

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

Form C-144
June 1, 2004

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

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☒ No ☐

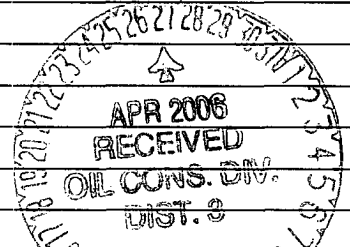
Type of action: Registration of a pit or below-grade tank ☐ Closure of a pit or below-grade tank ☒

Operator: Elm Ridge Resources Telephone: (505) 632-3476 e-mail address: amackey1@elmridge.net
Address: #20 County Road 5060, Bloomfield, New Mexico, 87413
Facility or well name: Harvey State No. 1 API #: 3003905711 U/L or Qtr/Qtr N Sec 36 T 25N R 6W
County: Rio Arriba Latitude 36.35235 Longitude -107.42181 NAD: 1927 ☒ 1983 ☐
Surface Owner: Federal ☐ State ☐ Private ☒ Indian ☐

Pit	Below-grade tank
Type: Drilling <input type="checkbox"/> Production <input checked="" type="checkbox"/> Disposal <input type="checkbox"/> Workover <input type="checkbox"/> Emergency <input type="checkbox"/> Lined <input type="checkbox"/> Unlined <input checked="" type="checkbox"/> Liner type: Synthetic <input type="checkbox"/> Thickness _____ mil Clay <input type="checkbox"/> Pit Volume <u>10</u> bbl	Volume: _____ bbl Type of fluid: Construction material: Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not.
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet (20 points) 50 feet or more, but less than 100 feet (10 points) 100 feet or more (0 points) 0
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes (20 points) No (0 points) 0
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet (20 points) 200 feet or more, but less than 1000 feet (10 points) 1000 feet or more (0 points) 10
	Ranking Score (Total Points) 10

If this is a pit closure: (1) Attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite ☐ offsite ☒ If offsite, name of facility Envirotech Landfarm #2. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☒ Yes ☐ If yes, show depth below ground surface _____ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments:
Approximately 80 cubic yards of contaminated soil was removed and disposed of at Envirotech's Landfarm #2
Maximum reasonable extent of excavation was reached at a sandstone layer 8' BGS, BTEX results for bottom are attached
Bottom of excavation was sprayed with potassium permanganate to aid in the breakdown of residual contamination
<u>Bedrock</u>



I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: 4/19/06
Printed Name/Title Ms. Amy Mackey - Production Technician Signature [Signature]
Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval: DEPUTY OIL & GAS INSPECTOR, DIST. 3 Signature Brandon Powell Date: APR 27 2006

CLIENT: <u>Eln Ridge</u>	ENVIROTECH INC. <small>ENVIRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64-3014 FARMINGTON, NEW MEXICO 87401 PHONE: (505) 632-0615</small>	LOCATION NO: _____ C.O.C. NO: _____
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FIELD REPORT: CLOSURE VERIFICATION	PAGE No: <u>1</u> of <u>1</u>
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LOCATION: NAME: <u>Harvey State</u> WELL #: <u>1</u> PIT: <u>Sep</u> QUAD/UNIT: <u>N</u> SEC: <u>36</u> TWP: <u>25N</u> RNG: <u>6W</u> PM: <u>NMPM</u> CNTY: <u>BA</u> ST: <u>NM</u> QTR/FOOTAGE: <u>990 FSL 1750 FWL</u> CONTRACTOR: <u>Franks</u>	DATE STARTED: <u>3/16/06</u> DATE FINISHED: <u>3/16/06</u> ENVIRONMENTAL SPECIALIST: <u>gwc</u>
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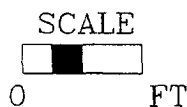
EXCAVATION APPROX. <u>20</u> FT. x <u>15</u> FT. x <u>8</u> FT. DEEP.	CUBIC YARDAGE: <u>80</u>	
DISPOSAL FACILITY: <u>Envirotech Landfarm #2</u> REMEDIATION METHOD: <u>Land farm</u>		
LAND USE: <u>Range</u> LEASE: _____ FORMATION: _____		

FIELD NOTES & REMARKS:	PIT LOCATED APPROXIMATELY <u>90</u> FT. <u>265°</u> FROM WELLHEAD.	
DEPTH TO GROUNDWATER: <u>>100</u>	NEAREST WATER SOURCE: <u>>1000</u>	NEAREST SURFACE WATER: <u>200-1000</u>
NMCD RANKING SCORE: <u>10</u>	NMCD TPH CLOSURE STD: <u>\$1,000</u> PPM	
SOIL AND EXCAVATION DESCRIPTION:		CHECK ONE: <input checked="" type="checkbox"/> PIT ABANDONED <input type="checkbox"/> STEEL TANK INSTALLED

Approximately 80 cubic yards of soil was transported to Envirotech's Landfarm #2 for disposal. Maximum Reasonable extent was reached at 8' at a sandstone layer. A BTEX sample of the bottom was analyzed via method 8021 (USEPA). See attached results bottom of pit was sprayed with Potassium Permanganate

FIELD 418.1 CALCULATIONS

TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
	SEE METHOD 418.1 Analysis Sheet						



PIT PERIMETER

OVM RESULTS

PIT PROFILE

	<table border="1" style="width:100%"> <tr> <th>SAMPLE ID</th><th>FIELD HEADSPACE PID (ppm)</th></tr> <tr><td>1 Stomach</td><td>98</td></tr> <tr><td>2 Walls</td><td>18</td></tr> <tr><td>3 Bottom</td><td>860</td></tr> <tr><td>4 Ex. Mat.</td><td>360</td></tr> <tr><td>5</td><td></td></tr> </table> <table border="1" style="width:100%"> <tr> <th colspan="3">LAB SAMPLES</th> </tr> <tr> <th>SAMPLE ID</th><th>ANALYSIS</th><th>TIME</th></tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> </table>	SAMPLE ID	FIELD HEADSPACE PID (ppm)	1 Stomach	98	2 Walls	18	3 Bottom	860	4 Ex. Mat.	360	5		LAB SAMPLES			SAMPLE ID	ANALYSIS	TIME																<p>X - bottom Sample O - wall Sample</p>
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TRAVEL NOTES:	CALLOUT: _____	ONSITE: _____
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ENVIROTECH INC.

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

Method 418.1 Analysis Log Total Petroleum Hydrocarbons

Date 3/10/06

Analyst G. Crabtree

Location Harvey State #1

Instrument Infracal

Job No. 03056-040-031

Sample No.	Sample Description	Sample Wt. (g)	Volume Freon (mL)	Dilution Factor	Abs. Reading	TPH (mg/kg)	OVM (mg/kg)
1	Composite Sample of Wells	5.0	20	40	270	10,800	18
2	Composite Sample of Bottom at 8'	5.0	20	40	374	14,956	860
3	Excavated Material	5.0	20	40	437	17,480	360
4	Composite Sample of Wells	5.0	20	4	40	160	2

Infrared Spectrophotometer Calibration

New Freon _____

Date Standards Prepared _____

Standard Concentration (mg/L)	Absorbance
100	_____
200	<u>220</u>
500	_____
1000	_____

I-CAL RF: _____

C-CAL RF: _____

RSD: _____ %

% Difference: _____ %

QA/QC Acceptance Criteria: I-CAL RSD +/- 20%

C-Cal Difference +/- 10%

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Resources	Project #:	03056-040-031
Sample No.:	1	Date Reported:	3/17/2006
Sample ID:	Composite sample of pit walls	Date Sampled:	3/16/2006
Sample Matrix:	Soil	Date Analyzed:	3/16/2006
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		


Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	10,800.0	50.0

ND = Parameter not detected at the stated detection limit.

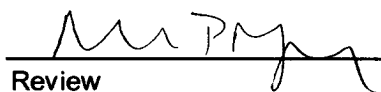
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Harvey State No. 1**

Instrument calibration checked against 200 ppm standard. Zeroed before each sample



Analyst



Review

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Resources	Project #:	03056-040-031
Sample No.:	2	Date Reported:	3/17/2006
Sample ID:	Composite sample of bottm at 8' BGS	Date Sampled:	3/16/2006
Sample Matrix:	Soil	Date Analyzed:	3/16/2006
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

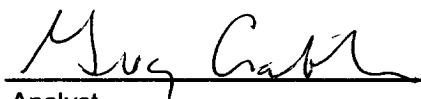
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	14,960.0	50.0

ND = Parameter not detected at the stated detection limit.

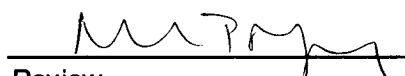
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Harvey State No. 1**

Instrument calibration checked against 200 ppm standard. Zeroed before each sample



Analyst



Review

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Resources	Project #:	03056-040-031
Sample No.:	3	Date Reported:	3/17/2006
Sample ID:	Composite sample of Excavated Material	Date Sampled:	3/16/2006
Sample Matrix:	Soil	Date Analyzed:	3/16/2006
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

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

18,920.0

50.0

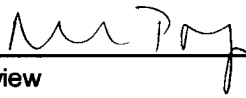
ND = Parameter not detected at the stated detection limit.

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

Comments: **Harvey State No. 1**

Instrument calibration checked against 200 ppm standard. Zeroed before each sample


Analyst


Review

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Resources	Project #:	03056-040-031
Sample No.:	4	Date Reported:	3/17/2006
Sample ID:	Composite sample of pit walls	Date Sampled:	3/16/2006
Sample Matrix:	Soil	Date Analyzed:	3/16/2006
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

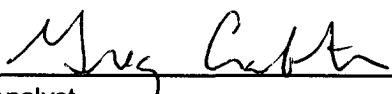
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	160.0	5.0

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: **Harvey State No. 1**

Instrument calibration checked against 200 ppm standard. Zeroed before each sample



Analyst



Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Elm Ridge Resources	Project #:	03056-040-031
Sample ID:	Harvey State #1	Date Reported:	03-17-06
Laboratory Number:	36462	Date Sampled:	03-16-06
Chain of Custody:	15678	Date Received:	03-16-06
Sample Matrix:	Soil	Date Analyzed:	03-17-06
Preservative:	Cool	Date Extracted:	03-17-06
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	104	1.8
Toluene	177	1.7
Ethylbenzene	373	1.5
p,m-Xylene	1,230	2.2
o-Xylene	260	1.0
Total BTEX	2,140	

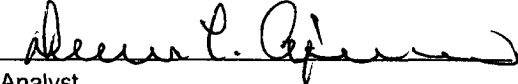
ND - Parameter not detected at the stated detection limit.

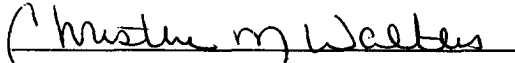
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

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: Bottom Composite at 8' BGS.


Analyst


Review