NM3 - 2

CLOSURE REPORT

2012

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-137 EZ
Revised August 3, 2009

Submit 1 Copy to Santa Fe Office

REGISTRATION/ FINAL CLOSURE REPORT FOR SMALL LANDFARM

Section 7 of 19.15.36 NMAC defines a small landfarm as a centralized landfarm of two acres or less that has a total capacity of 2000 cubic yards or less in a single lift of eight inches or less, remains active for a maximum of three years from the date of its registration and that receives only petroleum hydrocarbon-contaminated soils (excluding drill cuttings) that are exempt or non-hazardous waste. The operator shall operate only one active small landfarm per governmental section at any time. Estimate 1000 yds. SCR 10/19/09

GENERAL INFORMATION

1. ☒ Small Landfarm Registration ☒ Small Landfarm Final Closure Report*
(*Must be submitted within three years from the registration date)

2. Operator: GREAT WESTERN DRILLING COMPANY

Address: 700 W. LOUISIANA ST., MIDLAND, TX 79701

Contact Person: SAM ROBERTS Phone: (432) 682-5241

3. Location: SE /4 SE /4 Section 7 Township 32 N Range 11 W

REGISTRATION

1. As operator, are you the surface estate owner of the proposed site? ☐ Yes ☒ No If no, please attach a certification statement that demonstrates a written agreement is established with the surface estate owner authorizing the use of the site for the proposed small landfarm.

2. Will the proposed small landfarm comply with the siting requirements of Subsections A and B of 19.15.36.13 NMAC?
☒ Yes ☐ No

A. Depth to ground water.
- No small landfarm shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste.

B. No surface waste management facility shall be located:
- within 200 feet of a watercourse, lakebed, sinkhole or playa lake;
- within an existing wellhead protection area or 100-year floodplain;
- within, or within 500 feet of, a wetland;
- within the area overlying a subsurface mine;
- within 500 feet from the nearest permanent residence, school, hospital, institution or church in existence at the time of initial application; or
- within an unstable area, unless the operator demonstrates that engineering measures have been incorporated into the surface waste management facility design to ensure that the surface waste management facility's integrity will not be compromised.

3. Attach a plat and topographic map showing the small landfarm's location in relation to governmental surveys (quarter-quarter section, township and range); highways or roads giving access to the small landfarm site; watercourses; fresh water sources, including wells and springs; oil and gas wells or other production facilities; and inhabited buildings within one mile of the site's perimeter.

Based on the information provided with this submittal, registration of a small landfarm can only be granted if the operator complies with the following understandings and conditions:

- The operator shall operate only one active small landfarm per governmental section at any time. No small landfarm shall be located more than one mile from the operator's nearest oil or gas well or other production facility.
- The operator shall accept only exempt or non-hazardous wastes consisting of soils (excluding drill cuttings) generated as a result of accidental releases from production operations, that are predominantly contaminated by petroleum hydrocarbons, do not contain free liquids, would pass the paint filter test and where testing shows chloride concentrations are 500 mg/kg or below.
- The operator shall berm the landfarm to prevent rainwater run-on and run-off.
- The operator shall post a sign at the site readable from a distance of 50 feet and listing the operator's name; small landfarm registration number; location by unit letter, section, township and range; expiration date; and an emergency contact telephone number.
- The operator shall spread and disk contaminated soils in a single eight inch or less lift within 72 hours of receipt. The operator shall conduct treatment zone monitoring to ensure that the TPH concentration, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, does not exceed 2500 mg/kg; and that the chloride

concentration, as determined by EPA method 300.1, does not exceed 500 mg/kg. The operator shall treat soils by disking at least once a month and by watering and adding bioremediation enhancing materials when needed.

- The operator shall maintain records reflecting the generator, the location of origin, the volume and type of oil field waste, the date of acceptance and the hauling company for each load of oil field waste received. The division shall post on its website each small landfarm's location, operator and registration date. In addition, the operator shall maintain records of the small landfarm's remediation activities in a form readily accessible for division inspection. The operator shall maintain all records for five years following the small landfarm's closure.
- The operator shall submit a final closure report on a form C-137 EZ, together with photographs of the closed site, to the environmental bureau in the division's Santa Fe office.

CERTIFICATION

I hereby certify that the information submitted with this registration is true, accurate and complete to the best of my knowledge and belief and agree to the understandings and conditions of this registration.

Name: Sam Roberts Title: Area Engineer

Signature: Sam Roberts Date: 10/19/09

E-mail Address: sroberts@gwdc.com

OCD REGISTRATION: ☒ Approved. Date: 11/19/09 ☐ Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: Environmental Engineer OCD Registration Number: NM-3-002

FINAL CLOSURE REPORT

Were the landfarmed soils able to achieve the closure performance standards, listed below, within three years from the registration date? ☒ *Yes* ☐ *No* *(Please provide laboratory analytical results)*

- benzene, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 50 mg/kg;
- TPH, as determined by EPA SW-846 method 418.1 or other EPA method approved by the division, shall not exceed 2500 mg/kg; the GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, shall not exceed 500 mg/kg; and
- chlorides, as determined by EPA method 300.1, shall not exceed 500 mg/kg.

If yes, were the additional closure requirements listed below satisfied? ☒ Yes ☐ No (Please provide photos)

- The operator shall re-vegetate soils remediated to the closure performance standards if left in place in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC. Well Pad in use.
- If the operator returns remediated soils to the original site, or with division permission, recycles them, re-vegetate the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC;
- The operator shall remove berms on the small landfarm and buildings, fences, roads and equipment; and
- The operator shall clean up the site and collect one vadose zone soil sample from three to five feet below the middle of the treatment zone, or in an area where liquids may have collected due to rainfall events; the vadose zone soil sample shall be collected and analyzed using the methods specified above for TPH, BTEX and chlorides.

If no, were the landfarmed soils that have not or cannot be remediated to the closure performance standards within three years removed to a division-approved surface waste management facility, and the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC and re-vegetated? ☐ Yes ☐ No (Please provide photos)

CERTIFICATION

I hereby certify that the information submitted with this final closure report is true, accurate and complete to the best of my knowledge and belief.

Name: Sam Roberts Title: Area Engineer

Signature: Sam Roberts Date: 6/19/12

E-mail Address: sroberts@gwdc.com

OCD CLOSURE REVIEW: ☒ Closure Approved. Date: Dec 6, 2012 ☐ Closure Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: Environmental Engineer OCD Registration Number: NM3-002

GREAT WESTERN DRILLING COMPANY
Post Office Box 1659 • Midland, Texas 79702 • 432/682-5241

November 21, 2012

State of New Mexico
Energy Minerals and Natural resources
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Attn: Brad Jones

Subject: Decker #5 Small Land Farm Closure Report

Brad:

Please find attached the results from the vadose zone sample of the Decker #5 small land farm. If you need additional information, please advise.

Your consideration is appreciated.

Sincerely,

Sam Roberts

Sam Roberts
Area Engineer

envirotech

November 20, 2012 Project Number 99010-0013

Mr. Sam Roberts
Great Western Drilling
7415 East Main Street
Farmington, New Mexico 87401 Phone: (575) 396-5538

RE: SAMPLING RESULTS FOR THE LANDFARM LOCATED AT THE JE DECKER #5 WELL SITE, SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Roberts:

Enclosed please find the analytical results for landfarm sampling activities conducted on October 23, 2012 at the JE Decker #5 well site located in Section 7, Township 32 North, Range 11 West, San Juan County, New Mexico. The closure performance standards for this site were determined to be 2500 mg/kg total petroleum hydrocarbons (TPH) using USEPA Method 418.1, 500 mg/kg of combined gasoline range organics (GRO) and diesel range organics (DRO) using USEPA Method 8015, 0.2 mg/kg benzene and 50 mg/kg BTEX using USEPA Method 8021B, and 500 mg/kg chlorides using USEPA Method 4500B, pursuant to section 19.15.36.16.E of the New Mexico Administrative Code (NMAC). A sample of the vadose zone was taken and analyzed.

The landfarm was divided into five (5) sections designated as Blocks 1 through 5. One (1) composite sample was collected from the vadose zone in Section 5, between three (3) and five (5) feet BGS, due to Section 5 being the lowest point within the landfarm. The sample was collected into a four (4)-ounce glass jar, capped headspace free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Methods 418.1 and 8015, for benzene and total BTEX using USEPA Method 8021B and for chlorides using USEPA Method 4500B. The sample returned results below the regulatory standards; see enclosed ***Table 1, Summary of Analytical Results*** and ***Analytical Results***.

We appreciate the opportunity to be of service. If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully Submitted,
ENVIROTECH, INC.

Kory Peine
Environmental Technician
kpeine@envirotech-inc.com

Enclosures: Table 1, Summary of Analytical Results
Analytical Results

Cc: Mr. Cullen Keller, Great Western Drilling
Client File Number 99010

Table 1, Summary of Analytical Results
Great Western Drilling
Landfarm Sampling Results Documentation
Section 7, Township 32 North, Range 11 West
San Juan County, New Mexico
Project Number 99010-0013

Date	Sample Description	USEPA Method 418.1 TPH (ppm)	USEPA Method 8015 TPH (ppm)	USEPA Method 8021		Chloride (ppm)
				Benzene (ppm)	BTEX (ppm)	
NMAC Closure Performance Standards	NA	2500	500	0.2	50	500
(1) 7/6/2012	Block 1	39.6	ND	ND	0.0161	70
(1) 7/6/2012	Block 2	33.0	ND	ND	0.0236	20
(1) 7/6/2012	Block 3	595	ND	ND	0.0212	30
(1) 7/6/2012	Block 4	19.8	ND	ND	0.0204	30
(1) 7/6/2012	Block 5	19.8	ND	ND	0.0182	40
(2) 10/23/2012	Block 5	15.7	ND	ND	ND	0.35

*ND - Parameter not detected

(1) - Remediated Soil Samples from July Testing
(2) - Vadose Zone Sample

envirotech
Analytical Laboratory

Report Summary

Client: Great Western Drilling

Chain of Custody Number: 14589

Samples Received: 10-23-12

Job Number: 99010-0013

Sample Number(s): 63532

Project Name/Location: Landfarm Sampling/ JE Decker #5

Entire Report Reviewed By: _____ Date: 10/25/12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	10-24-12
Laboratory Number:	63532	Date Sampled:	10-23-12
Chain of Custody No:	14589	Date Received:	10-23-12
Sample Matrix:	Soil	Date Extracted:	10-24-12
Preservative:	Cool	Date Analyzed:	10-24-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm Sampling/ JE Decker #5**

envirotech
Analytical Laboratory

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	1024TCAL QA/QC	Date Reported:	10-24-12
Laboratory Number:	63532	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	10-24-12
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	10-24-12	9.9960E+02	1.0000E+03	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	10-24-12	9.9960E+02	1.0000E+03	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**ND**	**ND**	**0.0%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**297**	**119%**	**75 - 125%**
Diesel Range C10 - C28	**ND**	**250**	**283**	**113%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Was SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 63532 and 63536**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	10-24-12
Laboratory Number:	63532	Date Sampled:	10-23-12
Chain of Custody:	14589	Date Received:	10-23-12
Sample Matrix:	Soil	Date Analyzed:	10-24-12
Preservative:	Cool	Date Extracted:	10-24-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**ND**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**ND**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**101 %**
	1,4-difluorobenzene	**101 %**
	Bromochlorobenzene	**102 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846. USEPA, December 1996.

Comments: **Landfarm Sampling/ JE Decker #5**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	1024BCA2 QA/QC	Date Reported:	10-24-12
Laboratory Number:	63532	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	10-24-12
Condition:	N/A	Analysis:	BTEX
		Dilution:	50

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF: (Accept. Range 0-15%)	%Diff.	Blank Conc	Detect. Limit
Benzene	4.2695E-05	4.2695E-05	0.000	ND	0.2
Toluene	4.7786E-05	4.7786E-05	0.000	ND	0.2
Ethylbenzene	5.3116E-05	5.3116E-05	0.000	ND	0.2
p,m-Xylene	4.6691E-05	4.6691E-05	0.000	ND	0.2
o-Xylene	5.4470E-05	5.4470E-05	0.000	ND	0.2

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.00	0 - 30%	10
Toluene	ND	ND	0.00	0 - 30%	10
Ethylbenzene	ND	ND	0.00	0 - 30%	10
p,m-Xylene	ND	ND	0.00	0 - 30%	10
o-Xylene	ND	ND	0.00	0 - 30%	10

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	2500	2290	91.6	39 - 150
Toluene	ND	2500	2280	91.2	46 - 148
Ethylbenzene	ND	2500	2270	90.8	32 - 160
p,m-Xylene	ND	5000	4540	90.8	46 - 148
o-Xylene	ND	2500	2290	91.6	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 63532 and 63536**

envirotech
Analytical Laboratory

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	10-24-12
Laboratory Number:	63532	Date Sampled:	10-23-12
Chain of Custody No:	14589	Date Received:	10-23-12
Sample Matrix:	Soil	Date Extracted:	10-24-12
Preservative:	Cool	Date Analyzed:	10-24-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**15.7**	**6.5**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm Sampling/ JE Decker #5**

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envirotech-inc.com
laboratory@envirotech-inc.com

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Analytical Laboratory

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	10-24-12
Laboratory Number:	10-24-TPH.QA/QC 63532	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	10-24-12
Preservative:	N/A	Date Extracted:	10-24-12
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	07-11-12	10-24-12	1,630	1,720	5.5%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	6.5

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	15.7	13.1	16.6%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	15.7	2,000	1,700	84.3%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 63532**

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envirotech-inc.com
laboratory@envirotech-inc.com

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Chloride

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	10-25-12
Lab ID#:	63532	Date Sampled:	10-23-12
Sample Matrix:	Soil	Date Received:	10-23-12
Preservative:	Cool	Date Analyzed:	10-24-12
Condition:	Intact	Chain of Custody:	14589

Parameter	Concentration (mg/Kg)
Total Chloride	**0.350**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm Sampling/ JE Decker #5**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

Rush Please!!

CHAIN OF CUSTODY RECORD

14589

Client: Great Western Drilling	Project Name / Location: Landfarm Sampling / JE Decker #5
Email results to: K. Peine	Sampler Name: K. Peine
Client Phone No.:	Client No.: 99010-0013

Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative Cool	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
Blak 5	10-23-12	8:00	103532 P210011-01A	1 4oz Jar			X	X	X							X	X				✓	✓

	Date	Time		Date	Time
Relinquished by: (Signature)	10-23-12	13:40	Received by: (Signature)	10/23/12	1340
Relinquished by: (Signature)			Received by: (Signature)		

Sample Matrix: Soil ☑ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐ _____

☐ Sample(s) dropped off after hours to secure drop off area.

envirotech
Analytical Laboratory

5795 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 • laboratory@envirotech-inc.com

GREAT WESTERN DRILLING COMPANY
Post Office Box 1659 • Midland, Texas 79702 • 432/682-5241

October 11, 2012
State of New Mexico
Energy Minerals and Natural resources
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Gentlemen:

Please find attached a small landfarm final closure report for your approval.

Your consideration is appreciated.

Sincerely,

Sam Roberts

Sam Roberts
Area Engineer

District I
1625 N. French Dr., Hobbs, NM 88240
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Form C-137 EZ
Revised August 3, 2009

Submit 1 Copy to Santa Fe Office

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GENERAL INFORMATION

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(*Must be submitted within three years from the registration date)

2. Operator: GREAT WESTERN DRILLING COMPANY

Address: 700 W. LOUISIANA ST., MIDLAND, TX 79701

Contact Person: SAM ROBERTS Phone: (432) 682-5241

3. Location: SE /4 SE /4 Section 7 Township 32 N Range 11 W

REGISTRATION

1. As operator, are you the surface estate owner of the proposed site? ☐ Yes ☒ No If no, please attach a certification statement that demonstrates a written agreement is established with the surface estate owner authorizing the use of the site for the proposed small landfarm.

2. *Will the proposed small landfarm comply with the siting requirements of Subsections A and B of 19.15.36.13 NMAC?*
☒ Yes ☐ No

A. Depth to ground water.
- No small landfarm shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste.

B. No surface waste management facility shall be located:
- within 200 feet of a watercourse, lakebed, sinkhole or playa lake;
- within an existing wellhead protection area or 100-year floodplain;
- within, or within 500 feet of, a wetland;
- within the area overlying a subsurface mine;
- within 500 feet from the nearest permanent residence, school, hospital, institution or church in existence at the time of initial application; or
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3. Attach a plat and topographic map showing the small landfarm's location in relation to governmental surveys (quarter-quarter section, township and range); highways or roads giving access to the small landfarm site; watercourses; fresh water sources, including wells and springs; oil and gas wells or other production facilities; and inhabited buildings within one mile of the site's perimeter.

Based on the information provided with this submittal, registration of a small landfarm can only be granted if the operator complies with the following understandings and conditions:

- The operator shall operate only one active small landfarm per governmental section at any time. No small landfarm shall be located more than one mile from the operator's nearest oil or gas well or other production facility.
- The operator shall accept only exempt or non-hazardous wastes consisting of soils (excluding drill cuttings) generated as a result of accidental releases from production operations, that are predominantly contaminated by petroleum hydrocarbons, do not contain free liquids, would pass the paint filter test and where testing shows chloride concentrations are 500 mg/kg or below.
- The operator shall berm the landfarm to prevent rainwater run-on and run-off.
- The operator shall post a sign at the site readable from a distance of 50 feet and listing the operator's name; small landfarm registration number; location by unit letter, section, township and range; expiration date; and an emergency contact telephone number.
- The operator shall spread and disk contaminated soils in a single eight inch or less lift within 72 hours of receipt. The operator shall conduct treatment zone monitoring to ensure that the TPH concentration, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, does not exceed 2500 mg/kg; and that the chloride

concentration, as determined by EPA method 300.1, does not exceed 500 mg/kg. The operator shall treat soils by disking at least once a month and by watering and adding bioremediation enhancing materials when needed.

- The operator shall maintain records reflecting the generator, the location of origin, the volume and type of oil field waste, the date of acceptance and the hauling company for each load of oil field waste received. The division shall post on its website each small landfarm's location, operator and registration date. In addition, the operator shall maintain records of the small landfarm's remediation activities in a form readily accessible for division inspection. The operator shall maintain all records for five years following the small landfarm's closure.
- The operator shall submit a final closure report on a form C-137 EZ, together with photographs of the closed site, to the environmental bureau in the division's Santa Fe office.

CERTIFICATION

I hereby certify that the information submitted with this registration is true, accurate and complete to the best of my knowledge and belief and agree to the understandings and conditions of this registration.

Name: Sam Roberts Title: Area Engineer

Signature: Sam Roberts Date: 10/19/09

E-mail Address: sroberts@gwdc.com

OCD REGISTRATION: ☐ Approved. Date: _____ ☐ Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: _____ **OCD Registration Number:** _____

FINAL CLOSURE REPORT

Were the landfarmed soils able to achieve the closure performance standards, listed below, within three years from the registration date? ☒ Yes ☐ No (Please provide laboratory analytical results)

- benzene, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 50 mg/kg;
- TPH, as determined by EPA SW-846 method 418.1 or other EPA method approved by the division, shall not exceed 2500 mg/kg; the GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, shall not exceed 500 mg/kg; and
- chlorides, as determined by EPA method 300.1, shall not exceed 500 mg/kg.

If yes, were the additional closure requirements listed below satisfied? ☒ Yes ☐ No (Please provide photos)

- The operator shall re-vegetate soils remediated to the closure performance standards if left in place in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC. well pad in use.
- If the operator returns remediated soils to the original site, or with division permission, recycles them, re-vegetate the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC;
- The operator shall remove berms on the small landfarm and buildings, fences, roads and equipment; and
- ✓ The operator shall clean up the site and collect one vadose zone soil sample from three to five feet below the middle of the treatment zone, or in an area where liquids may have collected due to rainfall events; the vadose zone soil sample shall be collected and analyzed using the methods specified above for TPH, BTEX and chlorides.

If no, were the landfarmed soils that have not or cannot be remediated to the closure performance standards within three years removed to a division-approved surface waste management facility, and the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC and re-vegetated? ☐ Yes ☐ No (Please provide photos)

CERTIFICATION

I hereby certify that the information submitted with this final closure report is true, accurate and complete to the best of my knowledge and belief.

Name: Sam Roberts Title: Area Engineer

Signature: Sam Roberts Date: 6/19/12

E-mail Address: sroberts@gwdc.com

OCD CLOSURE REVIEW: ☐ Closure Approved. Date: _____ ☐ Closure Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: _____ **OCD Registration Number:** _____

concentration, as determined by EPA method 300.1, does not exceed 500 mg/kg. The operator shall treat soils by disking at least once a month and by watering and adding bioremediation enhancing materials when needed.

- The operator shall maintain records reflecting the generator, the location of origin, the volume and type of oil field waste, the date of acceptance and the hauling company for each load of oil field waste received. The division shall post on its website each small landfarm's location, operator and registration date. In addition, the operator shall maintain records of the small landfarm's remediation activities in a form readily accessible for division inspection. The operator shall maintain all records for five years following the small landfarm's closure.
- The operator shall submit a final closure report on a form C-137 EZ, together with photographs of the closed site, to the environmental bureau in the division's Santa Fe office.

CERTIFICATION

I hereby certify that the information submitted with this registration is true, accurate and complete to the best of my knowledge and belief and agree to the understandings and conditions of this registration.

Name: Sam Roberts Title: Area Engineer

Signature: Sam Roberts Date: 10/19/09

E-mail Address: sroberts@gwdc.com

OCD REGISTRATION: ☒ Approved. Date: 11/19/09 ☐ Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: Environmental Engineer **OCD Registration Number:** NM-3-002

FINAL CLOSURE REPORT

Were the landfarmed soils able to achieve the closure performance standards, listed below, within three years from the registration date? ☒ Yes ☐ No (Please provide laboratory analytical results)

- benzene, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 50 mg/kg;
- TPH, as determined by EPA SW-846 method 418.1 or other EPA method approved by the division, shall not exceed 2500 mg/kg; the GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, shall not exceed 500 mg/kg; and
- chlorides, as determined by EPA method 300.1, shall not exceed 500 mg/kg.

If yes, were the additional closure requirements listed below satisfied? ☒ Yes ☐ No (Please provide photos)

- The operator shall re-vegetate soils remediated to the closure performance standards if left in place in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC. Well Pad in use.
- If the operator returns remediated soils to the original site, or with division permission, recycles them, re-vegetate the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC;
- The operator shall remove berms on the small landfarm and buildings, fences, roads and equipment; and
- The operator shall clean up the site and collect one vadose zone soil sample from three to five feet below the middle of the treatment zone, or in an area where liquids may have collected due to rainfall events; the vadose zone soil sample shall be collected and analyzed using the methods specified above for TPH, BTEX and chlorides.

If no, were the landfarmed soils that have not or cannot be remediated to the closure performance standards within three years removed to a division-approved surface waste management facility, and the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC and re-vegetated? ☐ Yes ☐ No (Please provide photos)

CERTIFICATION

I hereby certify that the information submitted with this final closure report is true, accurate and complete to the best of my knowledge and belief.

Name: Sam Roberts Title: Area Engineer

Signature: Sam Roberts Date: 6/19/12

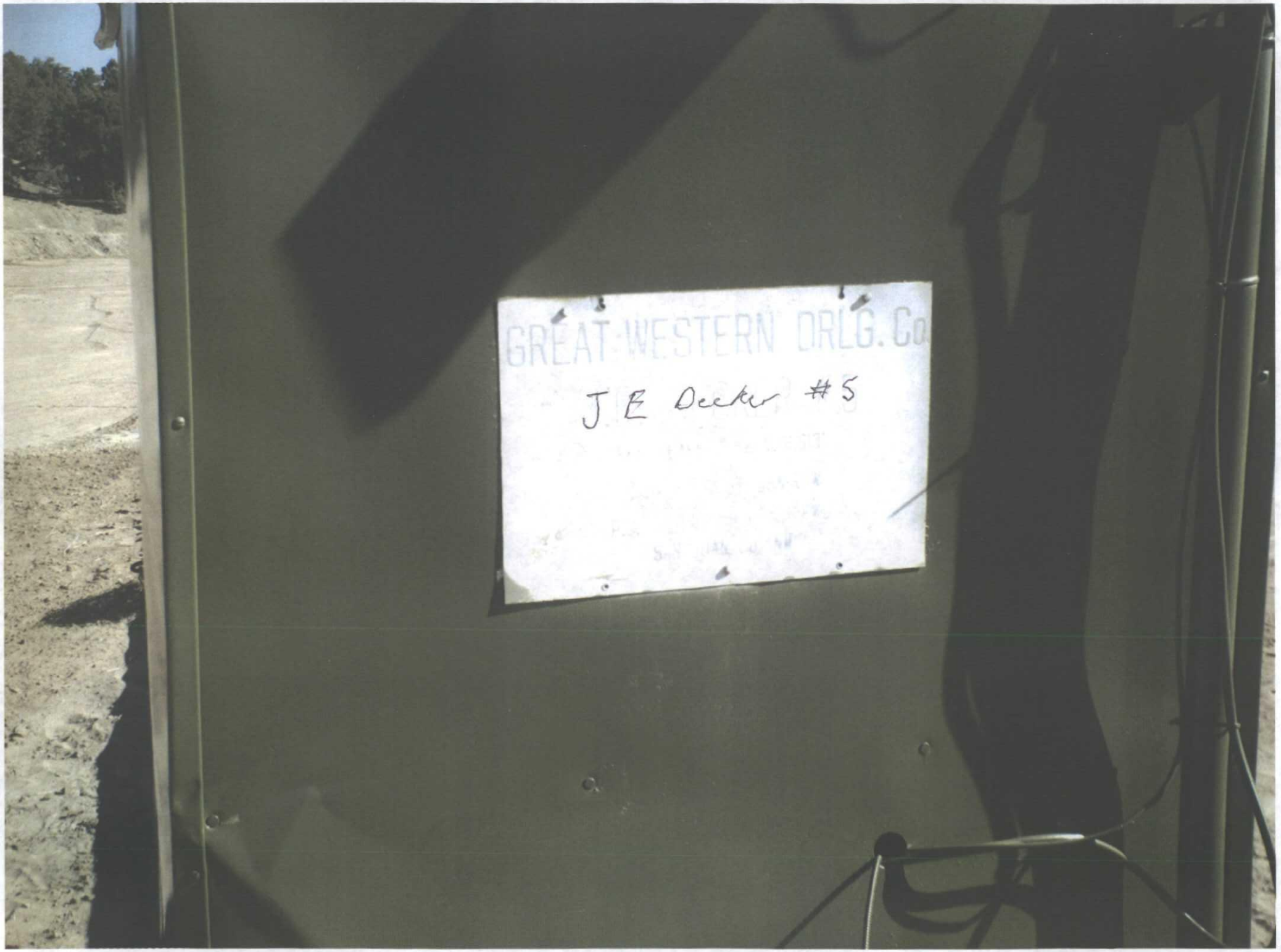
E-mail Address: sroberts@gwdc.com

OCD CLOSURE REVIEW: ☐ Closure Approved. Date: _____ ☐ Closure Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: _____ **OCD Registration Number:** _____


GREAT WESTERN DRLG. Co
J E Decker #5

envirotech

September 26, 2012 Project Number 99010-0013

Mr. Sam Roberts
Great Western Drilling
7415 East Main Street
Farmington, New Mexico 87401 Phone: (575) 396-5538

RE: SAMPLING RESULTS FOR THE LANDFARM LOCATED AT THE JE DECKER #5 WELL SITE, SAN JUAN COUNTY, NEW MEXICO

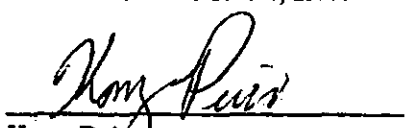
Dear Mr. Roberts:

Enclosed please find the analytical results for landfarm sampling activities conducted at the JE Decker #5 well site located in Section 7, Township 32 North, Range 11 West, San Juan County, New Mexico. The closure performance standards for this site were determined to be 2500 mg/kg total petroleum hydrocarbons (TPH) using USEPA Method 418.1, 500 mg/kg of combined gasoline range organics (GRO) and diesel range organics (DRO) using USEPA Method 8015, 0.2 mg/kg benzene and 50 mg/kg BTEX using USEPA Method 8021B, and 500 mg/kg chlorides using USEPA Method 4500B, pursuant to section 19.15.36.16.E of the New Mexico Administrative Code (NMAC).

The landfarm was divided into five (5) sections designated as Blocks 1 through 5. One (1) five (5)-point composite sample was collected from the remediated interval of each section using a hand auger between four (4) and eight (8) inches below ground surface (BGS); *see enclosed **Field Notes***. Additionally, one (1) composite sample was collected from the vadose zone in Section 5, between one (1) and 1.5 feet BGS, due to Section 5 being the lowest point within the landfarm. Each sample was collected into a four (4)-ounce glass jar, capped headspace free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Methods 418.1 and 8015, for benzene and total BTEX using USEPA Method 8021B and for chlorides using USEPA Method 4500B. All samples returned results below the regulatory standards; see enclosed ***Table 1, Summary of Analytical Results*** and ***Analytical Results***.

We appreciate the opportunity to be of service. If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully Submitted,
ENVIROTECH, INC.



Kory Peine
Environmental Technician
kpeine@envirotech-inc.com

Enclosures: Table 1, Summary of Analytical Results
Analytical Results

Cc: Mr. Cullen Keller, Great Western Drilling
Client File Number 99010

Table 1, Summary of Analytical Results
Great Western Drilling
Landfarm Sampling Results Documentation
Section 7, Township 32 North, Range 11 West
San Juan County, New Mexico
Project Number 99010-0013

Date	Sample Description	USEPA Method 418.1 TPH (ppm)	USEPA Method 8015 TPH (ppm)	USEPA Method 8021		Chloride (ppm)
				Benzene (ppm)	BTEX (ppm)	
NMAC Closure Performance Standards	NA	2500	500	0.2	50	500
4/28/2011	Block 5	24.2	ND	ND	ND	50
7/6/2012	Block 1	39.6	ND	ND	0.0161	70
7/6/2012	Block 2	33.0	ND	ND	0.0236	20
7/6/2012	Block 3	595	ND	ND	0.0212	30
7/6/2012	Block 4	19.8	ND	ND	0.0204	30
7/6/2012	Block 5	19.8	ND	ND	0.0182	40

*ND - Parameter not detected

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Report Summary

Client: Great Western Drilling

Chain of Custody Number: 14053

Samples Received: 07-06-12

Job Number: 99010-0013

Sample Number(s): 62534-62538

Project Name/Location: Landfarm Sampling: JE Decker #5

Entire Report Reviewed By: _____ Date: 7/13/12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

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laboratory@envirotech-inc.com

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 1	Date Reported:	07-10-12
Laboratory Number:	62534	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 2	Date Reported:	07-10-12
Laboratory Number:	62535	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 3	Date Reported:	07-10-12
Laboratory Number:	62536	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 4	Date Reported:	07-10-12
Laboratory Number:	62537	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	07-10-12
Laboratory Number:	62538	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	0710TCAL QA/QC	Date Reported:	07-11-12
Laboratory Number:	62534	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-10-12
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	07-10-12	9.9960E+02	1.0000E+03	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	07-10-12	9.9960E+02	1.0000E+03	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**ND**	**ND**	**0.0%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**276**	**110%**	**75 - 125%**
Diesel Range C10 - C28	**ND**	**250**	**270**	**108%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Was SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 62534-62538**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 1	Date Reported:	07-13-12
Laboratory Number:	62534	Date Sampled:	07-06-12
Chain of Custody:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Analyzed:	07-13-12
Preservative:	Cool	Date Extracted:	07-09-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**16.1**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**ND**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**16.1**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**84.2 %**
	1,4-difluorobenzene	**85.7 %**
	Bromochlorobenzene	**83.6 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 2	Date Reported:	07-13-12
Laboratory Number:	62535	Date Sampled:	07-06-12
Chain of Custody:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Analyzed:	07-13-12
Preservative:	Cool	Date Extracted:	07-09-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**23.6**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**ND**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**23.6**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**89.7 %**
	1,4-difluorobenzene	**86.9 %**
	Bromochlorobenzene	**85.7 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 3	Date Reported:	07-13-12
Laboratory Number:	62536	Date Sampled:	07-06-12
Chain of Custody:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Analyzed:	07-13-12
Preservative:	Cool	Date Extracted:	07-09-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**21.2**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**ND**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**21.2**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**76.2 %**
	1,4-difluorobenzene	**91.6 %**
	Bromochlorobenzene	**89.2 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 4	Date Reported:	07-13-12
Laboratory Number:	62537	Date Sampled:	07-06-12
Chain of Custody:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Analyzed:	07-13-12
Preservative:	Cool	Date Extracted:	07-09-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**20.4**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**ND**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**20.4**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**78.2 %**
	1,4-difluorobenzene	**94.3 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	07-13-12
Laboratory Number:	62538	Date Sampled:	07-06-12
Chain of Custody:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Analyzed:	07-13-12
Preservative:	Cool	Date Extracted:	07-09-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**18.2**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**ND**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**18.2**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**82.6 %**
	1,4-difluorobenzene	**86.0 %**
	Bromochlorobenzene	**91.9 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0713BCAL QA/QC	Date Reported:	07-13-12
Laboratory Number:	62572	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-13-12
Condition:	N/A	Analysis:	BTEX
		Dilution:	50

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff.	Blank Conc	Detect. Limit
		Accept. Range 0-15%			
Benzene	5.5479E-06	5.5479E-06	0.000	ND	0.2
Toluene	5.5276E-06	5.5276E-06	0.000	ND	0.2
Ethylbenzene	6.3017E-06	6.3017E-06	0.000	ND	0.2
p,m-Xylene	4.6004E-06	4.6004E-06	0.000	ND	0.2
o-Xylene	6.6464E-06	6.6464E-06	0.000	ND	0.2

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.00	0 - 30%	10
Toluene	28.0	29.1	0.04	0 - 30%	10
Ethylbenzene	ND	ND	0.00	0 - 30%	10
p,m-Xylene	13.5	12.0	0.11	0 - 30%	10
o-Xylene	10.1	10.8	0.07	0 - 30%	10

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	2500	2230	89.2	39 - 150
Toluene	28.0	2500	2240	88.6	46 - 148
Ethylbenzene	ND	2500	2210	88.4	32 - 160
p,m-Xylene	13.5	5000	4390	87.6	46 - 148
o-Xylene	10.1	2500	2210	88.0	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 62534-62538 and 62572-62573**

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Chloride

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 1	Date Reported:	07-11-12
Lab ID#:	62534	Date Sampled:	07-06-12
Sample Matrix:	Soil	Date Received:	07-06-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Chain of Custody:	14053

Parameter	Concentration (mg/Kg)
Total Chloride	**70**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm Sampling: JE Decker #5**

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Chloride

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 2	Date Reported:	07-11-12
Lab ID#:	62535	Date Sampled:	07-06-12
Sample Matrix:	Soil	Date Received:	07-06-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Chain of Custody:	14053

Parameter	Concentration (mg/Kg)
Total Chloride	**20**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm Sampling: JE Decker #5**

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Chloride

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 3	Date Reported:	07-11-12
Lab ID#:	62536	Date Sampled:	07-06-12
Sample Matrix:	Soil	Date Received:	07-06-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Chain of Custody:	14053

Parameter	Concentration (mg/Kg)
Total Chloride	**30**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm Sampling: JE Decker #5**

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Chloride

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 4	Date Reported:	07-11-12
Lab ID#:	62537	Date Sampled:	07-06-12
Sample Matrix:	Soil	Date Received:	07-06-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Chain of Custody:	14053

Parameter	Concentration (mg/Kg)
Total Chloride	**30**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm Sampling: JE Decker #5**

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Chloride

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	07-11-12
Lab ID#:	62538	Date Sampled:	07-06-12
Sample Matrix:	Soil	Date Received:	07-06-12
Preservative:	Cool	Date Analyzed:	07-10-12
Condition:	Intact	Chain of Custody:	14053

Parameter	Concentration (mg/Kg)
Total Chloride	**40**

Reference: U.S.E.P.A., 4500B, "*Methods for Chemical Analysis of Water and Wastes*", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 1	Date Reported:	07-11-12
Laboratory Number:	62534	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-09-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**39.6**	**6.6**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 2	Date Reported:	07-11-12
Laboratory Number:	62535	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-09-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**33.0**	**6.6**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 3	Date Reported:	07-11-12
Laboratory Number:	62536	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-09-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**595**	**6.6**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 4	Date Reported:	07-11-12
Laboratory Number:	62537	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-09-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**19.8**	**6.6**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Great Western Drilling	Project #:	99010-0013
Sample ID:	Block 5	Date Reported:	07-11-12
Laboratory Number:	62538	Date Sampled:	07-06-12
Chain of Custody No:	14053	Date Received:	07-06-12
Sample Matrix:	Soil	Date Extracted:	07-09-12
Preservative:	Cool	Date Analyzed:	07-09-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**19.8**	**6.6**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm Sampling: JE Decker #5**

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	07-11-12
Laboratory Number:	07-09-TPH.QA/QC 62534	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	07-09-12
Preservative:	N/A	Date Extracted:	07-09-12
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	07-11-12	07-09-12	1,650	1,720	4.3%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	6.6

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	39.6	39.6	0.0%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	39.6	2,000	1,720	84.3%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 62534-62538.**

14053

CHAIN OF CUSTODY RECORD

Client:	Project Name / Location:	ANALYSIS / PARAMETERS
Great Western Drilling	Landfarm Sampling: JE Decker #5	
Email results to:	Sampler Name:	
Kacy Peire	K. Peire	
Client Phone No.:	Client No.:	
	99010-0013	

Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative: $HgCl_2$	Preservative: HCl	Preservative: Ice	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
Block 1	7-6-12	14:00	62534	1 4oz Jar			X	X	X							X	X				X	X
Block 2	7-6-12	13:45	62535	1 4oz Jar			X															
Block 3	7-6-12	13:30	62536	1 4oz Jar			X															
Block 4	7-6-12	13:15	62537	1 4oz Jar			X															
Block 5	7-6-12	13:00	62538	1 4oz Jar			X															

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Kacy Peire	7-6-12	15:20	Cruz Hammer	7-6-12	3:30
Relinquished by: (Signature)			Received by: (Signature)		

Sample Matrix
Soil ☑ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐ _____

☐ Sample(s) dropped off after hours to secure drop off area.

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Great Western Drilling	Project #:	99010-0011
Sample ID:	Block 5	Date Reported:	05-02-11
Laboratory Number:	57997	Sampled:	04-28-11
Chain of Custody No:	11618	Date Received:	04-28-11
Sample Matrix:	Soil	Date Extracted:	04-29-11
Preservative:	Cool	Date Analyzed:	04-29-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **J E Decker #5**

Analyst

Review

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	04-29-11 QA/QC	Date Reported:	05-02-11
Laboratory Number:	57990	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-29-11
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	40662	9.996E+02	1.000E+03	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	40662	9.996E+02	1.000E+03	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**2.36**	**0.2**
Diesel Range C10 - C28	**1.50**	**0.1**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.00%**	**0 - 30%**
Diesel Range C10 - C28	**ND**	**ND**	**0.00%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**249**	**99.5%**	**75 - 125%**
Diesel Range C10 - C28	**ND**	**250**	**231**	**92.4%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste,

SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 57989-57991, 57993-57800**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Great Western Drilling	Project #:	99010-0011
Sample ID:	Block 5	Date Reported:	05-03-11
Laboratory Number:	57997	Date Sampled:	04-28-11
Chain of Custody:	11618	Date Received:	04-28-11
Sample Matrix:	Soil	Date Analyzed:	05-02-11
Preservative:	Cool	Date Extracted:	04-29-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**89.4 %**
	1,4-difluorobenzene	**95.6 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **J E Decker #5**

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0502BBLK QA/QC	Date Reported:	05-02-11
Laboratory Number:	58022	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	05-02-11
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.1850E+005	1.1874E+005	0.2%	ND	0.1
Toluene	1.2941E+005	1.2967E+005	0.2%	ND	0.1
Ethylbenzene	1.1152E+005	1.1174E+005	0.2%	ND	0.1
p,m-Xylene	2.6075E+005	2.6128E+005	0.2%	ND	0.1
o-Xylene	1.0600E+005	1.0622E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	ND	ND	0.0%	0 - 30%	1.2
o-Xylene	ND	ND	0.0%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	500	523	105%	39 - 150
Toluene	ND	500	528	106%	46 - 148
Ethylbenzene	ND	500	524	105%	32 - 160
p,m-Xylene	ND	1000	1,040	104%	46 - 148
o-Xylene	ND	500	532	106%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 58022, 57993-58000

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Great Western Drilling	Project #:	99010-0011
Sample ID:	Block 5	Date Reported:	05/02/11
Laboratory Number:	57997	Date Sampled:	04/28/11
Chain of Custody No:	11618	Date Received:	04/28/11
Sample Matrix:	Soil	Date Extracted:	04/29/11
Preservative:	Cool	Date Analyzed:	04/29/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**24.2**	**9.5**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **J E Decker #5**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	05/02/11
Laboratory Number:	04-29 -TPH.QA/QC 57993	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	04/29/11
Preservative:	N/A	Date Extracted:	04/29/11
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	04/15/11	04/29/11	1,590	1,490	6.3%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	9.5

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	24.2	24.2	0.0%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	24.2	2,000	1,910	94.4%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 57993-58000**

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Chloride

Client:	Great Western Drilling	Project #:	99010-0011
Sample ID:	Block 5	Date Reported:	05/03/11
Lab ID#:	57997	Date Sampled:	04/28/11
Sample Matrix:	Soil	Date Received:	04/28/11
Preservative:	Cool	Date Analyzed:	05/03/11
Condition:	Intact	Chain of Custody:	11618

Parameter	Concentration (mg/Kg)
Total Chloride	**50**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **J E Decker #5**

Analyst

Review

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CHAIN OF CUSTODY RECORD

11618

Client: GREAT WESTERN DRILLING	Project Name / Location: SE DECKER #5
Client Address:	Sampler Name: T. McKnight
Client Phone No.:	Client No.: 99010-0011

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative: H_2SO_4	Preservative: HCl	Preservative: gel	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
Block 1	4/28/11	15:15	57993	Soil Sludge Solid Aqueous	1/4 oz			✓	✓	✓							✓	✓				Y	Y
Block 2	4/28/11	15:20	57994	Soil Sludge Solid Aqueous	1/4 oz			✓	✓	✓							✓	✓					
Block 3	4/28/11	15:25	57995	Soil Sludge Solid Aqueous	1/4 oz			✓	✓	✓							✓	✓					
Block 4	4/28/11	15:30	57996	Soil Sludge Solid Aqueous	1/4 oz			✓	✓	✓							✓	✓					
Block 5	4/28/11	15:35	57997	Soil Sludge Solid Aqueous	1/4 oz			✓	✓	✓							✓	✓					
Block 5e5'	4/28/11	15:40	57998	Soil Sludge Solid Aqueous	1/4 oz			✓	✓	✓								✓					
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	4/28/11	17:00	[signature]	4/28/11	17:00
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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Pit No. _____
C O C #: _____

FIELD REPORT: REMEDIATION FACILITY CLOSURE VERIFICATION

JOB No. _____
PAGE No. 1 of 5

FACILITY LOCATION: JE Dec66 #5 LandFarm
SOURCE LOCATION: _____
SOURCE LOCATION: Block # 1
SOURCE LOCATION: _____
FACILITY CLASSIFICATION: _____ PIT TYPE: _____

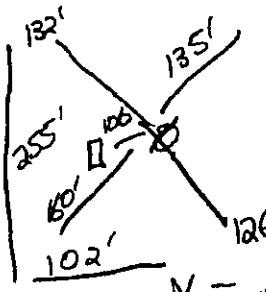
DATE STARTED: 7-6-12
DATE FINISHED: _____
ENVIRONMENTAL SPECIALIST: K. Peine

SOIL REMEDIATION: QUANTITY: _____ # OF COMP. SAMPLES: _____
DIMENSIONS: _____
VISIBLE OBSERVATIONS: _____
SAMPLING PLAN: _____

FIELD NOTES & REMARKS: FACILITY CENTER LOCATED APPROX _____ YARDS _____ FROM WELLHEAD.

DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE/TYPE:
NEAREST SURFACE WATER
MAX. TPH PER NMOCD

No. OF 5-POINT COMPOSITE SAMPLES
YARDAGE--#
0-200=1
201-400=2
401-1000=3
>1000=5

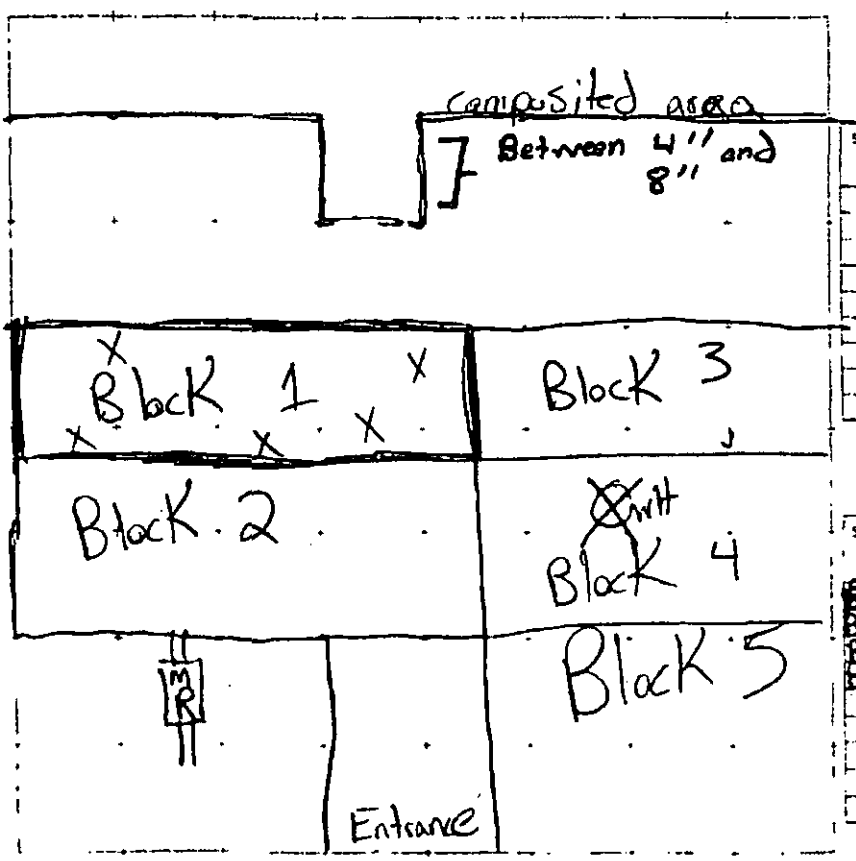


well Head N 36° 59.7315'' W 108° 1.4783'

X = Sample Collection

FACILITY DIAGRAM

GRID SCALE:



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)

LAB RESULTS

SAMPLE ID	ANALYSIS REQUESTED	RESULTS PPM
Block	8015	
Block	8021	
Block	418	
Block	Chlor	

NORTH

WELLHEAD

SURFACE FLOW DIR

ESTIMATED GROUNDWATER FLOW DIR

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Pit No. _____
COC #. _____

FIELD REPORT: REMEDIATION FACILITY CLOSURE VERIFICATION

JOB No. _____
PAGE No. 2 of 5

FACILITY LOCATION: JE Dekes #5 Landfarm
SOURCE LOCATION: _____
SOURCE LOCATION: Block # 2
SOURCE LOCATION: _____
FACILITY CLASSIFICATION: _____ PIT TYPE: _____

DATE STARTED: 7-6-12
DATE FINISHED: _____

ENVIRONMENTAL SPECIALIST: K. Paine

SOIL REMEDIATION: QUANTITY: _____ # OF COMP. SAMPLES: ___
DIMENSIONS: _____
VISIBLE OBSERVATIONS: _____
SAMPLING PLAN: _____

FIELD NOTES & REMARKS: FACILITY CENTER LOCATED APPROX _____ YARDS _____ FROM WELLHEAD.

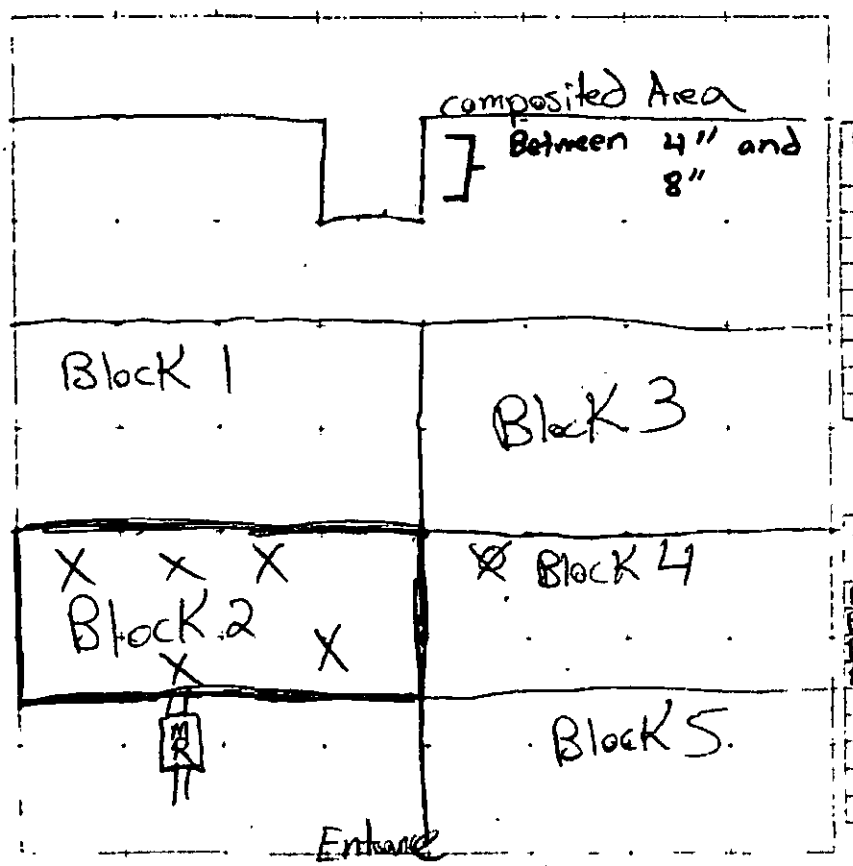
DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE/TYPE:
NEAREST SURFACE WATER
MAX TPH PER NMOCD

No. OF 5-POINT COMPOSITE SAMPLES
YARDAGE--#
0-200=1
201-400=2
401-1000=3
>1000=5

X = Sample Collection

FACILITY DIAGRAM

GRID SCALE:



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE P.I. (ppm)

LAB RESULTS

SAMPLE ID	ANALYSIS REQUESTED	RESULTS PPM
Blck2	8015	
Blck2	8021	
Blck2	418	
Blck2	Chlor	

NORTH

WELLHEAD

SURFACE FLOW DIR

ESTIMATED GROUNDWATER FLOW DIR

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PIT NO. ______
C.O.C. #: ______

FIELD REPORT: REMEDIATION FACILITY CLOSURE VERIFICATION

JOB No. ______
PAGE No. 3 of 5

FACILITY LOCATION: JE Decker #5 Landfarm
SOURCE LOCATION:
SOURCE LOCATION: Block #3
SOURCE LOCATION:
FACILITY CLASSIFICATION: ______ PIT TYPE: ______

DATE STARTED: 7-6-12
DATE FINISHED: ______
ENVIRONMENTAL SPECIALIST: K. Peire

SOIL REMEDIATION: QUANTITY: ______ # OF COMP. SAMPLES: ______
DIMENSIONS: ______
VISIBLE OBSERVATIONS: ______
SAMPLING PLAN: ______

FIELD NOTES & REMARKS: FACILITY CENTER LOCATED APPROX ______ YARDS ______ FROM WELLHEAD.

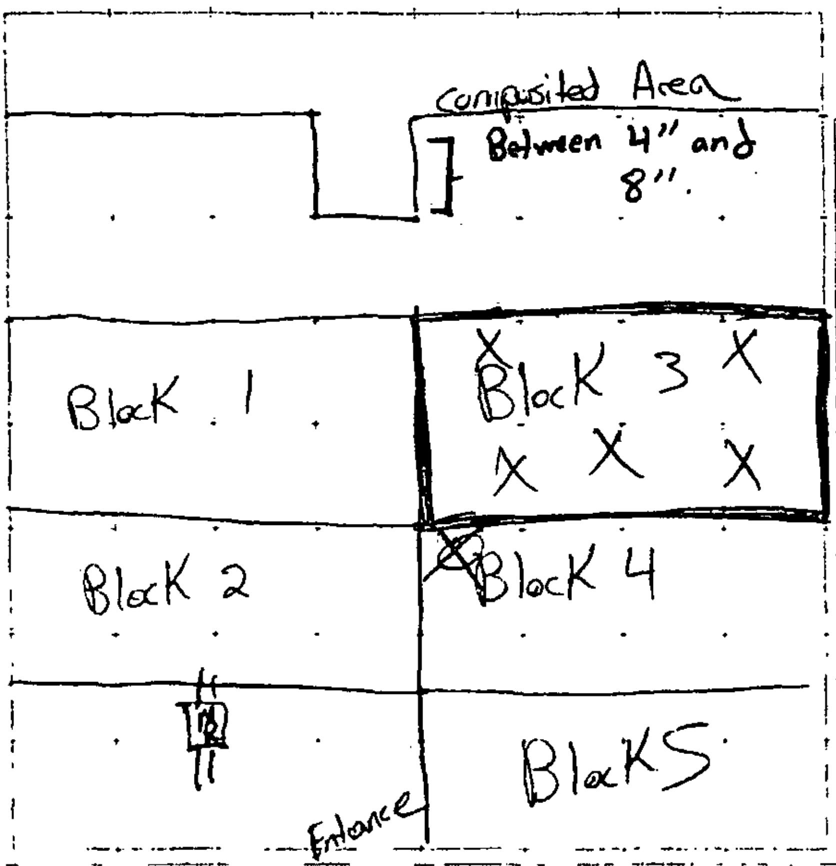
DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE/TYPE:
NEAREST SURFACE WATER:
MAX. TPH PER NMOCD:

No. OF 5-POINT COMPOSITE SAMPLES
YARDAGE -- #
0-200=1
201-400=2
401-1000=3
>1000=5

X=Sample collection

FACILITY DIAGRAM

GRID SCALE:



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)

LAB RESULTS

SAMPLE ID	ANALYSIS REQUESTED	RESULTS PPM
Blk3	8015	
Blk3	8021	
Blk3	418	
Blk3	Chlo	

NORTH

WELLHEAD

SURFACE FLOW DIR

ESTIMATED GROUNDWATER FLOW DIR

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PIT NO. _____
C O C #. _____

FIELD REPORT: REMEDIATION FACILITY CLOSURE VERIFICATION

JOB NO. _____
PAGE NO. 4 of 5

FACILITY LOCATION: JE Dakes #5 Landfarm
SOURCE LOCATION: _____
SOURCE LOCATION: Block #4
SOURCE LOCATION: _____
FACILITY CLASSIFICATION: _____ PIT TYPE: _____

DATE STARTED: 7-6-12
DATE FINISHED: _____
ENVIRONMENTAL SPECIALIST: K. Reid

SOIL REMEDIATION: QUANTITY: _____ # OF COMP. SAMPLES: _____
DIMENSIONS: _____
VISIBLE OBSERVATIONS: _____
SAMPLING PLAN: _____

FIELD NOTES & REMARKS: FACILITY CENTER LOCATED APPROX _____ YARDS _____ FROM WELLHEAD.

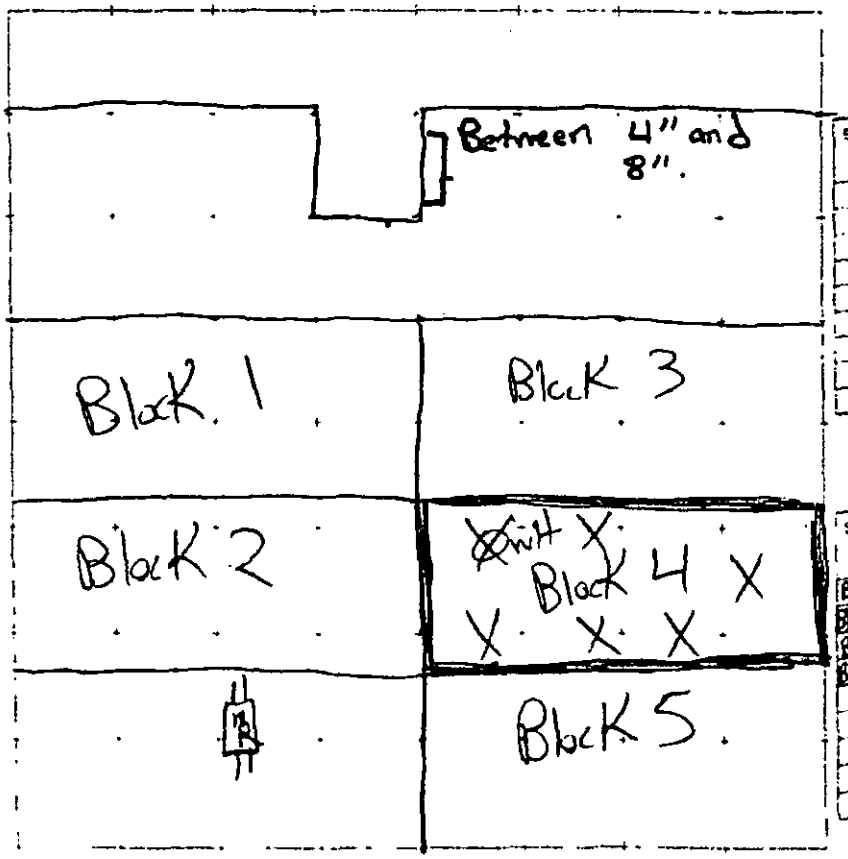
DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE/TYPE:
NEAREST SURFACE WATER:
MAX. TPH PER NMOCD

No. OF 5-POINT COMPOSITE SAMPLES: YARDAGE--#
0-200=1
201-400=2
401-1000=3
>1000=5

X= Sample Collection

FACILITY DIAGRAM

GRID SCALE:



OVM RESULTS

SAMPLE ID	F.I.D HEADSPACE P.I. (ppm)

LAB RESULTS

SAMPLE ID	ANALYSIS REQUESTED	RESULTS PPM
Block 4	8015	
Block 4	8021	
Block 4	418	
Block 4	Chlor	

NORTH

WELLHEAD

SURFACE FLOW DIP

ESTIMATED GROUNDWATER FLOW DIP

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PIT No. _____
C.O.C. # _____

FIELD REPORT: REMEDIATION FACILITY CLOSURE VERIFICATION

JOB No. _____
PAGE No. 5 of 5

FACILITY LOCATION: JE Dacks #5 LandFarm
SOURCE LOCATION: _____
SOURCE LOCATION: Block #5
SOURCE LOCATION: _____
FACILITY CLASSIFICATION: _____ PIT TYPE: _____

DATE STARTED 7-6-12
DATE FINISHED _____
ENVIRONMENTAL SPECIALIST: K. Paine

SOIL REMEDIATION: QUANTITY: _____ # OF COMP. SAMPLES: _____
DIMENSIONS: _____
VISIBLE OBSERVATIONS: _____
SAMPLING PLAN: _____

FIELD NOTES & REMARKS: FACILITY CENTER LOCATED APPROX _____ YARDS _____ FROM WELLHEAD.

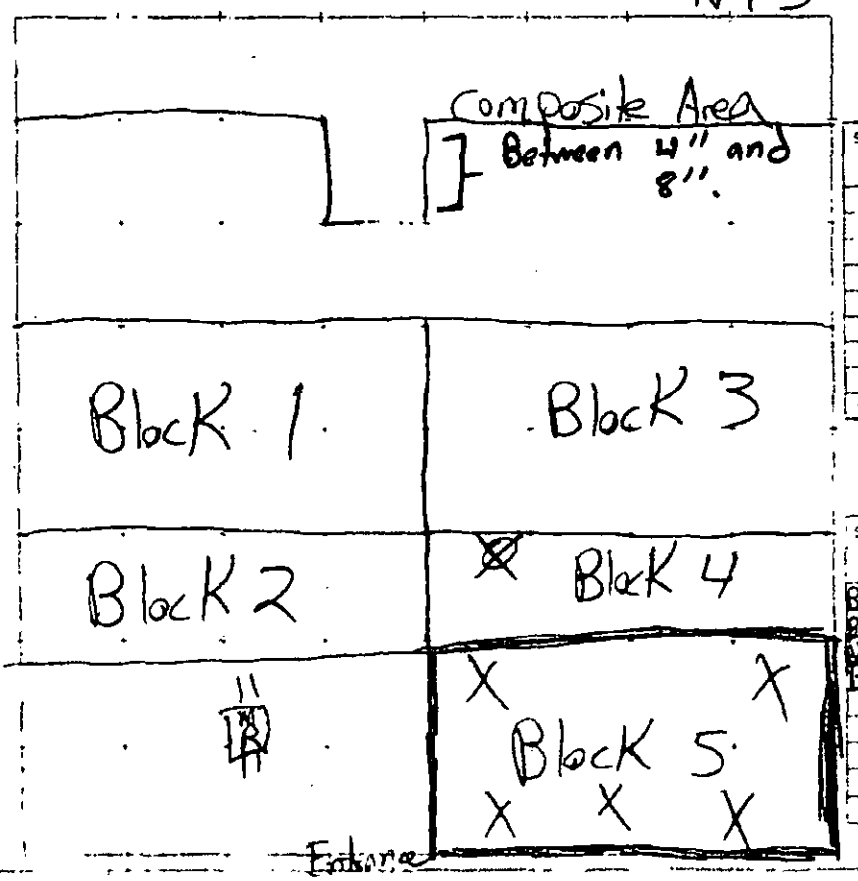
DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE/TYPE:
NEAREST SURFACE WATER:
MAX TPH PER NMOCD

No. OF 5-POINT COMPOSITE SAMPLES: YARDAGE--#
0-200=1
201-400=2
401-1000=3
>1000=5

X = Sample Collection

FACILITY DIAGRAM

GRID SCALE: NTS



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)

LAB RESULTS

SAMPLE ID	ANALYSIS REQUESTED	RESULTS ppm
Blk5	8015	
Blk5	8021	
Blk5	418	
Blk5	Chlor	

NORTH

WELLHEAD

SURFACE FLOW DIR

ESTIMATED GROUNDWATER FLOW DIR