MG 05/14/13

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address: 401 N. 17th St, Suite 4
Las Cruces, NM 88005

Phone #: (575) 647-0799

email or Fax#: (575) 647-0680

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: OCD Blackrock Oil

Project #: 532143 7.1.4c

Project Manager: Clay Kiesling

Sampler: CCC

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1305500	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	300.0 - Cl only				Air Bubbles (Y or N)
5/13	1116	Soil	MW-1 e 10-11.5'	MeOH Kit	MeOH	-001	X															
5/13	1116	Soil	MW-1 e 10-11.5'	2x4oz	None	-001			X				X					X				
5/13	1412 1116	Soil	MW-1 e 65-65.5'	MeOH Kit	MeOH	-002	X															
5/13	1412 1116	Soil	MW-1 e 65-65.5'	2x4oz	None	-002			X				X					X				
6/13	1339	Soil	MW-2 e 45-45.5	MeOH Kit	MeOH	-003	X															
6/13	1339	Soil	MW-2 e 45-45.5	2x4oz	None	-003			X				X					X				
6/13	1515	Soil	MW-2 e 65-65.5	MeOH Kit	MeOH	-004	X															
6/13	1515	Soil	MW-2 e 65-65.5	2x4oz	None	-004			X				X					X				
7/13	1116	Soil	MW-3 e 10-12'	MeOH Kit	MeOH	-005	X															
7/13	1116	Soil	MW-3 e 10-12'	2x4oz	None	-005			X				X					X				
7/13	1424	Soil	MW-3 e 65-66'	MeOH Kit	MeOH	-006	X															
7/13	1424	Soil	MW-3 e 65-66'	2x4oz	None	-006			X				X					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/13/13	0831			05/14/13	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Chain-of-Custody Record

Client: SMA

Mailing Address: 901 W. 17th St., Suite F
Las Cruces, NM 88005

Phone #: (575) 647-0799

email or Fax#: (575) 647-0680

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: OCD Blackrock Oil

Project #: 532143 7.1.4c

Project Manager: Clay Kiesling

Sampler: CCC

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

HEAL No. 1305502

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Mo, I-Cl only				Air Bubbles (Y or N)
5/9/13	1200	H_2O	MW-1 @ 71.63'	6x40mL	$HgCl_2$	-007			X							X						
5/9/13	1200	H_2O	MW-1 @ 71.63'	1x125mL	None	-007												X				
5/9/13	1200	H_2O	MW-1 @ 71.63'	1x500mL	HNO_3	-007							X									
5/9/13	1220	H_2O	MW-2 @ 71.82'	6x40mL	$HgCl_2$	-008			X							X						
5/9/13	1220	H_2O	MW-2 @ 71.82'	1x125mL	None	-008												X				
5/9/13	1220	H_2O	MW-2 @ 71.82'	1x500mL	HNO_3	-008							X									
5/9/13	1240	H_2O	MW-3 @ 72.58'	6x40mL	$HgCl_2$	-009			X							X						
5/9/13	1240	H_2O	MW-3 @ 72.58'	1x125mL	None	-009												X				
5/9/13	1240	H_2O	MW-3 @ 72.58'	1x500mL	HNO_3	-009							X									
—	—	H_2O	Trip Blank	3x40mL	$HgCl_2$	-010																
—	—	H_2O	MeOH Blank	2x40mL	MeOH	-011																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/13/13	0935			05/14/13	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Appendix D – Health & Safety Plan

SITE HEALTH AND SAFETY PLAN

Location:

Blackrock Oil Site
Lea County
New Mexico

PREPARED FOR:

Energy, Minerals and Natural Resources Division (EMNRD)
Oil Conservation Division (OCD)
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

PREPARED BY:
Souder, Miller & Associates (SMA)
401 N. Seventeenth Street
Las Cruces, New Mexico
(575) 647-0799

DATE: April 24, 2013

TABLE OF CONTENTS

The purpose of the Health and Safety Plan (HASP) is to identify health and safety risks associated with performing a site investigation of petroleum contamination and naturally occurring radioactive materials (NORM) at the Blackrock Oil site located in Lea County, New Mexico.

I. PROJECT INFORMATION

PROJECT NAME: Blackrock Oil

PROJECT TEAM LEADER: Karl Tonander Phone: (575) 647-0799

PROJECT MANAGER: Clay Kiesling Phone: (575) 647-0799

FIELD TEAM: Craig Chase Phone: (575) 647-0799

FEDERAL AGENCIES: N/A

STATE AGENCIES: Energy, Minerals and Natural Resources (EMNRD) Oil Conservation Divisions (OCD) – Mr. Jim Griswold (505) 476-3465

II. SITE DESCRIPTION

PROJECT DATE(S): April 29 through May 10, 2013

PROJECT LOCATION(S): Southwest ¼ of Section 30, Township 12S, Range 34E in Lea County, New Mexico and approximately 14 miles west of Tatum, New Mexico.

HAZARDS: Potential hazards include; petroleum contamination, open pit and heavy equipment operations.

AREA AFFECTED: Immediate area surrounding the Blackrock Oil site

III. DESCRIPTION OF POTENTIAL HAZARDS & MITIGATION MEASURES

Petroleum Contamination

Petroleum contamination is an eye and throat irritant at levels around the Permissible Exposure Limit (PEL) of 300 ppm and can cause narcotic effects (with symptoms including headache, nausea, dizziness and blurred vision) at higher levels. Long term exposure can affect liver and kidney function and some studies indicate a potential for petroleum contaminants to be an animal carcinogen. Because petroleum contamination can be a mixture of various hydrocarbons, a mean odor threshold has not been determined.

A photoionization detector (PID) will be used to determine hydrocarbon contamination in the soil as well as monitor ambient levels in the work area. Protective nitrile gloves will be used when

sampling petroleum contaminated soil and eating or drinking in the work area will not be allowed in order to minimize ingestion. Whenever possible, work will be performed upwind of any excavations and if air monitoring indicates levels approaching the PEL, the work area will be evacuated and inhalation risks will be reevaluated.

Heavy Equipment Operation

Investigation of the Blackrock Oil site requires the use of air rotary drilling method. Hearing protection will be used around equipment as needed (normal conversation not possible). Additionally eye protection will be used around equipment as needed. High visibility traffic vests or other brightly clothing will be worn by all field personnel working near heavy equipment.

IV. PERSONAL PROTECTIVE EQUIMENT (PPE)

PPE for the site investigation should include at a minimum: nitrile gloves, steel-toe boots, and orange traffic vests or other brightly colored clothing.

V. KEY PERSONNEL

The following outlines the key personnel and their responsibilities:

Project Manager: Clay Kiesling
Souder, Miller & Associates
Las Cruces, NM
(575) 647-0799

Field Team Leader: Craig Chase
Souder, Miller & Associates
Las Cruces, NM
(575) 647-0799

The Field Team Leader will function as the Site Health & Safety Officer and Site Supervisor.

Tailgate safety meetings will be held and all personnel will be briefed on the contents of this plan prior to initiating any efforts. Tailgates will also cover any safety and/or health issues not anticipated or addressed in this plan. The Field Team Leader will be responsible for briefing and record keeping.

VI. COMMUNICATION PROCEDURES

Radio communication is not anticipated to be essential for this project. The Field Team Leader should remain visible to the heavy equipment operator throughout the pot-holing investigation of the site.

The following standard hand signals will be used:

Hand gripping throat	Out of air, can't breathe
Grip partner's wrist or both hands around waist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK, I'm all right, I understand
Thumbs down	NO, Negative

Others as needed while handling, moving, or loading materials, are acceptable provided that all personnel involved agree to their meaning.

Telephone communication will be available by mobile phone as allowed by reception in the area.

VII. CONTINGENCIES

FIRST AID MEASURES/MEDICAL EMERGENCIES

The nearest hospital is the Nor-Lea General Hospital located in Lovington, New Mexico. A map to the nearest hospital is attached to this HASP.

PHONE LIST:

AMBULANCE	911
POLICE, FIRE & RESCUE	911
HOSPITAL (Nor-Lea General)	(575) 396-6611
STATE POLICE (Hobbs, NM)	(575) 392-5580
POISON CONTROL	1-800-362-0101
CHEMTREC	1-800-424-8802

First aid and emergency fire equipment will be available in SMA's vehicle.

Emergency Procedures

The following standard emergency procedures will be used by on site personnel. The Site Safety Officer shall be notified of any on site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Upon notification of an injury, the Project Team Leader and Site Safety Officer will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of remaining personnel, operations may continue. If the injury increases the risk to

others, the personnel will be directed to return to the designated home office.

In any case, the appropriate first aid will be initiated and necessary follow-up as stated above.

Fire / Explosion:

Upon notification of a fire or explosion on site, the designated emergency signal shall be sounded and all site personnel assembled at a location determined prior to commencement of field work. The fire department shall be alerted and all personnel moved to a safe distance from the involved area. *Fire extinguishers shall be used with discretion to minimize the risk of fire and explosion that would result in injuries.*

In all situations, when an on-site emergency results in evacuation, personnel shall not reenter until:

1. The hazards have been reassessed.
2. The conditions resulting in the emergency have been corrected.
3. The Site Safety Plan has been reviewed.
4. Site personnel have been briefed on any changes in the Site Safety Plan.

VIII. CLOSURES AND SIGNATURES

This plan has been reviewed and has the full approval of the following Management.

Owner:

NAME:_____
TITLE:_____
DATE:_____

Consultant: ***Souder, Miller & Associates***

NAME:_____
TITLE:_____
DATE:_____

Subcontractor: **Gandy-Marley, Inc.**

NAME:_____
TITLE:_____
DATE:_____

Subcontractor: **Geomechanics Southwest, Inc. (GSI)**

NAME:_____
TITLE:_____
DATE:_____

All site personnel have read the above plan and are familiar with its provisions.

	Print Name	Signature
Site Safety Officer	_____	_____
Field Team Leader	_____	_____
Other Site Personnel	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

Appendix E – Field Notes

SUBJECT Field Notes/Logs PROJECT PAGE 1

CLIENT OCD Blackrock oil DATE BY CCC

CHECKED BY

(1) Sun 5/5/13

OCD Blackrock oil site

-SMA (CCC) + 3 man drilling crew from Geomechanics Southwest, Inc. (GSI) onsite to commence first boring MW-1 at 0954. CME-75HT rig - start drilling w/8" HSA - 140lb. hammer / 30" drop (auto hammer) split-spoon-SPT sampler scheduled from surface every 5ft. depths (as practical)

MW-1 H&S. Briefing @ 1025 - start drilling at 1034

Depth	Sample Recovery	PID (ppm)	Description
0-0.5'			
10 32	20%	4.4	Sandy SILT (ML) - light brownish-white to cream mottled, dry, VF-f sand, very dense, mod. caliche-cemented w/hard caliche concretions / cobbles near-surface, slight odor?
50 for 5"			
5-5.5'	10%	17.2	Sandy SILT (ML) - same as surface sample, no odor
10 55	PID only -		
11/50 for 1"	No sample		
@5' Switch to 6" air rotary drilling			
10-11.5	8.9%	30.9	Silty SAND (SM) - l. reddish-brown, sl. moist, med-dense, VF-f, sl. caliche-cemented, no odor.
11 12			
15/11/26			

(2) SUBJECT Field Notes/Logs PROJECT PAGE 2

CLIENT OCD/Blackrock Oil DATE BY CCC

5/5/13 CHECKED BY

MW-1 continued —

Depth	Sample Recovery	PID (ppm)	Description
@15' 1130 50 for 2"	No Recovery (cobble)	—	—
20-21' 1142 40/50 for 3"	70%	25.4	Silty SAND (SM) — same as 10' depth
25-25.5' 1212 50 for 6"	25%	6.2	Silty SAND (SM) - light brown w/ white mottling, sl. moist, med. dense to dense, V fine, slightly cemented w/ small, gravel-sized caliche nodules, no odor.
30-30.5' 1230 50 for 5.5"	30%	2.1	Silty SAND (SM) — same as above w/ thin caliche - cemented layer
35-35.5 1254 50 for 6"	40%	17.7	Silty SAND (SM) same as previous
40-41' 1311 36/50 for 5"	80%	7.3	Silty SAND (SM) — same, except lt. reddish brown, no caliche, no odor, unlemented, dense, sl. moist.

(2) SUBJECT Field Notes/Logs PROJECT PAGE 2

CLIENT OCD Blackrock Oil DATE BY CCC

5/5/13 CHECKED BY

MW-1 continued —

Depth	Sample Recovery	PID (ppm)	Description
@15' 1130 50 for 2"	No Recovery (cobble)	—	—
20-21' 1142 40/50 for 3"	70%	25.4	Silty SAND (SM) — same as 10' depth
25-25.5' 1212 50 for 6"	25%	6.2	Silty SAND (SM) - light brown w/ white mottling, sl. moist, med. dense to dense, v. fine, slightly cemented w/ small, gravel-sized caliche nodules, no odor.
30-30.5' 1230 50 for 5.5"	30%	2.1	Silty SAND (SM) — same as above w/ thin caliche - cemented layer
35-35.5 1254 50 for 6"	40%	17.7	Silty SAND (SM) same as previous
40-41' 1311 36/50 for 5"	80%	7.3	Silty SAND (SM) — same, except lt. reddish brown, no caliche, no odor, unconsolidated, dense, sl. moist.

SUBJECT Field Notes/Logs PROJECT PAGE 3

CLIENT OCD Blackrock oil DATE BY CCC

(3) 5/5/13 CHECKED BY

MW-1 - Continued

Depth	Sample Recovery	PID (ppm)	Description
45-46' 1328 24/5o for 5"	100%	8.2	Silty SAND (SM) - same as previous.
50-51' 1348 25/5o for 5%	60%	24.0	Silty SAND (SM) - No change - Same as previous.
55-55.5' 1400 5o for 6"	50%	23.6	Silty SAND (SM) - No change same as previous.
60-60.5' 1406 5o for 6"	60%	22.8	Silty SAND (SM) - No change - Same as above
65-65.5' 1412 5o for 6"	60%	18.9	Silty SAND (SM) - No change - Same as above
* Ground water encountered at 69 ft. during drilling 70-71' 1550 40/5o for 2"	40%	—	Silty SAND (SM) Identical to above except, dk. yellow-brown, wet, vf-f, dense, no caliche

SUBJECT Field Notes/Logs PROJECT PAGE 4

CLIENT OCD Blackrock oil DATE BY CCC

CHECKED BY

④ 5/5/13

MW-1 - continued -

Depth today at 70' - will continue to final depth and MW installation tomorrow a.m.

MW-1 samples

Soil

① 2x meoH e 10-11.5' e1116

② 2x 4 oz soil jars e 10-11.5' e1116

③ 2x meoH e 65-65.5' e1412

④ 2x 4 oz soil jars e 65-65.5' e1412

SMA + 65± off site at 1607

SUBJECT Field Notes/Logs PROJECT PAGE 5

CLIENT OCD Blackrock oil DATE BY CCC

CHECKED BY

① Mon 5/6/13

- SMA (CCC) onsite at 0815
- GSI 3-man drill crew already onsite - Setting up for MW-1 installation/final BH depth
- MW-1 DTW (prior to final T.D.) = 68.83' (from bgs)

- Gandy-Marley (Clyde - Backhoe operator) onsite w/ Deere 420E backhoe (w/ trailer + dump truck) for site cleanup activities. Waiting for remaining Gandy crew members - site cleanup scope per approved WP - ① Remove/dispose of existing perimeter/barb wire fence and "T" posts - ② Construct new 5-wire barb wire fence w/ "T" posts around existing excavation pit - ③ Remove black plastic liner from site and dispose of including any other site debris - ④ thinspread existing soil on top of black liner across site ⑤ Re-level/re-grade site to ~ level surface w/ surrounding terrain.
- Weather - 50's, cool, cloudy, windy - occ. light rain

MW-1 Final drilled depth = 80.7' (bgs)
Final MW-1 DTW after auger removal = 68.70'
@ 0930

- MW constructed from 2" threaded PVC pipe w/ end cap.
- Bottom 15' of MW is screened (5' above/10' below water) - remainder is blank - MW bottom at 78.5' bgs
- B/f w/ 17' (10-50lb bags) of 10-20 sand
- 4' (1-50lb bag) powdered bentonite

MW-1 - Complete at 1015 - to be grouted w/ surface completion later in week.

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CLIENT OCD Blackrock oil DATE BY CCC

② 5/6/13 CHECKED BY

MW-2 - Setup/start sampling/drilling at 1044
start w/ 8" HSA auger. (CME-75HT rig) - 140 lb. hammer/30" drop
SPT/split-spoon samples at ≈ 5' intervals.

Depth	Sample Recovery	PID (ppm)	Description
0-1' 1044 12/50 for 5"	30%	19.2	Sandy SILT (ML) - cream to beige, dry, very fine to fine sand, caliche cemented hard layers, no odor.
5-7' 1057 14/24/22	70%	19.8	Sandy SILT (ML) same as 0-1' no change

Additional Sandy-Marley personnel onsite for site cleanup - Billy (supervisor) + 3 laborers (loss)

MW-2 - switch to 6" auger (Air rotary at 5') - depth

10-12' N45 4/6/11	100%	19.1	Silty SAND (SM) - cream, sl. moist, med. dense, vf-f, sl. caliche cemented, no odor
15-15.5' 1157 50 for 4"	25%	20.0	Silty SAND (SM) - beige, sl. moist, med. dense to dense, vf-f, moderately cemented caliche layer, no odor.

(3) 5/6/13

MW-2 continued-

Depth	Sample Recovery	PID (ppm)	Description
20-21'			
1210	40%	19.9	Silty SAND (SM) - l. brown, sl. moist, medium dense to dense (cemented), vf-f, slight, caliche-cemented layers, no odor
34/50 for 3"			
25-25.5'	30%	20.0	Silty SAND (SM) - no change fr. m 20'.
1222			
50 for 6"			
30-30.5'	10% - No sample PID only	20.0	Silty SAND (SM) - same as previous, except mod. cemented caliche layers, small, hard caliche nodules.
1236			
50 for 3"			
35-35.5'	40%	16.3	Silty SAND (SM) - l. brown, sl. moist, medium dense to dense (cemented) vf-f, slightly caliche-cemented layers, no odor.
1300			
50 for 6"			
40-41'	90%	15.2	Silty SAND (SM) - same as previous w/ trace caliche, dense
1318			
34/50			
45-45.5'	40%	20.6	Silty SAND (SM) - no change - same as previous
1339			
50 for 6"			

SUBJECT OCD Blackrock oil PROJECT PAGE 8

CLIENT Field Notes/Logs DATE BY CCC

⊕ 5/2/13 CHECKED BY

-MW-2 continued-

Depth	Sample Recovery	PID (ppm)	Description
50-51' 1415 39/50 for 4"	90%	17.2	Silty SAND (SM) - same as previous, no change.
55-55.5' 1437 50 for 4"	40%	16.7	Silty SAND (SM) - same as previous, no change
60-61' 1454 35/50 for 4"	80%	2.6'	Silty SAND (SM) - same as previous, no change.
65-65.5' 1515 50 for 4"	40%	3.7	Silty SAND (SM) still no change, same as previous.

-MW-2 - stopped for day at depth of 71'
GW encountered at ≈ 70' depth (bgs) - will complete MW installation and drilling to T.D. in a.m.

-Sandy Manley personnel offsite at 1525 - will continue site cleanup tomorrow.

-All personnel - (6S I + SMA) offsite at 1545.

SUBJECT Field Notes/Logs PROJECT PAGE 9

CLIENT OCD Blackrock oil DATE BY CCC

CHECKED BY

(1) 5/7/13

Soil samples collected from MW-2:

① 2x MeOH glass (MeOH kit) ② 2x 4oz soil jars (unpreserved) → @ 45.-45.5' 1339

③ 2x MeOH glass (MeOH kit) ④ 2x 4oz soil jars (unpreserved) → @ 65-65.5' 1515

- SMA (CCC) onsite at 0800 - Sandy-Marley site cleanup crew already at work.
- Sandy-Marley crew continuing to remove old "T" posts, remove site debris, and re-grade/re-level the site. Started to install new "T" posts for new "pit" perimeter fence. 4 man crew onsite (3 laborers + backhoe operator/dump truck driver)
- Sandy equipment onsite - jackhammer/generator, large sledgehammers, Deere backhoe, dump truck.
- 3 man GSI crew onsite at 0820
- D.T.W. (from bgs) = 68' at 0838 - T.D. 70'
- MW-2 overdrilled to final depth of 81', bottom of MW-2 installed at 78'
- At final depth - DTW still at 68' bgs.
- MW-2 pipe consists of threaded 2" diameter PVC - bottom 15' is screened (5' above, 10' below DTW), remainder is blank casing.
- MW-2 backfilled with 10-50lb. bags of 10-20 sand + 1-50-lb bag of powdered bentonite (17' + 4') - completed 1010 - grout + surface completion later in week.

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CLIENT OXY Blackrock oil DATE BY CCC

(2) 5/7/13 CHECKED BY

MW-3 - Start 10:43 am. - 8" HSA - 140lb. hammer / 30" drop (autohammer) CME-75 HT rig - 5 clad w/ SPT (Split-spoon samples)

Depth	Sample Recovery	PID (ppm)	Description
0-2'	50%	13.1	Sandy SILT (ML) - beige, dry, dense, VF-F, mod. caliche-cemented w/ caliche nodules, no odor.
1043			
5/24/48			
@5' switch to 6" auger (air rotary)			
5-7'	100%	20.7	Sandy SILT (ML) - becomes cream to l. orange, less cemented, otherwise same as previous
1055			
45/21/46			
10-12	100%	32.7	Silty SAND (SM) - cream, sl. moist, dense, VF-F, trace oxidation mottled, trace caliche cemented a few hard caliche nodules, no odor
1116			
16/24/27			
@15'	No Recovery	—	—
1128			
50 for 4"			
20-20.5'	40%	27.3	Silty SAND (SM) - l. brown, sl. moist dense, VF-F, moderately cemented with caliche layers, gravel-sized caliche nodules, no odor
1150			
50 for 6"			

(3) 5/7/13

MW-3 continued

Depth	Sample Recovery	PID ppm	Description
25-26'	60%	25.5	Silty SAND (SM) - same as previous, no change
1212			
28/50 for 4"			
30-30.5	20%	23.8	Silty SAND (SM) - fine to med. white N/A-brown mottled, sl. moist, dense VF-F, mod. caliche cemented, no odor
50 for 5"			
1227			
35-35.5'	25%	21.6	Silty SAND (SM) - same as previous sample, no change.
1243			
50 for 5"			
40-40.5'	50%	18.5	Silty SAND (SM) - l. brown, sl. moist, dense, VF-F, slight caliche cementation, a few gravel-size caliche nodules, no odor.
1257			
50 for 6"			
45-46'	100%	12.8	Silty SAND (SM) - same as previous sample, no change.
1310			
37/50 for 5"			
50-50.5'	50%	19.6	Silty SAND (SM) - same as previous sample, no change.
1330			
50 for 5.5"			
55-55.5'	50%	20.6	Silty SAND (SM) - same as previous sample, no change
1346			
50 for 6"			

④ 5/7/13

-Gandy-Marley personnel + equipment off site at 1355 - site cleanup is complete per approved WP

MW-3 - continued -

Depth	Sample Recovery	PID (ppm)	Description
60-60.5' 1404 5 of 6"	50%	17.9	Silty SAND (SM) same as previous, no change.
65-66' 1424 23/5 of 5%	80%	19.8	Silty SAND (SM) - l. brown, moist, dense, vf-f, uncemented, no caliche, no odor

Soil samples from MW-3:

① 2x MeOH (MeOH kit) (10-12') ⟩ 1116
② 2x 4oz. soil jars (unpreserved) (10-12') ⟩ 1116
③ 2x MeOH (MeOH kit) (65-66') ⟩ 1424
④ 2x 4oz soil jars (unpreserved) (65-66') ⟩ 1424

Initial T.D. = 71', GW encountered at 70' e 1445

Drillers to overdrill and set monitoring well pipe prior to end of day today, will have specifics in a.m.

SMA (CCC) offsite at 1503

SUBJECT Field Notes PROJECT PAGE 13

CLIENT OCD Blackrock Oil DATE BY CCC

CHECKED BY

① 5/8/13

OCD Blackrock Oil

- SMA (CCC) onsite at 1410
GSI is packing equipment/supplies preparing to leave site. All three site monitoring wells are grouted with surface completions in place. (well shroud, bollards, concrete pad).
- For MW-3
  6/f with 9 bags (17 ft³) of 10-20 sand (50 lb. bags) + 1 bag powdered bentonite (4 ft³). MW pipe is 2" threaded PVC - bottom 15 ft. screened w/ remainder blank. Final drilling depth was 81' bgs with bottom of MW-3 set at 79' bgs.

SMA + GSI offsite at 1440

SUBJECT Field Notes PROJECT PAGE 14

CLIENT OCD Blackrock Oil DATE BY CCC

① 5/8/13 CHECKED BY

Blackrock Blackrock Oil

Well Development

MW-1

DTW = 71.63' (TOC) - T.D. = 81.53' (TOC)

≈ 33" stickup

purge Vol. (3X)

81.53 - 71.63 = 9.90 X (0.75) ≈ 7.5 gal. (X2)

≈ 15 gal. (X6 well volumes)

MW-2

DTW = 71.82' (TOC) - T.D. = 81.80' (TOC)

≈ 34" stickup

purge = Vol. (3X)

81.80 - 71.82 = 9.98 X (0.75) ≈ 7.5 gal (X2)

= 15 gal. purge (X6 well volumes)

MW-3

DTW = 72.58 (TOC) - T.D = 82.55' (TOC)

= 33" stickup

purge Vol. (3X)

82.55 - 72.58 = 9.97 X (0.75) ≈ 7.5 gal. (X2)

= 15 gal. purge (X6 well volumes)

SUBJECT Field Notes PROJECT PAGE 15

CLIENT OCD Blackrock Oil DATE BY CCC

(2) 5/9/13 CHECKED BY

OCD Blackrock Oil

Onsite CFK + CCC (JMA) ~ 10 AM

MW-1 purge

X6 well volumes ≈ 15 gal.

chocolate milk - strong sl. cloudy/clear flow

No odor

sampled at 1200

MW-2 purge

15 gal

sampled at 1220

chocolate milk - then cloudy/sl. silty, no odor

MW-3 purge

15 gal

sampled at 1240

chocolate milk, then clear, no odor

CFK offsite at 1150

CCC off site at 1300