1R - 273

GENERAL CORRESPONDENCE

YEAR(S):

1998 - 1994

Price, Wayne

From: Price, Wayne
Sent: Tuesday, April 28, 1998 2:31 PM
To: Bill Olson
Cc: Chris Williams
Subject: GREENHILL PITS & LANDFARM CL^SURES. (NOW TITAN Resources)

Dear Bill:

Highlander inadvertently sent you the pit closures dated on April 9, 1998.

We will handle here in the district as previously discussed. They have added one extra pit.

Kieling, Martyne

Subject: FW: Greenhill

From: Kieling, Martyne
Sent: Friday, February 13, 1998 11:16 AM
To: Price, Wayne; Williams, Chris
Subject: Greenhill


page1.JPG


page2.JPG

MEMO

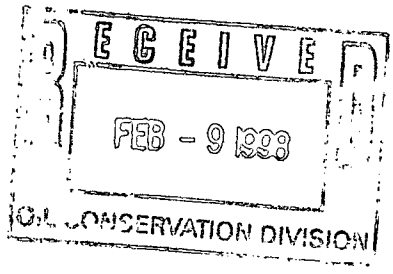
TO: Wayne Price
FROM: Roger Anderson
DATE: February 12, 1998
SUBJECT: Greenhill

As we discused, the Hobbs District office will "hannel" this.

Highlander Environmental Corp.

Midland, Texas

February 5, 1998



Mr. Roger Anderson
Environmental Bureau Chief
State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 Pacheco
Santa Fe, New Mexico 87505

Re: Closure of Greenhill Petroleum, Lovington Paddock/San Andres Central Bioremediation Area, Lea County, New Mexico.

Dear Mr. Anderson:

Highlander Environmental Corp. has been retained by Titan Resources, L.P. to close out the above-mentioned landfarm. Titan recently purchased this production from Pioneer Natural Resources, which had acquired Greenhill Petroleum in 1997. Greenhill Petroleum had operated this landfarm since 1994. A closure request on behalf of Greenhill Petroleum was sent by Safety & Environmental Solutions, Inc. to the OCD on October 11, 1996. However, lead levels in the landfarm and insufficient sampling were apparently causes of concern for the OCD, and the closure request was denied.

I spoke with Wayne Price in Hobbs yesterday to discuss further actions required to close out this site. Mr. Price indicated that, at this time, it was unclear whether this case would be coordinated at the regional level or out of Santa Fe. Mr. Price suggested that I contact you in order to clarify who would be the assigned coordinator on this site. When a coordinator has been assigned, we would like to meet onsite to discuss further sampling and risk assessment requirements. We will wait to hear from you before starting any additional investigation of this site. If you have any questions or require any additional information, please advise.

Very truly yours,

Tim Reed

Timothy M. Reed, REM
Vice President

1910 N. Big Spring • Midland, Texas 79705 • (915) 682-4559 • Fax (915) 682-3946

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

September 25, 1996

Ron W. Matthews
Greenhill Petroleum Corporation
P.O. Box 1949
Hobbs, New Mexico 88240

Ref: Lovington Paddock/San Andres Central Bio-Area.

Dear Ron,

Pursuant to our meeting held on September 24, 1996 and my resultant telephone conversations with Bill Olson-NMOCD Hydrogeologist-Environmental Bureau, I have been advised that the closure plan for the above referenced facility must be sent to the attention of Roger Anderson-Environmental Bureau Chief with a copy sent to the Hobbs NMOCD District office.

Please note it is the consensus that "LEAD" contamination is not normally found in crude oil BS&W. While Greenhill has properly demonstrated that this material is RCRA non-hazardous, it would be classified as non-exempt. The NMOCD has a policy which requires that all non-exempt closures be approved through the NMOCD Santa Fe office.

Per our meeting and discussions with Mr. Olson, you will be required to demonstrate that the remaining contaminates will not pose a future threat to ground water, public health, and/or the environment.

If you require any further assistance concerning this matter please do not hesitate to call (505-393-6161) or write.

Sincerely yours,

Wayne Price-Environmental Engineer

cc: Jerry Sexton-NMOCD District I Supervisor
Roger Anderson-NM NMOCD Environmental Bureau Chief, Santa Fe
Bill Olson-NMOCD Hydrogeologist-Environmental Bureau
Bob Allen-Safety & Environmental Solutions, Inc.

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 1540	Date 9/16/97

Originating Party	Other Parties
Bill Olson - Environmental Bureau	Wayne Price - OCD Hobbs
Roger Anderson - " "	

Subject

Greenhill Petroleum - Walker Getty / San Andres

Discussion

Discussed 10/16/96 Bio report
Environmental Bureau believes - report incomplete. Does not address remaining contamination at pits or results of pit closure
- lead appears to have leached from bioremedy area into underlying soils,
- Closure actions were approved by Hobbs office therefore approval should be from Hobbs office

Conclusions or Agreements

Hobbs will continue work on site, actions and keep Environmental Bureau informed of all actions

Distribution

file
Chris Williams - OCD Hobbs

Signed Bill Olson

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

HOBBS DISTRICT OFFICE

96 SEP 27 AM 8 52

September 25, 1996

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

Ron W. Matthews
Greenhill Petroleum Corporation
P.O. Box 1949
Hobbs, New Mexico 88240

Ref: Lovington Paddock/San Andres Central Bio-Area.

Dear Ron,

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Please note it is the consensus that "LEAD" contamination is not normally found in crude oil BS&W. While Greenhill has properly demonstrated that this material is RCRA non-hazardous, it would be classified as non-exempt. The NMOCD has a policy which requires that all non-exempt closures be approved through the NMOCD Santa Fe office.

Per our meeting and discussions with Mr. Olson, you will be required to demonstrate that the remaining contaminates will not pose a future threat to ground water, public health, and/or the environment.

If you require any further assistance concerning this matter please do not hesitate to call (505-393-6161) or write.

Sincerely yours,

Wayne Price-Environmental Engineer

cc: Jerry Sexton-NMOCD District I Supervisor
Roger Anderson-NM NMOCD Environmental Bureau Chief, Santa Fe
Bill Olson-NMOCD Hydrogeologist-Environmental Bureau
Bob Allen-Safety & Environmental Solutions, Inc.

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1400 hrs	Date 3/1/94
Originating Party		**Other Parties**
Bill Olson - Envir. Bureau		Wayne Price - OCD Hobbs

Subject

Greenhill Petroleum - Waller/Getty site remediation

Discussion

Asked about final report on site remediation

Not yet complete
Greenhill will submit report on completion of bioremediation of contaminated soils (approx. 6 months)

Conclusions or Agreements

He will make sure OCD Santa Fe gets copy when complete

Distribution file

Signed Bill Olson

GREENHILL PETROLEUM CORPORATION

Incorporated in Delaware, U.S.A.

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

August 17, 1993

Greenhill Petroleum Corporation
P.O. Box 609
Lovington, New Mexico 88260

Mr. Jerry Sexton
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Dear Mr. Sexton,

Greenhill Petroleum is ready to begin work to close several open pits on its operated units in the Lovington area. Towards this end we have done extensive assessment work to identify the problems particular to each pit and have put together a basic scope of work to be performed. Prior to letting the work to contractors for bid we would like to review our site assessment information and basic scope of work with your office.

I will be out of town until Wednesday August 25 th, but will contact you upon my return. If you have any questions regarding the enclosed scope of work, site assessments, and TCLP analysis; or have any suggestions to offer, Greenhill would greatly appreciate your input.

GREENHILL PETROLEUM CORPORATION

Thankyou

David M. Tilley
Superintendent

Pit Closures

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

B I D S O L I C I T A T I O N

Project Description: Pit Closures using existing OCD guidelines.

Location: Six miles south of Lovington, New Mexico.

Scope of Work

Bids are being solicited to close three pits containing **non-hazardous oilfield waste** under existing OCD guidelines. The waste is partially solidified containing paraffins, oil, sand, asphaltines (tar) and BS&W. It is considered RCRA exempt waste and is also characteristically non hazardous. TCLP, TPH and BTEX analyses are attached for your information.

Two of the pits are open topped tanks, 110 ft. in diameter, constructed of 4 ft. galvanized steel sides with a rubber liner. The third pit is an unlined dirt pit measuring 75 ft. by 75 ft.

All free liquid will be removed by GPC prior to commencement of work by the successful bidder. Pit closure will be by mechanical means with final cleanup of contaminated soil achieved using accepted bioremediation techniques.

Pit Closure:

Closure of the two steel tanks is to be done first. The materials within the tanks is to be removed to a site immediately west of the tanks suitable for establishing a bioremediation area. The tanks will then need to be cleaned out, disassembled and removed. The area around the tanks would then be taken to ground level and included in an expanded soil remediation area.

Closure of the dirt pit is to be done second and may necessitate excavation to a depth of approximately 30 ft. The top ±10 ft of excavated soil will be removed to the central soil remediation area near the old steel pits. The remainder of the soil excavated will be stockpiled to use in backfilling operations. The pit will be backfilled using concrete blocks and a mixture of diluted soil (diluted soil must be below OCD guidelines for TPH) and clean native soil (top 36"). The entire pit area will also have to be reseeded. **(NOTE: The blocks will be provided by Greenhill. Each weighs approximately 5 tons. Contractor will be responsible for transportation to site and equipment to position same in excavation).**

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

In addition to the pit, two small surface spills (approximately 300 cubic yards of soil) where pit runover has occurred will need to be excavated to a ± two foot depth. This material will be transported to the central bioremediation site and the site backfilled and leveled. These areas are outlined on the attached map.

Bioremediation

The bioremediation program goal will be to reach the accepted OCD required levels of TPH within 180 days. Product selection should be supported with confirming data from similar projects in the Permian Basin area. The contaminated soil and solid emulsified hydrocarbon (estimated volume 2540 cubic yards) should be spread in the selected area at a depth not to exceed six inches. Fresh water is available on-site with all other equipment to be supplied by the contractor.

Reporting

Contractor will be responsible for developing a site specific Closure Plan, Work Plan, and a Health and Safety Plan together with a final Closure Report, all of which must meet federal and state requirements, subject to final approval by Greenhill and the New Mexico Oil Conservation Division.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc.
Address: P.O. Box 5890
City, State: Hobbs, NM 88241

Date: 05/25/93
Lab#: H1228-1

Project Name: Greenhill Petroleum
Project Location: San Andres Pit
Sampled by: ES
Type of Sample: Water

Date: 05/20/93
Sample Condition: GST

Sample ID: Paddock/San Andres Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.030	mg/L
Barium	1.71	mg/L
Cadmium	0.006	mg/L
Chromium	<0.01	mg/L
Lead	0.25	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.008	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/25/93
Address: P.O. Box 5890 Lab#: H1228-2
City, State: Hobbs, NM 88241

Project Name: Greenhill Petroleum
Project Location:
Sampled by: ES Date: 05/20/93
Type of Sample: Water Sample Condition: GST

Sample ID: Walker/Getty Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.003	mg/L
Barium	<0.10	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.01	mg/L
Lead	0.10	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.002	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

Michael R. Fowler

ENVIRONMENTAL SPILL CONTROL, INC.

SITE SURVEY

DATE: August 13, 1993

CLIENT: Greenhill Petroleum ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty Pit WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: N : A AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES X NO

DATE CONTACTED: 08/12/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 08/13/93 TIME ON LOCATION: 9 : 00 AM PM

SUPERVISOR: A. Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__x__OTHER To run add TpH test on soil outside pit area.

****

SUPERVISOR SIGNATURE

CUSTOMER SIGNATURE

ENVIRONMENTAL SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: August 13, 1993 FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum ORDER NO: Mr. David Tilley

SUPERVISOR: Allen Hodge HOLE # :

	TPH		DEPTH	LOCATION
SAMPLE NO. 1:	8760	PPM	1'	SWC
SAMPLE NO. 2:	5680	PPM	1'	NWC
SAMPLE NO. 3:	39	PPM	Surface	Middle/East Side
SAMPLE NO. 4:	88	PPM	Surface	Middle/West Side
SAMPLE NO. 5:		PPM		
SAMPLE NO. 6:		PPM		
SAMPLE NO. 7:		PPM		
SAMPLE NO. 8:		PPM		
SAMPLE NO. 9:		PPM		
SAMPLE NO. 10:		PPM		

COMMENTS: Sample #1 was taken 50' outside pit area in the south west corner. Some old surface overflow is visible. Sample #2 was taken 50' outside pit area in the north west corner. Some old surface contamination was found. Samples #3 & #4 were surface samples in the middle of the east and west sides. Overflow from pit site would be to the south west.

PHONE (505) 392-6167

FAX (505) 392-8788

ENVIRONMENTAL SPILL CONTROL, INC.

P.O. BOX 5890 ★ HOBBS, NM 88241

May 24, 1993

Mr. David Tilley
Greenhill Petroleum Corporation
P.O. Box 1949
Hobbs, New Mexico 88241

Attention: Mr. David M. Tilley, P.E.
Production Superintendent

Reference: Walker/Getty Site Assessment

As per your request, you will find the site assessment and soil analysis for the Walker/Getty pit.

The Walker/Getty lease pit is an unlined, in-ground, earthen pit, approximately 65' x 65' in size, excluding berm material. The pit contains oilfield production associated materials and has been in use for the past 30 to 40 years. There were two holes drilled 10' outside the pit on the south and east side of the pit to check for lateral contamination. None was found. One hole was tried 25' into the center of the pit. The hole was not completed because of the wet condition of the pit. A good sample could not be taken. The hole was drilled 10' in on the pit from the west side. The contamination cleaned up at 22'. Based on past experience, the contamination in the center of the pit will reach the 30' level. Based on these numbers, this would be 4694 cubic yards of contaminated soil to be remediated. There was a hard layer of rock at 18' that has helped to contain the contamination of the pit.

We would like to thank you for allowing us to be of service to Greenhill Petroleum Corporation. If you have any questions, please contact us at any time.

Best Regards,

Allen Hodge
Field Superintendent

cc: Mr. Dwayne Taylor
Mr. Jimmy Curtis
Mr. Eddie Slavens

ENVIRONMENTAL SPILL CONTROL, INC.

SITE SURVEY

DATE: May 19, 1993

CLIENT: Greenhill Petroleum Corp. ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: - : - AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES __X__ NO

DATE CONTACTED: 5/18/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 5/19/93 TIME ON LOCATION: 8 : 00 AM PM

SUPERVISOR: Allen Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__X__OTHER Core testing and site assessment

****

SUPERVISOR SIGNATURE

CUSTOMER SIGNATURE

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93 FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp. WELL #: --

SUPERVISOR: Allen Hodge ORDER NO.: 10' in on pit from west side

	TPH		PH	CL	
SAMPLE NO. 1:	3580	PPM	10'		PPM
SAMPLE NO. 2:	1050	PPM	20'		PPM
SAMPLE NO. 3:	350	PPM	30'		PPM
SAMPLE NO. 4:	043	PPM	40'		PPM
SAMPLE NO. 5:		PPM			PPM
SAMPLE NO. 6:		PPM			PPM
SAMPLE NO. 7:		PPM			PPM
SAMPLE NO. 8:		PPM			PPM
SAMPLE NO. 9:		PPM			PPM
SAMPLE NO. 10:		PPM			PPM

COMMENTS: The contamination cleaned up at 22', - below 1000 but was unable to drill test hole in center. Pit was too wet.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 05/19/93

FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp.

WELL #: --

SUPERVISOR: Allen Hodge

ORDER NO.: South side 10' out from pit

	TPH	PH	CL
SAMPLE NO. 1:	034 PPM	10'	PPM
SAMPLE NO. 2:	014 PPM	20'	PPM
SAMPLE NO. 3:	+-01 PPM		PPM
SAMPLE NO. 4:	PPM		PPM
SAMPLE NO. 5:	PPM		PPM
SAMPLE NO. 6:	PPM		PPM
SAMPLE NO. 7:	PPM		PPM
SAMPLE NO. 8:	PPM		PPM
SAMPLE NO. 9:	PPM		PPM
SAMPLE NO. 10:	PPM		PPM

COMMENTS: No lateral contamination found on south side of pit.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93

FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp.

WELL #: --

SUPERVISOR: Allen Hodge

ORDER NO.: East side 10' out from pit

	TPH	PH	CL
SAMPLE NO. 1:	066 PPM	10'	PPM
SAMPLE NO. 2:	010 PPM	20'	PPM
SAMPLE NO. 3:	+ 01 PPM	30'	PPM
SAMPLE NO. 4:	PPM		PPM
SAMPLE NO. 5:	PPM		PPM
SAMPLE NO. 6:	PPM		PPM
SAMPLE NO. 7:	PPM		PPM
SAMPLE NO. 8:	PPM		PPM
SAMPLE NO. 9:	PPM		PPM
SAMPLE NO. 10:	PPM		PPM

COMMENTS: No lateral contamination found on east side of pit.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/20/93
Address: P.O. Box 5890 Lab#: H1227
City, State: Hobbs, NM 88241

Project Name: Greenhill Prod.
Project Location: Walker Getty
Sampled by: AH Date: Time:
Analyzed by: HM Date: 05/20/93 Time: 1100
Type of Samples: Soil Sample Condition: GST Units: mg/kg, mg/l

Samp #	Field Code	TRPHC	BENZENE	TOLUENE	ETHYL BENZENE	PARA-XYLENE	META-XYLENE	ORTHO-XYLENE	MTBE
1	10' In On Pit	***	<0.001	0.054	0.017	<0.001	0.008	0.018	<0.001
2	20' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	<0.001
3	30' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	QC Recovery	***	2.070	2.213	2.131	2.132	2.086	2.307	1.519
	QC Spike	***	2.053	2.091	2.038	2.053	2.043	2.113	1.647
	Accuracy	***	100.8%	105.8%	104.6%	103.8%	102.1%	109.2%	92.2%
	Air Blank	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Methods - AUTOMATED HEADSPACE GC; INFRARED SPECTROSCOPY
- EPA SW-846; EPA METHODS 8020, 418.1, 3540 OR 3510

Michael R. Fowler

Michael R. Fowler

Date 5/20/93

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

July 27, 1993

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-365

Mr. David M. Tilley
Greenhill Petroleum Corporation
P.O. Box 1949
NM 88240

TANK BOTTOM PIT REMEDIATION
PADDOCK/SAN ANDRES AND WALKER/GETTY PITS
LEA COUNTY, NEW MEXICO

Dear Mr. Tilley:

The New Mexico Oil Conservation Division (OCD) has reviewed Greenhill Petroleum's June 29, 1993 "DISPOSAL OF NON-HAZARDOUS OILFIELD WASTE FROM LEA COUNTY LOCATIONS". This document provides the laboratory analytic results of hazardous waste sampling of wastes from pits at the Paddock/San Andres and Walker/Getty pits and requested permission to initiate cleanup of these sites.

Based upon the information provided to date, the OCD concurs with Greenhill Petroleum's contention that the wastes from the Paddock/San Andres and Walker/Getty sites are non-hazardous. In order to facilitate remediation of these sites, the OCD requests that Greenhill Petroleum submit a closure plan for these sites to OCD for approval. Enclosed for your reference is a copy of the OCD's "UNLINED SURFACE IMPOUNDMENT CLOSURE GUIDELINES".

The OCD looks forward to working with you on the remediation of these sites. If you have any questions, please contact me at (505) 827-5812 or Bill Olson of my staff at (505) 827-5885.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

xc: OCD Hobbs Office

GREENHILL PETROLEUM CORPORATION
P.O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

June 29, 1993

Mr. Roger C. Anderson
Energy, Minerals and Natural
Resources Department
Oil Conservation Division
Post Office Box 2088
Sante Fe, New Mexico 87504

Re: Disposal of Non-Hazardous Oilfield Waste from Lea County Locations

Dear Mr. Anderson:

As you are aware, Greenhill Petroleum Corporation ("Greenhill") proposes to reduce the volume of and remediate hydrocarbon waste stored in two open tanks and an open surface pit located within the unit boundaries of the Lovington Paddock and San Andres Units. The waste stored in the tanks and pit is derived exclusively from exempt exploration and production activities and is by definition non-hazardous. The waste at both sites has also been impacted by rain water and sand due to the physical nature of the storage sites.

Pursuant to your telephone communication yesterday with Mr. Rich Myers of our Houston office, I am forwarding copies of recent TCLP analyses run by Cardinal Laboratories on these wastes. The TCLP results indicate these wastes are characteristically non-hazardous and therefore Greenhill proposes to handle these wastes in accordance with OCD guidelines.

Accordingly, Greenhill would like to initiate cleanup of these sites as soon as possible. A closure plan will be submitted to the OCD for approval prior to commencement of operations, and Greenhill will work closely with your Hobbs District Office in this regard. Please note your approval with our proposed course of action.

Sincerely,

GREENHILL PETROLEUM CORPORATION

David M. Tilley
Superintendent

c: R. Myers
C. Little
J. Sexton

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc.
Address: P.O. Box 5890
City, State: Hobbs, NM 88241

Date: 05/25/93
Lab#: H1228-1

Project Name: Greenhill Petroleum
Project Location: San Andres Pit
Sampled by: ES
Type of Sample: Water

Date: 05/20/93
Sample Condition: GST

Sample ID: Paddock/San Andres Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.030	mg/L
Barium	1.71	mg/L
Cadmium	0.006	mg/L
Chromium	<0.01	mg/L
Lead	0.25	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.008	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc.
Address: P.O. Box 5890
City, State: Hobbs, NM 88241

Date: 05/25/93
Lab#: H1228-2

Project Name: Greenhill Petroleum
Project Location:
Sampled by: ES
Type of Sample: Water

Date: 05/20/93
Sample Condition: GST

Sample ID: Walker/Getty Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.003	mg/L
Barium	<0.10	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.01	mg/L
Lead	0.10	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.002	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

Michael R. Fowler

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time	Date
	130pm	1-29-93

Originating Party	Other Parties
Duane Taylor - Enviro. Spill Control (ESC)	C. Eustice - OCD

Subject: GREENHILL PET DUCK PONDS ASSOC. TC RESULTS

Discussion

Duane wanted to ask me where I got a copy of analyses from and that this would determine, essentially, whether or not Clark Evans retained employment w/ ESC.
I stated "Clark did not bring those results up here to me and that I would not divulge any specific names" pursuant ~~dc~~ to discussions w/ RCA & Bob Stovall.

Conclusions or Agreements

Distribution

Signed C. Eustice

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION
310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

OIL CONSERVATION DIVISION RECEIVED 93 OCT 26 AM 8 39

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Lovington Paddock Unit (Walker/Getty Pit)

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER Emergency Overflow pit

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Box 609, Lovington NM 88260

9. Pool name or Wildcat

4. Well Location
Unit Letter C : _____ Feet From The _____ Line and _____ Feet From The _____ Line
Section 6 Township 17S Range R37E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	X	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

See attached page

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE David M Tilley TITLE Production Superintendent DATE 10/27/93

TYPE OR PRINT NAME David M. Tilley, PE. TELEPHONE NO. (505) 396-7503

(This space for State Use)
APPROVED BY ORIGINAL SIGNED BY JERRY SEXTON DISTRICT I SUPERVISOR TITLE _____ DATE OCT 27 1993

CONDITIONS OF APPROVAL, IF ANY:

It is our intent to remediate the emergency overflow pit which is associated with the Paddock Unit C (Walker/Getty Pit). The approximate dimensions of the pit are seventy-five (75) feet by seventy-five (75) feet, including berm material. The pits is an inground, unlined earthen pit.

The pit is characterized as containing oilfield wastes associated in oil and gas production practices which are exempt from the RCRA Subtitle C Regulations. The pit was cored and sampled to determine the depth of contamination. The pit has a crusty top layer with a semi-solid layer to approximately three (3) feet with heavy TPH to approximately ten (10) feet. The contamination did not move laterally outside of the confines or boundaries of the pit. The semi-solid layer would be characterized as a partially dried mass of BS & W mixed with paraffins, asphaltines (tar), oil and blow sand. Both the upper three (3) feet and the lower ten (10) feet would account for approximately 2050 cubic yards of hydrocarbon contamination that we are requesting to be remediated. The remainder of the contamination down to thirty (30) feet will be excavated and diluted with fresh soil below OCD Guidleine Limits and the pit backfilled to grade and the area reseeded.

Our intent is to build a central bioremediation area to remediate the hydrocarbon contaminated soil and semi-solid layer along with the sludge from the Paddock/San Andres Units to the south of those units. The approximate dimension of the bioremediation area is five hundred (500) feet by five hundred (500) feet. The entire area will be leveled with a two foot berm built around the outside and the area fenced. The heavy contaminated material will be mixed with clean soil, manure, cotton seed hulls and spread over the bioremediation area in a six (6) inch lift for bioremediation.

A fast line will be constructed to the bioremediation area and a sprinkler system built to water the bioremediation area for moisture content and to control dust and enhance the bioremediation process. The watering of the area will be on a timer system with sprinklers and monitored periodically to make certain that ponding or run-off is not allowed.

The microbes *(Micro-Blaze Out)*, nutrients, biocatalysts, will be placed on the lift as soon as possible after spreading (initial application). The lift will be disked on a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants. Subsequent applications of nutrients and biocatalysts will be applied on an as needed basis.

Monitoring

We will obtain background soil samples from the bioremediation area prior to spreading contaminated material for analysis of TPH. Subsequent three (3) feet treatment zone samples will be taken on a monthly basis until the lift is below the OCD guideline limits. For the area, we request that the total TPH be at 1,000 parts per million range with the Benzene and BTEX below the 10 ppm and 60 ppm range, respectively.

When the bioremediation limits have been reached, we will discontinue monitoring, reseed for vegetation cover and discontinue watering.

Submit 3 Copies to Appropriate District Office

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

Form C-103
Revised 1-1-89

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Lovington Paddock/San Andres U

1. Type of Well: Emergency Overflow Pits (2)
OIL WELL ☐ GAS WELL ☐ OTHER

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Kox 609, Lovington, NM 88260

9. Pool name or Wildcat

4. Well Location
Unit Letter _____ : _____ Feet From The _____ Line and _____ Feet From The _____ Line

Section Township 17S Range 36E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	X	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

SEE ATTACHED PAGE

BLM8910085390
Lovington San Andres Unit

BLM8910088180
Lovington Paddock Unit

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE David M Tilley TITLE Production Superintendent DATE 10/27/93

TYPE OR PRINT NAME David M. Tilley, PE. TELEPHONE NO. (505)396-7503

(This space for State Use)

APPROVED BY ORIGINAL SIGNED BY JERRY SEXTON DISTRICT I SUPERVISOR TITLE _____ DATE OCT 27 1993

CONDITIONS OF APPROVAL, IF ANY:

It is our intent to remediate the emergency overflow pits which are associated with the Paddock/San Andres Units. The approximate dimensions of each pit are one hundred ten (110) feet in diameter. The pits have four (4) feet galvanized steel sides built on earthen pads. The pits are plastic lined.

The pits are characterized as containing oilfield wastes associated in oil and gas production practices which are exempt from the RCRA Subtitle C Regulations. The north tank impoundment has approximately two and one half (2 1/2) feet of sludge. The south tank impoundment has approximately one foot of sludge. The sludge would be characterized as a partially dried mass of BS & W mixed with paraffins, asphaltines (tar), oil and blow sand. Both pits would account for approximately 700 cubic yards of hydrocarbon contaminated sludge.

Our intent is to build a central bioremediation area to remediate the sludge south of the units. There is other sludge that we will also remediate in the same area in the Paddock Unit known as the Walker /Getty Emergency Overflow Pit. The approximate dimension of the bioremediation area is five hundred (500) feet by five hundred (500) feet. The entire area will be leveled with a two foot berm built around the outside and the area fenced. The heavy contaminated material will be mixed with clean soil, manure, cotton seed hulls and spread over the bioremediation area in a six (6) inch lift for bioremediation. The tanks will be removed along with the liners and the pads leveled to grade.

A fast line will be constructed to the bioremediation area and a sprinkler system built to water the bioremediation area for moisture content and to control dust and enhance the bioremediation process. The watering of the area will be on a timer system with sprinklers and monitored periodically to make certain that ponding or run-off is not allowed.

The microbes *(Micro-Blaze Out)*, nutrients, biocatalysts, will be placed on the lift as soon as possible after spreading (initial application). The lift will be disked on a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants. Subsequent applications of nutrients and biocatalysts will be applied on an as needed basis.

Monitoring

We will obtain background soil samples from the bioremediation area prior to spreading contaminated material for analysis of TPH. Subsequent three (3) feet treatment zone samples will be taken on a monthly basis until the lift is below the OCD guideline limits. For the area, we request that the total TPH be at 1,000 parts per million range with the Benzene and BTEX below the 10 ppm and 60 ppm range, respectively.

When the bioremediation limits have been reached, we will discontinue monitoring, reseed for vegetation cover and discontinue watering.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

January 13, 1993

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P667-242-149

Mr. Clark Evans
Environmental Spill Control, Inc.
P.O. Box 5890
Hobbs, New Mexico 88241

RE: Tank Bottom Disposal
Greenhill Petroleum Corp.

Dear Mr. Evans:

The Oil Conservation Division (OCD) has evaluated your request for the proper disposal of materials from the "duck ponds" and the Walter-Getty pit. In your request you stated the materials were tank bottoms and were exempt from RCRA regulations.

Based on the information and analyses provided, the materials cannot be disposed of without further investigation. The analytical results for lead indicate wastes other than exploration and production exempt wastes may have been placed in the pits. A full TCLP analysis must be run on a representative sample to determine if the materials will be disposed of and the pits closed pursuant to hazardous waste regulations or pursuant to OCD disposal regulations. The representative sample will be obtained pursuant to hazardous waste and EPA SW 846 sampling procedures.

For information on hazardous waste regulations and requirements on hazardous waste disposal please contact Mr. Ed Horst, Hazardous Waste Program Manager, New Mexico Environment Department, at (505) 827-4308.

If you have any questions please do not hesitate to contact me at (505) 827-5812.

Sincerely:

Roger C. Anderson
Environmental Bureau Chief

xc: Rich Myers - Greenhill Petroleum
Ed Horst - NMED Hazardous Waste
Jerry Sexton - OCD Hobbs

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1:00 pm	Date 12-29-92
Originating Party	**Other Parties**	
CHRIS EUSTICE	CLARK EVANS (ENVIRO. SPILL CONTROL	

Subject: GREENHILL PETROLEUM - "DUCK PONDS"

Discussion: Clark wanted to know if we (EB) would approve dilutin the hazardous waste sediment (see TC results) in the ponds in order to redece Pb content below hazardous levels. I said no.

He also asked if the parrafin layer and the water layer could be treated as exempt material.
I said no. It had to be handled on a case by case basis and that Greenhill would need to submit a proposal to us.

Conclusions or Agreements

Distribution

Signed C Eustice

ENVIRONMENTAL SPILL CONTROL, INC.

FAX (505)392-8788 PHONE 392-1547

FAX MESSAGE

FAX NO. TO SEND TO: 505/827-5741

DATE: 12/15/92

ATTENTION: Chris Heustice

FROM:

REFERENCE: Greenhill Test Results

WE ARE FAXING 12 PAGES INCLUDING THIS COVER SHEET. IF THERE ARE ANY PROBLEMS WITH TRANSMISSION, PLEASE CALL US: (505) 392-1547.

H.W. Tuesday

GREENHILL PETROLEUM CORPORATION

M E M O R A N D U M

TO: David Tilley

FROM: Rich Myers

SUBJECT: Duck Ponds/Walker Getty Pit

DATE: 21 August 1992

I spoke to Bill Olson at the Oil Conservation Division in Santa Fe yesterday about pit closure requirements. During our conversation, I requested a copy of the OCD's pit closure guidelines, which they will send.

The test results of samples taken from the Duck Ponds and the Walker-Getty pit (enclosed) show a high TPH content (596,000 ppm north pond; 626,000 ppm south pond; 334,000 ppm pit). Elevated metals (lead at 137 ppm) were noted in the north pond.

Since the Duck Ponds are tanks, Mr. Olson says they are eligible for tank bottoms reclamation. The OCD faxed me a list of licensed contractors in our area who handle tank bottoms and reclaim oil. One of these contractors is A.A. Oilfield Services, Inc. in Hobbs.

The Walker-Getty pit will require slightly different handling since the ground is impacted to a greater extent. For example, according to the state, the total BTEX level for pit closure cannot exceed 50 ppm; nor can TPH exceed 100 ppm. Benzene is limited to 10 ppm. The pit results show BTEX at 525 ppm; TPH at 334,000 ppm; and benzene at 62 ppm.

We have several options available to us and the OCD does not support the use of any particular method. They did suggest that we work with the District OCD office on the closures. We will get proposals from Highlander/Alphawest (bio-remediation) and Breakthrough Environmental Technologies (enzyme/hydrocyclone separation). I think we should look at reclaiming first due to the high TPH content of the samples. We will have to audit the facility, and we can discuss how to do that.

Once you have had a chance to review the test results, let's discuss.

RRM/lrh-92.104

c: Pat Allison
Charley Little

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78575
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, North Pond, Sampled 7-28-92 @ 1145 by Tim Reed.

REPORT OF CHEMICAL ANALYSIS

Parameters	Results	Date Performed	Analyst	Test Method
Chloride, mg/kg (1:1 Water Extract)	284	8-3-92	W. Jaycox	SM 4500-Cl,
pH (1:1)	6.97	8-3-92	W. Jaycox	SW846, 9040
Total Petroleum Hydrocarbons, mg/kg	596000	7-30-92	S. Stovall	EPA 418.1

* Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

L&C
Reviewed by

SOUTHWESTERN LABORATORIES

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	**File No.**	6581000
Client	Highlander Services Corp.	**Report No.**	78575
Delivered by	Tim Reed	**Report Date**	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, North Pond, Sampled 7-28-92 @ 1145 by Tim Reed.

REPORT OF TOTAL METALS

Parameters	Results mg/kg	Date Performed	Analyst	Test Method
Arsenic	* 5.0	8-11-92	G. Bunch	SW846, 7061
Barium	* 20	8-17-92	G. Bunch	SW846, 7080
Cadmium	* 2.0	8-17-92	G. Bunch	SW846, 7130
Chromium	* 4.0	8-17-92	G. Bunch	SW846, 7190
Lead	137	8-17-92	G. Bunch	SW846, 7420
Mercury	* 0.40	8-12-92	G. Bunch	SW846, 7470
Selenium	* 1.5	8-11-92	G. Bunch	SW846, 7741
Silver	* 2.5	8-17-92	G. Bunch	SW846, 7760

*Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

L&C
Reviewed by

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78576
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, South Pond, Sampled 7-28-92 @ 1230 by Tim Reed.

REPORT OF CHEMICAL ANALYSIS

Parameters	Results	Date Performed	Analyst	Test Method
Chloride, mg/kg (1:1 Water Extract)	284	8-3-92	W. Jaycox	SM 4500-Cl,
pH (1:1)	6.69	8-3-92	W. Jaycox	SW846, 9040
Total Petroleum Hydrocarbons, mg/kg	626000	7-30-92	S. Stovall	EPA 418.1

* Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

LLC
Reviewed by

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78576
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification: Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, South Pond, Sampled 7-28-92 @ 1230 by Tim Reed.

REPORT OF TOTAL METALS

Parameters	Results mg/kg	Date Performed	Analyst	Test Method
Arsenic	* 5.0	8-11-92	G. Bunch	SW846, 7061
Barium	* 20	8-17-92	G. Bunch	SW846, 7080
Cadmium	* 2.0	8-17-92	G. Bunch	SW846, 7130
Chromium	* 4.0	8-17-92	G. Bunch	SW846, 7190
Lead	64	8-17-92	G. Bunch	SW846, 7420
Mercury	* 0.40	8-12-92	G. Bunch	SW846, 7470
Selenium	* 1.5	8-11-92	G. Bunch	SW846, 7741
Silver	* 2.5	8-17-92	G. Bunch	SW846, 7760

*Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

Reviewed by

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Report of tests on	Waste	**File No.**	6581000
Client	Highlander Services Corp.	**Report No.**	78577
Delivered by	Tim Reed	**Report Date**	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, Getty/Walker, Sampled 7-28-92 @ 1430 by Tim Reed.

REPORT OF CHEMICAL ANALYSIS

Parameters	Results	Date Performed	Analyst	Test Method
Chloride, mg/kg (1:1 Water Extract)	248	8-3-92	W. Jaycox	SM 4500-Cl,
pH (1:1)	6.41	8-3-92	W. Jaycox	SW846, 9040
Total Petroleum Hydrocarbons, mg/kg	334000	7-30-92	S. Stovall	EPA 418.1

* Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

LXC
Reviewed by

SOUTHWESTERN LABORATORIES

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78577
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, Getty/Walker, Sampled 7-28-92 @ 1430 by Tim Reed.

REPORT OF VOLATILE ORGANICS ANALYSIS

Date of Analysis 7-31-92 **Method** SW846, 5030/8240
Technique Purge and Trap GC/MS **Analyst** R. Wright

Compound		ug/kg
Chloromethane	*	10900
Bromomethane	*	10900
Vinyl Chloride	*	10900
Chloroethane	*	10900
Methylene Chloride	*	5430
1,1-Dichloroethene	*	5430
1,1-Dichloroethane	*	5430
1,2-Dichloroethene (total)	*	5430
trans-1,2-Dichloroethene	*	5430
Chloroform	*	5430
1,2-Dichloroethane	*	5430
1,1,1-Trichloroethane	*	5430
Carbon Tetrachloride	*	5430
Bromodichloromethane	*	5430
1,2-Dichloropropane	*	5430
trans-1,3-Dichloropropene	*	5430
Trichloroethene	*	5430
Dibromochloromethane	*	5430
1,1,2-Trichloroethane	*	5430
Benzene		62000
cis-1,3-Dichloropropene	*	5430
2-Chloroethylvinylether	*	10900
Bromoform	*	5430
Tetrachloroethene	*	5430
1,1,2,2-Tetrachloroethane	*	5430
Toluene		165000
Chlorobenzene	*	5430
Ethylbenzene		126000
Total Xylenes		172000
Acrolein	*	54300
Acrylonitrile	*	54300

*Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

SOUTHWESTERN LABORATORIES

Reviewed by

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78577
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification: Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, Getty/Walker, Sampled 7-28-92 @ 1145 by Tim Reed.

REPORT OF ORGANICS ANALYSIS

Date of Analysis: 8-4-92 Method: SW846, 3550/8270 Analyst: L. Jones

Compound	ug/kg
Phenol	* 280000
bis(2-Chloroethyl)Ether	* 280000
2-Chlorophenol phenol	* 280000
1,3-Dichlorobenzene	* 280000
1,4-Dichlorobenzene	* 280000
Benzyl Alcohol	* 280000
1,2-Dichlorobenzene	* 280000
2-Methylphenol	* 280000
bis(2-Chloroisopropyl)Ether	* 280000
4-Methylphenol	* 280000
N-Nitroso-Di-n-Propylamine	* 280000
Hexachloroethane	* 280000
Nitrobenzene	* 280000
Isophorone	* 280000
2-Nitrophenol	* 280000
2,4-Dimethylphenol	* 280000
Benzoic Acid	*1360000
bis(2-Chloroethoxy)Methane	* 280000
2,4-Dichlorophenol	* 280000
1,2,4-Trichlorobenzene	* 280000
Naphthalene	* 280000
4-Chloroaniline	* 280000
Hexachlorobutadiene	* 280000
4-Chloro-3-Methylphenol	* 280000
2-Methylnaphthalene	* 280000
Hexachlorocyclopentadiene	* 280000
2,4,6-Trichlorophenol	* 280000
2,4,5-Trichlorophenol	* 280000
2-Chloronaphthalene	* 280000
2,Nitroaniline	*1360000

*Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

SOUTHWESTERN LABORATORIES

Reviewed by

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78577
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, Getty/Walker, Sampled 7-28-92 @ 1145 by Tim Reed.

REPORT OF ORGANICS ANALYSIS

Compound	ug/kg
Dimethyl Phthalate	* 280000
Acenaphthylene	* 280000
2,6-Dinitrotoluene	* 280000
3-Nitroaniline	*1360000
Acenaphthene	* 280000
2,4-Dinitrophenol	*1360000
4-Nitrophenol	*1360000
Dibenzofuran	* 280000
2,4-Dinitrotoluene	* 280000
Diethyl Phthalate	* 280000
4-Chlorophenyl-phenylether	* 280000
Fluorene	* 280000
4-Nitroaniline	*1360000
4,6-Dinitro-2-Methylphenol	*1360000
N-Nitrosodiphenylamine (1)	* 280000
4-Bromophenyl-phenylether	* 280000
Hexachlorobenzene	* 280000
Pentachlorophenol	*1360000
Phenanthrene	* 280000
Anthracene	* 280000
Di-n-Butylphthalate	* 280000
Fluoranthene	* 280000
Pyrene	* 280000
Butylbenzylphthalate	* 280000
3,3'-Dichlorobenzidine	* 561000
Benzo(a)Anthracene	* 280000
Chrysene	* 280000
bis(2-Ethylhexyl)Phthalate	* 280000

*Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

LLC

Reviewed by

SOUTHWESTERN LABORATORIES

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78577
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, Getty/Walker, Sampled 7-28-92 @ 1145 by Tim Reed.

REPORT OF ORGANICS ANALYSIS

Compound	ug/kg
Di-n-Octyl Phthalate	* 280000
Benzo(b)Fluoranthene	* 280000
Benzo(k)Fluoranthene	* 280000
Benzo(a)Pyrene	* 280000
Indeno(1,2,3-cd)Pyrene	* 280000
Dibenz(a,h)Anthracene	* 280000
Benzo(g,h,i)Perylene	* 280000

* Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

Reviewed by

SOUTHWESTERN LABORATORIES

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Waste	File No.	6581000
Client	Highlander Services Corp.	Report No.	78577
Delivered by	Tim Reed	Report Date	8-18-92
		Date Received	7-29-92

Identification Project No. 294, Greenhill Petroleum, Lovington, Tank Bottoms Sampling, Getty/Walker, Sampled 7-28-92 @ 1430 by Tim Reed.

REPORT OF TOTAL METALS

Parameters	Results mg/kg	Date Performed	Analyst	Test Method
Arsenic	5.0	8-11-92	G. Bunch	SW846, 7061
Barium	* 20	8-17-92	G. Bunch	SW846, 7080
Cadmium	* 2.0	8-17-92	G. Bunch	SW846, 7130
Chromium	* 4.0	8-17-92	G. Bunch	SW846, 7190
Lead	32	8-17-92	G. Bunch	SW846, 7420
Mercury	* 0.40	8-12-92	G. Bunch	SW846, 7470
Selenium	* 1.5	8-11-92	G. Bunch	SW846, 7741
Silver	* 2.5	8-17-92	G. Bunch	SW846, 7760

*Denotes "less than"

Copies: Highlander Services Corp.
Attn: Tim Reed

LXC
Reviewed by

SOUTHWESTERN LABORATORIES

GREENHILL PETROLEUM CORPORATION

P.O. BOX 609
LOVINGTON, NEW MEXICO 88260
TELEPHONE (505) 396-7503
FAX (505) 396-5950

Incorporated in Delaware, U.S.A.

October 16, 1996

OCD HOBBS OFFICE
OCT 30 1996
RECEIVED

Mr. Rodger Anderson
State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 S. Pachero
Santa Fe, New Mexico 87505

RE: Greenhill Petroleum Corporation - Bioremediation Area.

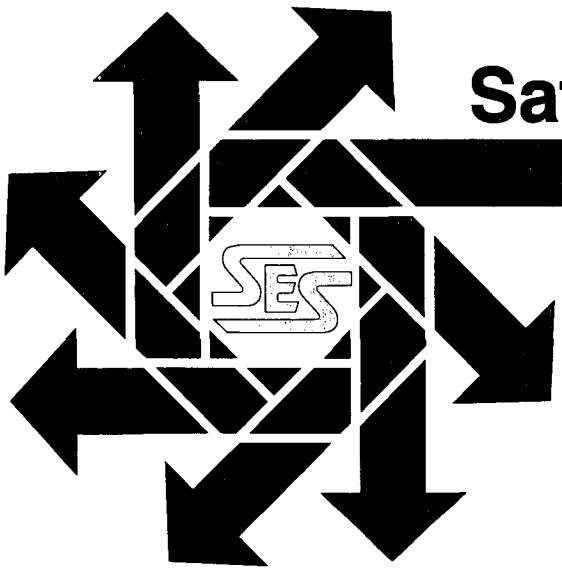
Greenhill Petroleum Corporation (Greenhill) respectfully requests your approval to close the bioremediation site located in Lea County Latitude 32° 52' 04" North and Longitude 103° 18' 27" West. Approval (copy attached) to create this site was granted to Greenhill by the New Mexico Oil Conservation Division (OCD) on October 27, 1993. Since that time, the Company has incurred more than $190,000 of expense in the routine operation and maintenance of the site, and has succeeded in lowering the regulated pollutants to within acceptable ranges. Recently, Safety and Environmental Solutions, Incorporated was retained to facilitate the closure and document the current status of the project. A copy of their report is enclosed herein for your review.

Greenhill appreciates your consideration of this request. Should you have any questions or require any additional information, please contact my office at (505) 396-7503.

Sincerely,

Ron Matthews

Ron Matthews



Safety & Environmental Solutions, Inc.

Final Closure Request

Greenhill Petroleum Corporation
Bioremediation Area
10/11/96

703 E. Clinton Suite 103 Hobbs, NM 88240 (505) 397-0510

Safety & Environmental Solutions, Inc.

Mr. Roger Anderson
State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

October 11, 1996

Re: Greenhill Petroleum Corporation Bioremediation Area

This letter is to request final closure of the bioremediation area operated by Greenhill Petroleum Corporation and located at:

32° 52' 04" North Latitude
103° 18' 27" West Longitude

The location of the bioremediation area can also be described as being located approximately 1 mile southwest of the Navajo Refining Lea County Plant located between Hobbs, NM and Lovington NM.

This bioremediation area was approved by the New Mexico Oil Conservation Division as a means to remediate materials from three pits containing non-hazardous oilfield waste. (See NMOCD forms C-103 submitted by Greenhill dated 10/27/93 and approved by NMOCD District I Supervisor Jerry Sexton dated 10/27/93.) (See also NMOCD forms C-103 submitted by Greenhill dated 5/18/94 and signed off on per NMOCD District I Environmental Engineer Wayne Price dated 6/13/94).

The initial third party analytical test results for TCLP metals for the bioremediation area are enclosed for your review. (See Exhibit A) You may remember that the factor which initiated concern on metals content was a total lead (Pb) hit discovered in one of the pits. Initial TPH field test results are also enclosed for your review. (See Exhibit B) These are high total petroleum hydrocarbon numbers as can be expected.

During the time since the initial tests were run and the bioremediation was begun, the area has been tilled, watered and fertilized sporadically. Recently, Safety & Environmental Solutions, Inc. has been retained to facilitate closure of the remediation site.

Safety & Environmental Solutions, Inc. has composite sampled the surface of the entire bioremediation area, grab sampled the center of the remediation area, researched ground water depths, and assessed the risk posed by the closure of the remediation area to the environment and public health. (See photographs Exhibit C)

The depth to ground water in this geographical area is approximately 85 feet. (See Exhibit D) Due to this depth of ground water, and per NMOCD guidelines for cleanup and remediation, the TPH for closure of this site should be below 1000 ppm, BTEX should be below 50 ppm and Benzene should be below 10 ppm. As can be seen from the field test results (See Exhibit E) and from the third party analyticals (See Exhibit F), these criteria have been met.

Enclosed also you will find third party analyticals addressing Lead (Pb) content, both total and TCLP. (See Exhibit G) Total lead analysis were only run at the request of NMOCD Environmental Engineer, Wayne Price. The total lead figures are 37.3 ppm at the 3 foot depth grab sample, but this should be of no concern. The only possible hazard that total lead (Pb) could present would be one of inhalation or ingestion. Since there are no residences within one mile of the area and the 37.3 ppm lead result was at 3 feet in depth, the risk posed is minimal. The OSHA standard for lead as a respiratory hazard lists control of employee exposure to less than 50 ug/m^3 . (See exhibit I) The possibility that 37.3 ppm total lead detected at 3 foot in depth would become suspended in the air and then inhaled by a Greenhill Petroleum employee or by the public are very remote. It is recommended that any Greenhill Petroleum employees excavating in the remediation area be informed of the possibility of lead exposure and then monitored and protected. As for environmental threat due to lead, the only threat would be to ground water, and since the TCLP (which should measure threat to ground water through leaching) is non-detect for lead, there should be no conceivable environmental threat.

The bioremediation area has been re-seeded, and growth of vegetation is present over most of the area.

Enclosed also are pictures taken from the center of the bioremediation area facing in all four directions. (See Exhibit H).

We are requesting final closure of this site at this time. If you have any questions, or we can be of service, please do not hesitate to call. We have extensive historical background on this project available for your review if necessary.

Sincerely,

Dyke A. Browning CEI, REM
Vice President

cc: Wayne Price - NMOCD
Roland Beal- Greenhill
Ron Mathews - Greenhill

ENVIRONMENTAL

LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

November 15, 1993

Environmental Spill Control
Mr. Allen Hodge
P.O. Box 5890
Hobbs, NM 88241

Sample Matrix: Soil

Project: Greenhill Pet. Corp. (Bio Area)
Submitted By: Allen Hodge

Date Received: 11/11/93
Date Reported: 11/15/93

CHEMICAL ANALYSIS REPORT

Parameter	Value (ppm)	EPA Limit (ppm)	QC	% Accuracy	Detection Limit
Sample ID: Bio Area Composite					
Arsenic (As)	<0.1	5.0	4.9	98	0.1
Selenium (Se)	<0.2	1.0	1.0	100	0.2
Chromium (Cr)	<0.1	5.0	5.0	100	0.1
Cadmium (Cd)	<0.1	1.0	1.0	100	0.1
Lead (Pb)	<0.3	5.0	4.9	98	0.1
Barium (Ba)	<1.0	100	99	99	1.0
Mercury (Hg)	<0.001	0.20	0.020	100	0.001
Silver (Ag)	<0.01	5.0	4.9	98	0.01

Methods: EPA SW 846-1311, 6010, 7471
TCLP Metals QC: Blank spiked with 5.0 ppm As, Cr, Pb and Ag; 1.0 ppm Se and Cd; 100 ppm Ba; and 0.020 ppm Hg.

Kirk Robinson

12600 West I-20 East • Odessa Texas 79763 • (915) 563-1800 • Fax (915) 563-1713

Exhibit A

ENVIRONMENTAL SPILL CONTROL, INC.
6210 Lovington Highway
P.O. Box 5890
Hobbs, NM 88240
(505) 392-6167 (800) 390-6167

SOIL ANALYSIS REPORT

DATE: 01/04/94
CLIENT: Greenhill
SUPERVISOR: A. HODGE
Sample Mattrix: Soil

FACILITY: Paddock/San Andres
Test Method: EPA 418.1
LOCATION: Bio-Area

	TPH		DEPTH	LOCATION
SAMPLE NO. 1:	122,250	PPM	Surface	Area # 1
SAMPLE NO. 2:	118,500	PPM	Surface	Area # 2
SAMPLE NO. 3:	117,700	PPM	Surface	Area # 3
SAMPLE NO. 4:	110,300	PPM	Surface	Area # 4
SAMPLE NO. 5:	112,750	PPM	Surface	Area # 5
SAMPLE NO. 6:	114,750	PPM	Surface	Area # 6
SAMPLE NO. 7:		PPM		
SAMPLE NO. 8:		PPM		
SAMPLE NO. 9:		PPM		
SAMPLE NO. 10:		PPM		
SAMPLE NO. 11:		PPM		
SAMPLE NO. 12:		PPM		
SAMPLE NO. 13:		PPM		

COMMENTS: All samples were four point composite samples taken before dilution and final stablization and as the Bio-Site material was spread out over the area in a one foot lift.

Exhibit B

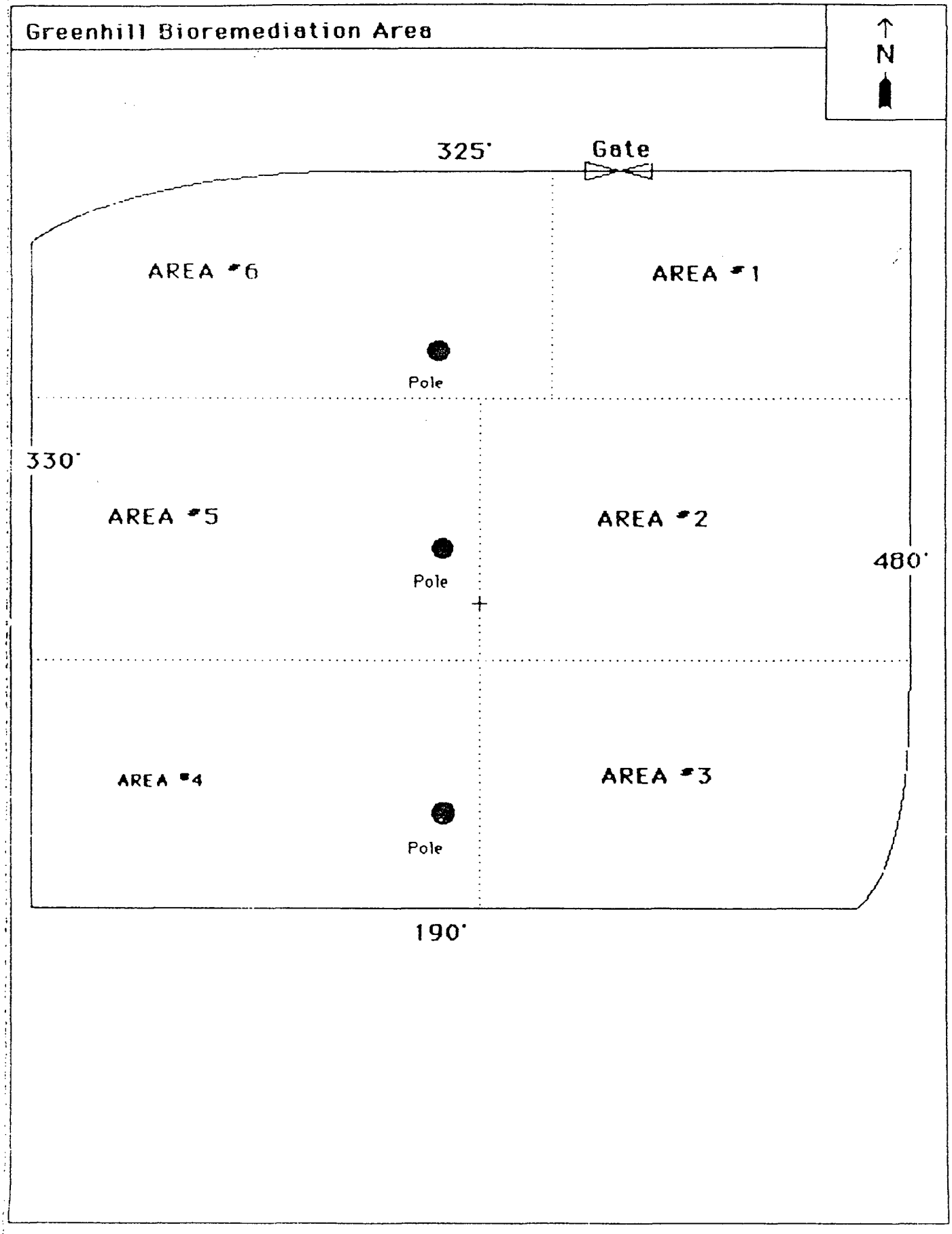
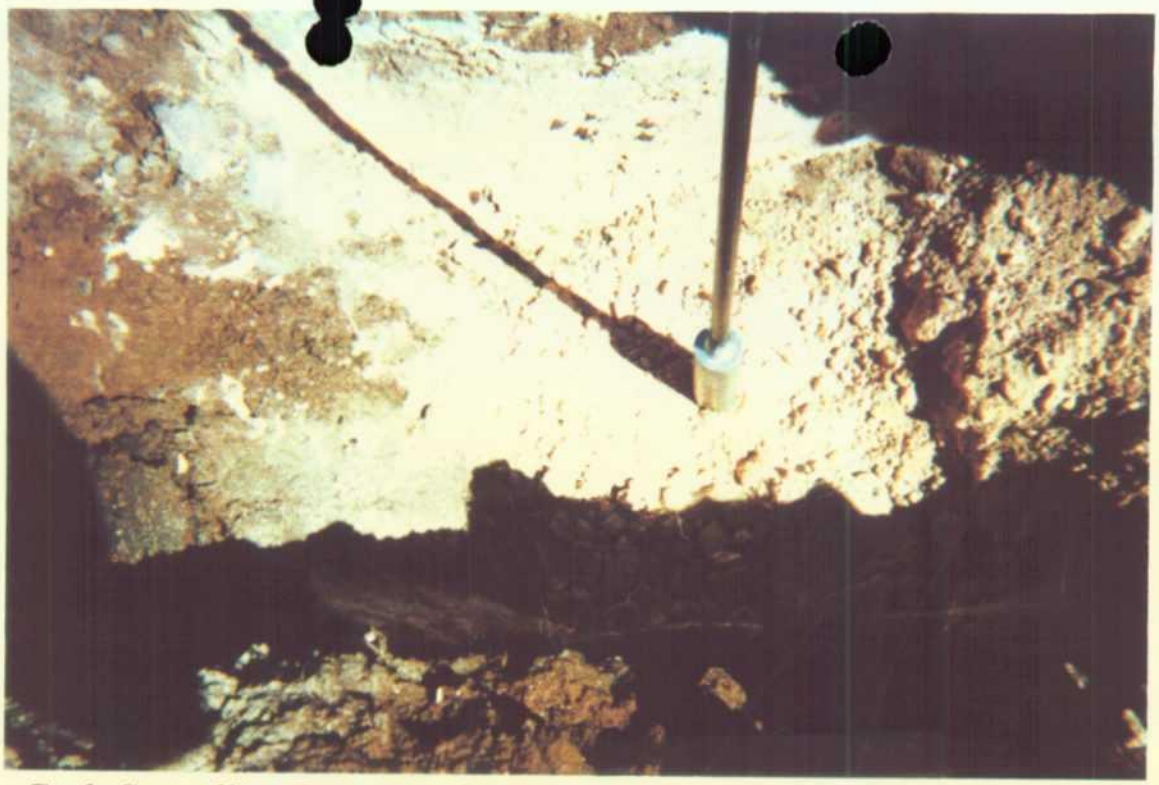


Exhibit B (continued)

Excavation in Progress for Grab Sample

Verification of 3 foot Sampling Depth of Grab Sample

Exhibit C



Grab Sampling Bottom of Hole in Center of Bioremediation Area

Collection of Grab Sample from Split Spoon

Safety & Environmental Solutions, Inc.

Water Well Report Data

The information included in this report was compiled from a computerized database supplied by the United States Geological Survey in Albuquerque, New Mexico. This report contains the recorded water wells and the latest water level readings on file with the USGS and the New Mexico State Engineer's office as of August 1996.

CODES FOR WATER-LEVEL STATUS

D - The site was dry (no water level is recorded).
E - The site was flowing recently.
F - The site was flowing, but the head could not be measured (no water level is recorded).
G - A nearby site that taps the same aquifer was flowing.
H - A nearby site that taps the same aquifer had been flowing recently.
I - Injector site (recharge water being injected into the aquifer).
J - Injector site monitor (a nearby site that taps the same aquifer is injecting recharge water).
N - The measurements at this site were discontinued.
O - An obstruction was encountered in the well above the water surface (no water level is recorded).
P - The site was being pumped.
R - The site had been pumped recently.
S - A nearby site that taps the same aquifer was being pumped.
T - A nearby site that taps the same aquifer had been pumped recently.
V - A foreign substance was present on the surface of the water.
W - The well was destroyed.
X - The water level was affected by stage in nearby surface-water site.
Z - Other conditions that would affect the measured water level (explain in remarks).

If no site status is indicated, the inventoried water-level measurement represents a static level.

Location	Date of Recording	Water Level	Code
17S.36E.01.1120	05/01/92	83	

Exhibit D

WESTERN ENVIRONMENTAL CONSULTANTS
P.O. Box 1816
Hobbs New, Mexico 88240
(505) 392 - 5021

SOIL ANALYSIS REPORT

DATE: 09/19/96
CLIENT: S.E.S.
SUPERVISOR: A. Hodge
Sample Matrix: Soil

FACILITY: Greenhill Paddock/San Andres
Test Method: EPA 418.1
Order No.: Dyke Browning
SAMPLE RECEIVED: Cool and intact on site

	TPH		DEPTH	LOCATION
SAMPLE NO. 1:	91	PPM	0-6"	Composite from Bio-Cell
SAMPLE NO. 2:	659	PPM	3'	Garb at center of Bio-Cell
SAMPLE NO. 3:		PPM		
SAMPLE NO. 4:		PPM		
SAMPLE NO. 5:		PPM		
SAMPLE NO. 6:		PPM		
SAMPLE NO. 7:		PPM		
SAMPLE NO. 8:		PPM		
SAMPLE NO. 9:		PPM		
SAMPLE NO. 10:		PPM		

COMMENTS: Sample #1 was a six point composite taken from each of the six grids and compiled into one composite sample for the site. Sample #2 was a grab sample taken from the bottom of a three foot hole dug in the center of the Bio-Cell.

Exhibit E

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 211 [redacted]CHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240
PHONE (505) 326-4669 • 118 S. COMMERCIAL AVE. • FARMINGTON, NM 87401
PHONE (806) 796-2800 • 5262 34th ST. • LUBBOCK, TX 79407

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS
ATTN: DYKE BROWNING
703 E. CLINTON
HOBBS, NM 88240
FAX TO:

Receiving Date: 09/17/96
Reporting Date: 09/19/96
Project Number: NOT GIVEN
Project Name: GREENHILL PETROLEUM
Project Location: LOVINGTON, NM

Sampling Date: 09/17/96
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NUMBER	SAMPLE ID	TPH (mg/L)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL BENZENE (ppb)	TOTAL XYLENES (ppb)
ANALYSIS DATE:		9/18/96	9/17/96	9/17/96	9/17/96	9/17/96
H2645-1	BIO PIT, SURFACE	659	<1	<1	<1	<1
H2645-2	BIO PIT, 3' DEEP	853	<1	<1	<1	<1
Quality Control		148	90.5	86.3	87.0	254
True Value QC		160	88.2	85.8	83.4	254
% Accuracy		92.3	102	100	104	100
Relative Percent Difference		2.5	8.4	4.4	1.8	7.8

METHODS: TRPHC - EPA 600/7-79-020, 418.1; BTEX - EPA SW-846-8020

Burgess J. A. Cooke, Ph. D.

9/19/96
Date

H2645BT.XLS

Exhibit F

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 B[illegible]HWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 [illegible]ARLAND • HOBBS, NM 88240
PHONE (505) 326-4669 • 118 S. COMMERCIAL AVE. • FARMINGTON, NM 87401
PHONE (806) 796-2800 • 5262 34th ST. • LUBBOCK, TX 79407

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS
ATTN: DYKE BROWNING
703 E. CLINTON
HOBBS, NM 88240
FAX TO:

Receiving Date: 09/17/96
Reporting Date: 09/19/96
Project Number: NOT GIVEN
Project Name: GREENHILL PETROLEUM
Project Location: LOVINGTON, NM

Sampling Date: 09/17/96
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By:WL

LAB NUMBER	SAMPLE ID	TOTAL Pb (ppm)	TCLP Pb (ppm)
ANALYSIS DATE:		9/18/96	9/18/96
H2645-1	BIO PIT, SURFACE	<25	<1
H2645-2	BIO PIT, 3' DEEP	37.3	<1
Quality Control		0.99	0.99
True Value QC		1.00	1.00
% Accuracy		99	99
Relative Percent Difference		10.2	10.2

METHODS EPA 600/4-79-020 239.2

Wei Li
Wei Li, Chemist

9-19-96
Date

Exhibit G

From Center of Bioremediation Area Facing East

From Center of Bioremediation Area Facing West

Exhibit H

From Center of Bioremediation Area Facing North

From Center of Bioremediation Area Facing South

(a) Scope and application.

1910.1025(a)(1)

(1) This section applies to all occupational exposure to lead, except as provided in paragraph (a)(2).

1910.1025(a)(2)

(2) This section does not apply to the construction industry or to agricultural operations covered by 29 CFR Part 1928.

1910.1025(b)

(b) Definitions. "Action level" means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m(3)) averaged over an 8-hour period.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Director" means the Director, National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health, Education, and Welfare, or designee.

"Lead" means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

1910.1025(c)

(c) Permissible exposure limit (PEL).

1910.1025(c)(1)

(1) The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m(3)) averaged over an 8-hour period.

STEP

1910.1025(c)(2)

(2) If an employee is exposed to lead for more than 8 hours in any work day, the permissible exposure limit, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

STEP

Maximum permissible limit (in ug/m(3))=400 divided by hours worked in the day.

1910.1025(c)(3)

(3) When respirators are used to supplement engineering and work practice controls to comply with the PEL and all the requirements of paragraph (f) have been met, employee exposure, for the purpose of determining whether the employer has complied with the PEL, may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

1910.1025(d)

Exhibit I

GREENHILL PETROLEUM CORPORATION

Incorporated in Delaware, U.S.A.

11490 WESTHEIMER ROAD, SUITE 200
HOUSTON, TEXAS 77077-6841
TELEPHONE (713) 589-8484
FAX. (713) 589-9399

August 30, 1993

VIA FACSIMILE
(505) 827-5741

Mr. Roger Anderson
Environmental Bureau Chief
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Greenhill Petroleum Corporation Drilling Practices
C. Robert Rice Letter of August 7, 1993 to Bill LeMay

Dear Roger:

As discussed, we have reviewed Mr. Rice's letter and offer the following information in response. Greenhill did not dispose of cement in any reserve pit. As an integral part of Greenhill's Drillsite Environmental and Surface Use Plan (attached), dry cement was mixed into the liquids held in the drilling reserve pit during closure operations.

We feel that this method has several beneficial attributes. First, it reduces pit closure time from 6-12 months to 3 months or less. Second, it reduces the risk of trash accumulation and animal ensnarement. Lastly, cement crystallizes and hardens when contacted by water which eliminates the possibility of fluid migration, and stabilizes the reserve pit contents.

For your information, we discussed this plan with Ray Smith of the Hobbs District Office in July of 1992. We had previously reviewed it with Chris Eustis. A copy of the plan was given to Chris and we invited Ray to come out and visit a drillsite if he so desired. Both men were quite helpful and we will continue to work closely with the District Office in matters where our operations impact the environment.

We hope that the information provided will enable you to respond to Mr. Rice's inquiries. Kindly let us know if further information is required.

Very truly yours,

GREENHILL PETROLEUM CORPORATION

Richard R. Myers
Director - E, S, & H

Attachment
RRM/lrh-93.071

c: Greg Salvo
Mike Newport

P 667 242 161

Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	
Street & No.	
P.O., State & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, June 1990

Fold at line over top of envelope to the right of the return address.

CERTIFIED

P 667 242 161

MAIL

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated In Delaware, U.S.A.

GREENHILL PETROLEUM

PERMIAN BASIN

DRILLSITE ENVIRONMENTAL AND SURFACE USE PLAN

DRILL SITE ENVIRONMENTAL PROGRAM

This plan covers operations from the staking and building of the location thru the cleanup and reseeding process.

Layout

The objective in designing a drillsite location is to build a structurally stable pad to temporarily accommodate the heavy equipment needed to drill the well. Since this activity requires the most land use that the well will require, it is most important to remember that it is a temporary usage. Therefore, we have reduced the drilling pad size to accommodate the majority of the high traffic situations but not all of the high traffic situations. There are several operations that require vehicles to drive off the drill site pad to do their work. It is our opinion that if we do not caliche the entire disturbed area, the land that is disturbed but not caliched will return to its original state much easier than if caliched.

There are also parts of the drill site pad that can be returned to original usage by taking up the caliche and putting it in the deep bury pit when the location is cleaned up.

Drilling Operations

The objective in addressing the drilling operations from an environmental standpoint is to reuse any reusable materials, reduce and control waste streams and recycle when possible.

In the Permian Basin operations we have redesigned our casing program such that a minimal amount of mud products are mixed in the water. This is expensive from a casing standpoint but is partially offset by reduced mud product usage and the ability to transfer and reuse the brine water mud from well to well. Reduced mud products result in a smaller amount of empty mud product containers which is minor but a step in the right direction.

We also use a reusable plastic line to provide fresh water to the drill site rather than trucking water. That results in less traffic and as a result less dust and fuel emissions.

We provide a closable trash bin on each drill site during drilling operations to collect all non-recyclable, non-hazardous common trash which keeps the trash from blowing in the typical windy days.

All hydraulic fluids and motor oils are gathered in 55 gallon drums and periodically taken to a recycler.

Pipe thread dope is used until the bucket is empty which when empty is a non-hazardous waste and is disposed of with common trash. Plastic thread protectors are gathered after the well is drilled and completed and taken to a recycler for reuse. The casing thread dope used to lubricate the casing threads is a compound that contains no metallic ingredients that are harmful to the environment.

Cleanup

The cleanup of drilling location consists of stabilizing the drilling cuttings in the deep bury pit, covering the deep bury pit with 3-5 feet of dirt that came out of that pit, reducing the location size and reseeding.

There are two methods of stabilizing the liquids and solids in the deep bury pit:

1) wait until the liquids evaporate
2) dry and consolidate the cuttings with an absorbent material such as cement.

With a typical large surface area reserve pit (±120' x 120' x 4') it has been standard practice to wait until the liquids evaporate in the usually dry climate of the Permian Basin. This may take 6-12 months. This seems to be a low cost method of consolidation since no work is going on to cause this to happen. However, there is some risk of animals entering the pit and trash accumulations from both the general public and oil field operations.

With the deep bury pit (100' x 30' x 15') the cuttings and mud need some assistance to dry adequately before covering. This can be accomplished several ways; 1) by stirring the cuttings frequently to bring the fluids to surface so they can dry which would take a lot of time and money or 2) by introducing a drying agent such as cement.

In most cases, cement is the preferred method because it speeds up the pit closure time in some cases less than three months, which reduces the risk of common trash accumulations and/or animals getting into the pit. Cement is also an additive that, when contacted by water, goes through a chemical process that crystallizes and hardens to make it an environmentally safe product.

The preferred method of introducing the dry cement into the pit is to cover the pit with a tarp with built in filtered air vents. Once the pit is covered, the cement is blown directly from the transport truck through 4" PVC pipe into the deep bury pit. This process allows very little cement to enter the atmosphere. The cement is allowed to settle before removing the tarp. Once the tarp is removed, a backhoe is used to stir the cement into the mud and cuttings and several days later the pit is ready for back fill.

The next step is to cover the pit with the soils that came out of the pit originally which in some cases the drilling pad size is reduced to put caliche fill in the pit. If there was any top soil originally, it is added as the last layer to mound over the pit.

The last step is to reseed the pit area and any reclaimed drilling pad area according to BLM recommendations for soil conditions. The key ingredient is water in this area therefore reseeding is generally accomplished during the typical wet season.

Greenhill has chosen the deep bury pit system because it takes up less surface area, it is quicker and easier to cleanup and allows the reuse of more drilling fluids from one well to another.

OIL CONSERVATION DIVISION
RECEIVED

'93 AUG 16 AM 9 59

1315 E Bender #10
Hobbs NM 88240
August 7, 1993

Bill LeMay Director O.C.D.
State of New Mexico P.O. Box 2088
Santa Fe N.M. 87504-2088

Dear Mr LeMay,

In late 1991 and early 1992 Greenhill Petroleum disposed of several truckloads of cement dust into slush pits on my wifes property (N/2 6 T-17-S R-37E Lea County NM) I was told this was hazardous waste which they could no longer deposit in landfills.

I was also told this had some vague benificial effect and was approved by Jerry Sexton at the local O.C.D office. I feel reasonably certain Jerry had Santa Fe approval before granting this permission so I am by passing Jerry and comming straight to you.

Was there an environmental impact study taken before this permission was was granted? If so, could I please have a copy? Why was this permission granted on fee lands without consulting the landowner?

Please respond at your earliest possible convenience.

Sincerely Yours
C Robert Lee

1315 E Bender #10
Hobbs NM 88240

C Robert Rice
1315 E Bender #10
Hobbs N.M. 88240

Fold at line over top of envelope to the right of the return address

CERTIFIED

P 292 203 756

MAIL

Bill LeMay Director
Oil Conservation Division
State of New Mexico P.O. Box 2088
Santa Fe N.M. 87504-2088

GREENHILL PETROLEUM CORPORATION

11490 WESTHEIMER ROAD, SUITE 200
HOUSTON, TEXAS 77077-6841
TELEPHONE (713) 589-8484
FAX, (713) 589-9399

Incorporated in Delaware, U.S.A.

August 30, 1993

VIA FACSIMILE
(505) 827-5741

Mr. Roger Anderson
Environmental Bureau Chief
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Greenhill Petroleum Corporation Drilling Practices
C. Robert Rice Letter of August 7, 1993 to Bill LeMay

Dear Roger:

As discussed, we have reviewed Mr. Rice's letter and offer the following information in response. Greenhill did not dispose of cement in any reserve pit. As an integral part of Greenhill's Drillsite Environmental and Surface Use Plan (attached), dry cement was mixed with the liquids held in the drilling reserve pit during closure operations.

We feel that this method has several beneficial attributes. First, it reduces pit closure time from 6-12 months to 3 months or less. Second, it reduces the risk of trash accumulation and animal ensnarement. Lastly, cement crystallizes and hardens when contacted by water which eliminates the possibility of fluid migration, and stabilizes the reserve pit contents.

For your information, we discussed this plan with Ray Smith of the Hobbs District Office in July of 1992. We had previously reviewed it with Chris Eustis. A copy of the plan was given to Chris and we invited Ray to come out and visit a drillsite if he so desired. Both men were quite helpful and we will continue to work closely with the District Office in matters where our operations impact the environment.

We hope that the information provided will enable you to respond to Mr. Rice's inquiries. Kindly let us know if further information is required.

Very truly yours,

GREENHILL PETROLEUM CORPORATION

Richard R. Myers
Director - E, S, & H

Attachment
RRM/lrh-93.071

c: Greg Salvo
Mike Newport

DRILL SITE ENVIRONMENTAL PROGRAM

This plan covers operations from the staking and building of the location thru the cleanup and reseeding process.

Layout

The objective in designing a drillsite location is to build a structurally stable pad to temporarily accommodate the heavy equipment needed to drill the well. Since this activity requires the most land use that the well will require, it is most important to remember that it is a temporary usage. Therefore, we have reduced the drilling pad size to accommodate the majority of the high traffic situations but not all of the high traffic situations. There are several operations that require vehicles to drive off the drill site pad to do their work. It is our opinion that if we do not caliche the entire disturbed area, the land that is disturbed but not caliched will return to its original state much easier than if caliched.

There are also parts of the drill site pad that can be returned to original usage by taking up the caliche and putting it in the deep bury pit when the location is cleaned up.

Drilling Operations

The objective in addressing the drilling operations from an environmental standpoint is to reuse any reusable materials, reduce and control waste streams and recycle when possible.

In the Permian Basin operations we have redesigned our casing program such that a minimal amount of mud products are mixed in the water. This is expensive from a casing standpoint but is partially offset by reduced mud product usage and the ability to transfer and reuse the brine water mud from well to well. Reduced mud products result in a smaller amount of empty mud product containers which is minor but a step in the right direction.

We also use a reusable plastic line to provide fresh water to the drill site rather than trucking water. That results in less traffic and as a result less dust and fuel emissions.

We provide a closable trash bin on each drill site during drilling operations to collect all non-recyclable, non-hazardous common trash which keeps the trash from blowing in the typical windy days.

All hydraulic fluids and motor oils are gathered in 55 gallon drums and periodically taken to a recycler.

Pipe thread dope is used until the bucket is empty which when empty is a non-hazardous waste and is disposed of with common trash. Plastic thread protectors are gathered after the well is drilled and completed and taken to a recycler for reuse. The casing thread dope used to lubricate the casing threads is a compound that contains no metallic ingredients that are harmful to the environment.

Cleanup

The cleanup of drilling location consists of stabilizing the drilling cuttings in the deep bury pit, covering the deep bury pit with 3-5 feet of dirt that came out of that pit, reducing the location size and reseeding.

There are two methods of stabilizing the liquids and solids in the deep bury pit:

1) wait until the liquids evaporate
2) dry and consolidate the cuttings with an absorbent material such as cement.

With a typical large surface area reserve pit (±120' x 120' x 4') it has been standard practice to wait until the liquids evaporate in the usually dry climate of the Permian Basin. This may take 6-12 months. This seems to be a low cost method of consolidation since no work is going on to cause this to happen. However, there is some risk of animals entering the pit and trash accumulations from both the general public and oil field operations.

With the deep bury pit (100' x 30' x 15') the cuttings and mud need some assistance to dry adequately before covering. This can be accomplished several ways; 1) by stirring the cuttings frequently to bring the fluids to surface so they can dry which would take a lot of time and money or 2) by introducing a drying agent such as cement.

In most cases, cement is the preferred method because it speeds up the pit closure time in some cases less than three months, which reduces the risk of common trash accumulations and/or animals getting into the pit. Cement is also an additive that, when contacted by water, goes through a chemical process that crystallizes and hardens to make it an environmentally safe product.

The preferred method of introducing the dry cement into the pit is to cover the pit with a tarp with built in filtered air vents. Once the pit is covered, the cement is blown directly from the transport truck through 4" PVC pipe into the deep bury pit. This process allows very little cement to enter the atmosphere. The cement is allowed to settle before removing the tarp. Once the tarp is removed, a backhoe is used to stir the cement into the mud and cuttings and several days later the pit is ready for back fill.

The next step is to cover the pit with the soils that came out of the pit originally which in some cases the drilling pad size is reduced to put caliche fill in the pit. If there was any top soil originally, it is added as the last layer to mound over the pit.

The last step is to reseed the pit area and any reclaimed drilling pad area according to BLM recommendations for soil conditions. The key ingredient is water in this area therefore reseeding is generally accomplished during the typical wet season.

Greenhill has chosen the deep bury pit system because it takes up less surface area, it is quicker and easier to cleanup and allows the reuse of more drilling fluids from one well to another.

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

August 17, 1993

Greenhill Petroleum Corporation
P.O. Box 609
Lovington, New Mexico 88260

Mr. Jerry Sexton
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Dear Mr. Sexton,

Greenhill Petroleum is ready to begin work to close several open pits on its operated units in the Lovington area. Towards this end we have done extensive assessment work to identify the problems particular to each pit and have put together a basic scope of work to be performed. Prior to letting the work to contractors for bid we would like to review our site assessment information and basic scope of work with your office.

I will be out of town until Wednesday August 25 th, but will contact you upon my return. If you have any questions regarding the enclosed scope of work, site assessments, and TCLP analysis; or have any suggestions to offer, Greenhill would greatly appreciate your input.

GREENHILL PETROLEUM CORPORATION

Thankyou

David M. Tilley
Superintendent

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

B I D S O L I C I T A T I O N

Project Description: Pit Closures using existing OCD guidelines.

Location: Six miles south of Lovington, New Mexico.

Scope of Work

Bids are being solicited to close three pits containing **non-hazardous oilfield waste** under existing OCD guidelines. The waste is partially solidified containing paraffins, oil, sand, asphaltines (tar) and BS&W. It is considered RCRA exempt waste and is also characteristically non hazardous. TCLP, TPH and BTEX analyses are attached for your information.

Two of the pits are open topped tanks, 110 ft. in diameter, constructed of 4 ft. galvanized steel sides with a rubber liner. The third pit is an unlined dirt pit measuring 75 ft. by 75 ft.

All free liquid will be removed by GPC prior to commencement of work by the successful bidder. Pit closure will be by mechanical means with final cleanup of contaminated soil achieved using accepted bioremediation techniques.

Pit Closure:

Closure of the two steel tanks is to be done first. The materials within the tanks is to be removed to a site immediately west of the tanks suitable for establishing a bioremediation area. The tanks will then need to be cleaned out, disassembled and removed. The area around the tanks would then be taken to ground level and included in an expanded soil remediation area.

Closure of the dirt pit is to be done second and may necessitate excavation to a depth of approximately 30 ft. The top ±10 ft of excavated soil will be removed to the central soil remediation area near the old steel pits. The remainder of the soil excavated will be stockpiled to use in backfilling operations. The pit will be backfilled using concrete blocks and a mixture of diluted soil (diluted soil must be below OCD guidelines for TPH) and clean native soil (top 36"). The entire pit area will also have to be reseeded. **(NOTE: The blocks will be provided by Greenhill. Each weighs approximately 5 tons. Contractor will be responsible for transportation to site and equipment to position same in excavation).**

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TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

In addition to the pit, two small surface spills (approximately 300 cubic yards of soil) where pit runover has occurred will need to be excavated to a ± two foot depth. This material will be transported to the central bioremediation site and the site backfilled and leveled. These areas are outlined on the attached map.

Bioremediation

The bioremediation program goal will be to reach the accepted OCD required levels of TPH within 180 days. Product selection should be supported with confirming data from similar projects in the Permian Basin area. The contaminated soil and solid emulsified hydrocarbon (estimated volume 2540 cubic yards) should be spread in the selected area at a depth not to exceed six inches. Fresh water is available on-site with all other equipment to be supplied by the contractor.

Reporting

Contractor will be responsible for developing a site specific Closure Plan, Work Plan, and a Health and Safety Plan together with a final Closure Report, all of which must meet federal and state requirements, subject to final approval by Greenhill and the New Mexico Oil Conservation Division.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/25/93
Address: P.O. Box 5890 Lab#: H1228-1
City, State: Hobbs, NM 88241

Project Name: Greenhill Petroleum
Project Location: San Andres Pit
Sampled by: ES Date: 05/20/93
Type of Sample: Water Sample Condition: GST

Sample ID: Paddock/San Andres Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.030	mg/L
Barium	1.71	mg/L
Cadmium	0.006	mg/L
Chromium	<0.01	mg/L
Lead	0.25	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.008	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/25/93
Address: P.O. Box 5890 Lab#: H1228-2
City, State: Hobbs, NM 88241

Project Name: Greenhill Petroleum
Project Location:
Sampled by: ES Date: 05/20/93
Type of Sample: Water Sample Condition: GST

Sample ID: Walker/Getty Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.003	mg/L
Barium	<0.10	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.01	mg/L
Lead	0.10	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.002	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

Michael R. Fowler

ENVIRONMENTAL SPILL CONTROL, INC.

SITE SURVEY

DATE: August 13, 1993

CLIENT: Greenhill Petroleum ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty Pit WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: N : A AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES X NO

DATE CONTACTED: 08/12/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 08/13/93 TIME ON LOCATION: 9 : 00 AM PM

SUPERVISOR: A. Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__X__OTHER To run add TpH test on soil outside pit area.

****

SUPERVISOR SIGNATURE CUSTOMER SIGNATURE

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: August 13, 1993 **FACILITY:** Walker Getty Pit

CLIENT: Greenhill Petroleum **ORDER NO:** Mr. David Tilley

SUPERVISOR: Allen Hodge **HOLE # :** _____

	TPH		DEPTH	LOCATION
SAMPLE NO. 1:	8760	**PPM**	1'	SWC
SAMPLE NO. 2:	5680	**PPM**	1'	NWC
SAMPLE NO. 3:	39	**PPM**	Surface	Middle/East Side
SAMPLE NO. 4:	88	**PPM**	Surface	Middle/West Side
SAMPLE NO. 5:		**PPM**		
SAMPLE NO. 6:		**PPM**		
SAMPLE NO. 7:		**PPM**		
SAMPLE NO. 8:		**PPM**		
SAMPLE NO. 9:		**PPM**		
SAMPLE NO. 10:		**PPM**		

COMMENTS: Sample #1 was taken 50' outside pit area in the south west corner. Some old surface overflow is visible. Sample #2 was taken 50' outside pit area in the north west corner. Some old surface contamination was found. Samples #3 & #4 were surface samples in the middle of the east and west sides. Overflow from pit site would be to the south west.

PHONE (505) 392-6167
FAX (505) 392-8788

ENVIRONMENTAL
SPILL CONTROL, INC.

P.O. BOX 5890 ★ HOBBS, NM 88241

May 24, 1993

Mr. David Tilley
Greenhill Petroleum Corporation
P.O. Box 1949
Hobbs, New Mexico 88241

Attention: Mr. David M. Tilley, P.E.
Production Superintendent

Reference: Walker/Getty Site Assessment

As per your request, you will find the site assessment and soil analysis for the Walker/Getty pit.

The Walker/Getty lease pit is an unlined, in-ground, earthen pit, approximately 65' x 65' in size, excluding berm material. The pit contains oilfield production associated materials and has been in use for the past 30 to 40 years. There were two holes drilled 10' outside the pit on the south and east side of the pit to check for lateral contamination. None was found. One hole was tried 25' into the center of the pit. The hole was not completed because of the wet condition of the pit. A good sample could not be taken. The hole was drilled 10' in on the pit from the west side. The contamination cleaned up at 22'. Based on past experience, the contamination in the center of the pit will reach the 30' level. Based on these numbers, this would be 4694 cubic yards of contaminated soil to be remediated. There was a hard layer of rock at 18' that has helped to contain the contamination of the pit.

We would like to thank you for allowing us to be of service to Greenhill Petroleum Corporation. If you have any questions, please contact us at any time.

Best Regards,

Allen Hodge
Field Superintendent

cc: Mr. Dwayne Taylor
Mr. Jimmy Curtis
Mr. Eddie Slavens

ENVIRONMENTAL
SPILL CONTROL, INC.

SITE SURVEY

DATE: May 19, 1993

CLIENT: Greenhill Petroleum Corp. ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: - : - AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES X NO

DATE CONTACTED: 5/18/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 5/19/93 TIME ON LOCATION: 8 : 00 AM PM

SUPERVISOR: Allen Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__X__OTHER Core testing and site assessment

****

SUPERVISOR SIGNATURE

CUSTOMER SIGNATURE

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93 FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp. WELL #: --

SUPERVISOR: Allen Hodge ORDER NO.: 10' in on pit from west side

	TPH	PH	CL
SAMPLE NO. 1:	3580 PPM	10'	PPM
SAMPLE NO. 2:	1050 PPM	20'	PPM
SAMPLE NO. 3:	350 PPM	30'	PPM
SAMPLE NO. 4:	043 PPM	40'	PPM
SAMPLE NO. 5:	PPM		PPM
SAMPLE NO. 6:	PPM		PPM
SAMPLE NO. 7:	PPM		PPM
SAMPLE NO. 8:	PPM		PPM
SAMPLE NO. 9:	PPM		PPM
SAMPLE NO. 10:	PPM		PPM

COMMENTS: The contamination cleaned up at 22' (- below 1000), but was unable to drill test hole in center. Pit was too wet.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 05/19/93

FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp.

WELL #: --

SUPERVISOR: Allen Hodge

ORDER NO.: South side 10' out from pit

	TPH	PH	CL
SAMPLE NO. 1:	034 PPM	10'	PPM
SAMPLE NO. 2:	014 PPM	20'	PPM
SAMPLE NO. 3:	±01 PPM		PPM
SAMPLE NO. 4:	PPM		PPM
SAMPLE NO. 5:	PPM		PPM
SAMPLE NO. 6:	PPM		PPM
SAMPLE NO. 7:	PPM		PPM
SAMPLE NO. 8:	PPM		PPM
SAMPLE NO. 9:	PPM		PPM
SAMPLE NO. 10:	PPM		PPM

COMMENTS: No lateral contamination found on south side of pit.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93 FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp. WELL #: --

SUPERVISOR: Allen Hodge ORDER NO.: East side 10' out from pit

	TPH	PH	CL
SAMPLE NO. 1:	066 PPM	10'	PPM
SAMPLE NO. 2:	010 PPM	20'	PPM
SAMPLE NO. 3:	+ 01 PPM	30'	PPM
SAMPLE NO. 4:	PPM		PPM
SAMPLE NO. 5:	PPM		PPM
SAMPLE NO. 6:	PPM		PPM
SAMPLE NO. 7:	PPM		PPM
SAMPLE NO. 8:	PPM		PPM
SAMPLE NO. 9:	PPM		PPM
SAMPLE NO. 10:	PPM		PPM

COMMENTS: No lateral contamination found on east side of pit.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/20/93
Address: P.O. Box 5890 Lab#: H1227
City, State: Hobbs, NM 88241

Project Name: Greenhill Prod.
Project Location: Walker Getty
Sampled by: AH Date: Time:
Analyzed by: HM Date: 05/20/93 Time: 1100
Type of Samples: Soil Sample Condition: GST Units: mg/kg, mg/l

Samp #	Field Code	TRPHC	BENZENE	TOLUENE	ETHYL BENZENE	PARA-XYLENE	META-XYLENE	ORTHO-XYLENE	MTBE
1	10' In On Pit	***	<0.001	0.054	0.017	<0.001	0.008	0.018	<0.001
2	20' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	<0.001
3	30' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	QC Recovery	***	2.070	2.213	2.131	2.132	2.086	2.307	1.519
	QC Spike	***	2.053	2.091	2.038	2.053	2.043	2.113	1.647
	Accuracy	***	100.8%	105.8%	104.6%	103.8%	102.1%	109.2%	92.2%
	Air Blank	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Methods - AUTOMATED HEADSPACE GC; INFRARED SPECTROSCOPY
- EPA SW-846; EPA METHODS 8020, 418.1, 3540 OR 3510

Michael R. Fowler

Date 5/20/93

Michael R. Fowler

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

August 17, 1993

Greenhill Petroleum Corporation
P.O. Box 609
Lovington, New Mexico 88260

Mr. Jerry Sexton
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Dear Mr. Sexton,

Greenhill Petroleum is ready to begin work to close several open pits on its operated units in the Lovington area. Towards this end we have done extensive assessment work to identify the problems particular to each pit and have put together a basic scope of work to be performed. Prior to letting the work to contractors for bid we would like to review our site assessment information and basic scope of work with your office.

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GREENHILL PETROLEUM CORPORATION

Thankyou

David M. Tilley
Superintendent

GREENHILL PETROLEUM CORPORATION

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TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

B I D S O L I C I T A T I O N

Project Description: Pit Closures using existing OCD guidelines.

Location: Six miles south of Lovington, New Mexico.

Scope of Work

Bids are being solicited to close three pits containing **non-hazardous oilfield waste** under existing OCD guidelines. The waste is partially solidified containing paraffins, oil, sand, asphaltines (tar) and BS&W. It is considered RCRA exempt waste and is also characteristically non hazardous. TCLP, TPH and BTEX analyses are attached for your information.

Two of the pits are open topped tanks, 110 ft. in diameter, constructed of 4 ft. galvanized steel sides with a rubber liner. The third pit is an unlined dirt pit measuring 75 ft. by 75 ft.

All free liquid will be removed by GPC prior to commencement of work by the successful bidder. Pit closure will be by mechanical means with final cleanup of contaminated soil achieved using accepted bioremediation techniques.

Pit Closure:

Closure of the two steel tanks is to be done first. The materials within the tanks is to be removed to a site immediately west of the tanks suitable for establishing a bioremediation area. The tanks will then need to be cleaned out, disassembled and removed. The area around the tanks would then be taken to ground level and included in an expanded soil remediation area.

Closure of the dirt pit is to be done second and may necessitate excavation to a depth of approximately 30 ft. The top ±10 ft of excavated soil will be removed to the central soil remediation area near the old steel pits. The remainder of the soil excavated will be stockpiled to use in backfilling operations. The pit will be backfilled using concrete blocks and a mixture of diluted soil (diluted soil must be below OCD guidelines for TPH) and clean native soil (top 36"). The entire pit area will also have to be reseeded. **(NOTE: The blocks will be provided by Greenhill. Each weighs approximately 5 tons. Contractor will be responsible for transportation to site and equipment to position same in excavation).**

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HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

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In addition to the pit, two small surface spills (approximately 300 cubic yards of soil) where pit runover has occurred will need to be excavated to a ± two foot depth. This material will be transported to the central bioremediation site and the site backfilled and leveled. These areas are outlined on the attached map.

Bioremediation

The bioremediation program goal will be to reach the accepted OCD required levels of TPH within 180 days. Product selection should be supported with confirming data from similar projects in the Permian Basin area. The contaminated soil and solid emulsified hydrocarbon (estimated volume 2540 cubic yards) should be spread in the selected area at a depth not to exceed six inches. Fresh water is available on-site with all other equipment to be supplied by the contractor.

Reporting

Contractor will be responsible for developing a site specific Closure Plan, Work Plan, and a Health and Safety Plan together with a final Closure Report, all of which must meet federal and state requirements, subject to final approval by Greenhill and the New Mexico Oil Conservation Division.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/25/93
Address: P.O. Box 5890 Lab#: H1228-1
City, State: Hobbs, NM 88241

Project Name: Greenhill Petroleum
Project Location: San Andres Pit
Sampled by: ES Date: 05/20/93
Type of Sample: Water Sample Condition: GST

Sample ID: Paddock/San Andres Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.030	mg/L
Barium	1.71	mg/L
Cadmium	0.006	mg/L
Chromium	<0.01	mg/L
Lead	0.25	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.008	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc.
Address: P.O. Box 5890
City, State: Hobbs, NM 88241

Date: 05/25/93
Lab#: H1228-2

Project Name: Greenhill Petroleum
Project Location:
Sampled by: ES
Type of Sample: Water

Date: 05/20/93
Sample Condition: GST

Sample ID: Walker/Getty Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.003	mg/L
Barium	<0.10	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.01	mg/L
Lead	0.10	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.002	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

Michael R. Fowler

ENVIRONMENTAL
SPILL CONTROL, INC.

SITE SURVEY

DATE: August 13, 1993

CLIENT: Greenhill Petroleum ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty Pit WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: N : A AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES X NO

DATE CONTACTED: 08/12/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 08/13/93 TIME ON LOCATION: 9 : 00 AM PM

SUPERVISOR: A. Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__x__OTHER To run add TpH test on soil outside pit area.

****

SUPERVISOR SIGNATURE CUSTOMER SIGNATURE

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: August 13, 1993 **FACILITY:** Walker Getty Pit

CLIENT: Greenhill Petroleum **ORDER NO:** Mr. David Tilley

SUPERVISOR: Allen Hodge **HOLE # :** _____

	TPH		DEPTH	LOCATION
SAMPLE NO. 1:	8760	**PPM**	1'	SWC
SAMPLE NO. 2:	5680	**PPM**	1'	NWC
SAMPLE NO. 3:	39	**PPM**	Surface	Middle/East Side
SAMPLE NO. 4:	88	**PPM**	Surface	Middle/West Side
SAMPLE NO. 5:		**PPM**		
SAMPLE NO. 6:		**PPM**		
SAMPLE NO. 7:		**PPM**		
SAMPLE NO. 8:		**PPM**		
SAMPLE NO. 9:		**PPM**		
SAMPLE NO. 10:		**PPM**		

COMMENTS: Sample #1 was taken 50' outside pit area in the south west corner. Some old surface overflow is visible. Sample #2 was taken 50' outside pit area in the north west corner. Some old surface contamination was found. Samples #3 & #4 were surface samples in the middle of the east and west sides. Overflow from pit site would be to the south west.

PHONE (505) 392-6167
FAX (505) 392-8788

ENVIRONMENTAL SPILL CONTROL, INC.

P.O. BOX 5890 ★ HOBBS, NM 88241

May 24, 1993

Mr. David Tilley
Greenhill Petroleum Corporation
P.O. Box 1949
Hobbs, New Mexico 88241

Attention: Mr. David M. Tilley, P.E.
Production Superintendent

Reference: Walker/Getty Site Assessment

As per your request, you will find the site assessment and soil analysis for the Walker/Getty pit.

The Walker/Getty lease pit is an unlined, in-ground, earthen pit, approximately 65' x 65' in size, excluding berm material. The pit contains oilfield production associated materials and has been in use for the past 30 to 40 years. There were two holes drilled 10' outside the pit on the south and east side of the pit to check for lateral contamination. None was found. One hole was tried 25' into the center of the pit. The hole was not completed because of the wet condition of the pit. A good sample could not be taken. The hole was drilled 10' in on the pit from the west side. The contamination cleaned up at 22'. Based on past experience, the contamination in the center of the pit will reach the 30' level. Based on these numbers, this would be 4694 cubic yards of contaminated soil to be remediated. There was a hard layer of rock at 18' that has helped to contain the contamination of the pit.

We would like to thank you for allowing us to be of service to Greenhill Petroleum Corporation. If you have any questions, please contact us at any time.

Best Regards,

Allen Hodge
Field Superintendent

cc: Mr. Dwayne Taylor
Mr. Jimmy Curtis
Mr. Eddie Slavens

ENVIRONMENTAL
SPILL CONTROL, INC.

SITE SURVEY

DATE: May 19, 1993

CLIENT: Greenhill Petroleum Corp. ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: - : - AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES X NO

DATE CONTACTED: 5/18/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 5/19/93 TIME ON LOCATION: 8 : 00 AM PM

SUPERVISOR: Allen Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__X__OTHER Core testing and site assessment

****

SUPERVISOR SIGNATURE CUSTOMER SIGNATURE

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93 FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp. WELL #: --

SUPERVISOR: Allen Hodge ORDER NO.: 10' in on pit from west side

	TPH		PH	CL	
SAMPLE NO. 1:	3580	PPM	10'		PPM
SAMPLE NO. 2:	1050	PPM	20'		PPM
SAMPLE NO. 3:	350	PPM	30'		PPM
SAMPLE NO. 4:	043	PPM	40'		PPM
SAMPLE NO. 5:		PPM			PPM
SAMPLE NO. 6:		PPM			PPM
SAMPLE NO. 7:		PPM			PPM
SAMPLE NO. 8:		PPM			PPM
SAMPLE NO. 9:		PPM			PPM
SAMPLE NO. 10:		PPM			PPM

COMMENTS: The contamination cleaned up at 22', - below 1000 but was unable to drill test hole in center. Pit was too wet.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 05/19/93

FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp.

WELL #: --

SUPERVISOR: Allen Hodge

ORDER NO.: South side 10' out from pit

	TPH	PH	CL
SAMPLE NO. 1:	034 PPM	10'	PPM
SAMPLE NO. 2:	014 PPM	20'	PPM
SAMPLE NO. 3:	±01 PPM		PPM
SAMPLE NO. 4:	PPM		PPM
SAMPLE NO. 5:	PPM		PPM
SAMPLE NO. 6:	PPM		PPM
SAMPLE NO. 7:	PPM		PPM
SAMPLE NO. 8:	PPM		PPM
SAMPLE NO. 9:	PPM		PPM
SAMPLE NO. 10:	PPM		PPM

COMMENTS: No lateral contamination found on south side of pit.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93

FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp.

WELL #: --

SUPERVISOR: Allen Hodge

ORDER NO.: East side 10' out from pit

	TPH		PH	CL	
SAMPLE NO. 1:	066	PPM	10'		PPM
SAMPLE NO. 2:	010	PPM	20'		PPM
SAMPLE NO. 3:	+ 01	PPM	30'		PPM
SAMPLE NO. 4:		PPM			PPM
SAMPLE NO. 5:		PPM			PPM
SAMPLE NO. 6:		PPM			PPM
SAMPLE NO. 7:		PPM			PPM
SAMPLE NO. 8:		PPM			PPM
SAMPLE NO. 9:		PPM			PPM
SAMPLE NO. 10:		PPM			PPM

COMMENTS: No lateral contamination found on east side of pit.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/20/93
Address: P.O. Box 5890 Lab#: H1227
City, State: Hobbs, NM 88241

Project Name: Greenhill Prod.
Project Location: Walker Getty
Sampled by: AH Date: Time:
Analyzed by: HM Date: 05/20/93 Time: 1100
Type of Samples: Soil Sample Condition: GST Units: mg/kg, mg/l

Samp #	Field Code	TRPHC	BENZENE	TOLUENE	ETHYL BENZENE	PARA-XYLENE	META-XYLENE	ORTHO-XYLENE	MTBE
1	10' In On Pit	***	<0.001	0.054	0.017	<0.001	0.008	0.018	<0.001
2	20' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	<0.001
3	30' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	QC Recovery	***	2.070	2.213	2.131	2.132	2.086	2.307	1.519
	QC Spike	***	2.053	2.091	2.038	2.053	2.043	2.113	1.647
	Accuracy	***	100.8%	105.8%	104.6%	103.8%	102.1%	109.2%	92.2%
	Air Blank	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Methods - AUTOMATED HEADSPACE GC; INFRARED SPECTROSCOPY
- EPA SW-846; EPA METHODS 8020, 418.1, 3540 OR 3510

Michael R. Fowler

Date 5/20/93

Michael R. Fowler

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

NMOCD Inter-Correspondence

To: Roger Anderson-Environmental Bureau Chief

From: Wayne Price-Environmental Engineer District I

Date: July 25, 1994

Reference: Greenhill Lovington Paddock/San Andres units pit closures and bioremediation landfarm.

Subject: Lead contamination

Comments:

Roger,

Please find enclosed the information concerning the lead that came out of the original pits and is now in the bioremediation landfarm on site. Environmental Spill Control, Inc., which is Greenhill's consultant has sampled and tested this area. Please find attached this information contained in a letter dated July 22, 1994 from them to me.

I have also enclosed a previous memo from me to you for your reference.

If you have any further questions please don't hesitate to call or write.

cc: Jerry Sexton-District I Supervisor
Attachments-2

PHONE (505) 392-6167
FAX (505) 392-8788

ENVIRONMENTAL
SPILL CONTROL, INC.

P.O. BOX 5890 ★ HOBBS, NM 88241

July 22, 1994

State of New Mexico
Oil Conservation Division
P.O. Box 1980
1000 West Broadway
Hobbs, New Mexico 88240

Attn: Mr. Wayne Price
Environmental Engineer

Re: Bio-Area Paddock/San Andres Central Battery

Dear Mr. Price:

You recently requested that we do some additional testing on the bioremediation area that is adjacent to the Paddock/San Andres Central Battery. You stated that Mr. Roger Anderson, Bureau Chief, had some concerns on the amount of lead that was in the non-hazardous oilfield contaminated material that was spread over the site from closure, under the Oil Conservation Division Guidelines, of the two (2) emergency overflow pits at the central battery and the from the Getty/Walker pit.

We employed stratified random sampling procedures in obtaining composite samples from each area of the bioremediation area. In-house, we have established six cells in the entire bioremediation area. We generally utilize simple random sampling and stratified random sampling procedures, those being types of probability sampling, which, because of a reliance upon mathematical and statistical theories, allows an evaluation of the effectiveness of sampling procedures. We employed the stratified random sampling procedure, because the contaminated materials have been mixed and disked and a particular strata layer is not known. We had a total lead run on each composite sample as well as TCLP inorganics (leachate) analyses for each composite sample. Please refer to the attached results, analyzed by Environmental Lab of Texas, Inc., a third party laboratory. We have a Chain-of-Custody Record on file in our office if you need a copy. The results are under established limits of concern.

I might further add, that the overall Total Petroleum Hydrocarbon contamination in the material removed from the emergency overflow pits, at the beginning of the project, was in the range of 120,000 ppm of TPH and is now below, overall, the 20,000 ppm range of TPH.

If you have any questions or desire further information, please contact us at anytime.

Best Regards,
ENVIRONMENTAL SPILL CONTROL, INC.

Eddie Slavens

Eddie Slavens, R.E.M.
Vice President

cc: Mr. David Tilley - Greenhill Petroleum
Mr. Ron Matthews - Greenhill Petroleum
Mr. Allen Hodge - ESCI
Mr. Jimmy Curtis - ESCI

ENVIRONMENTAL
LAB OF TEXAS, INC.
"Don't Treat Your Soil Like Dirt!"

June 20, 1994

Environmental Spill Control
Mr. Allen Hodge
P.O. Box 5890
Hobbs, NM 88241

Sample Matrix: Soil

Project: Bio-Area Paddock/San Andres Central Battery
Submitted By: Allen Hodge

Date Received: 6/15/94
Date Reported: 6/20/94

CHEMICAL ANALYSIS REPORT

Parameter	Value (ppm)
Sample ID: Area #1	
Total Lead	19.7
Sample ID: Area #2	
Total Lead	23.0
Sample ID: Area #3	
Total Lead	21.7
Sample ID: Area #4	
Total Lead	17.7
Sample ID: Area #5	
Total Lead	18.3
Sample ID: Area #6	
Total Lead	22.7
Quality Control	2.06

Methods: EPA SW 846-3050 7420
QC: 2.0 ppm Pb

Kirk Robinson

12600 West I-20 East · Odessa, Texas 79763 · (915) 563-1800 · Fax (915) 563-1713

ENVIRONMENTAL LAB OF TEXAS, INC.

"Don't Treat Your Soil Like Dirt!"

June 22, 1994

Environmental Spill Control
Mr. Allen Hodge
P.O. Box 5890
Hobbs, NM 88241

Sample Matrix: Soil

Project: Bio-Area Paddock/San Andres Central Battery
Submitted By: Allen Hodge

Date Received: 6/15/94
Date Reported: 6/22/94

CHEMICAL ANALYSIS REPORT

Parameter	Value (ppm)
Sample ID: Area #1	
TCLP Lead	<0.1
Sample ID: Area #2	
TCLP Lead	<0.1
Sample ID: Area #3	
TCLP Lead	<0.1
Sample ID: Area #4	
TCLP Lead	<0.1
Sample ID: Area #5	
TCLP Lead	<0.1
Sample ID: Area #6	
TCLP Lead	<0.1
Quality Control	2.06

Methods: EPA SW 846-1311 7420
QC: 2.0 ppm Pb

Kirk Robinson

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

NMOCD Inter-Correspondence

To: Roger Anderson-Environmental Bureau Chief

From: Wayne Price-Environmental Engineer District I

Date: June 13, 1994

Reference: Greenhill Petroleum Pit Closures

Subject: Lovington Paddock/San Andres units pit closures and the Walker/Getty pit closure.

Comments:

Per your request, I am enclosing a copy of the District I file on the above mentioned closures. As of to date, Greenhill has closed all three pits and have submitted the C-103's subsequent reports.

Gary Wink and I visited the site on February 24, 1994. I have included my field report also. The site looks very good and they are in process of bioremediating all of the soil carried from the three pits to the central unit. This bioremediation site is actually located at the location of where the north and south pits of the Paddock/San Andres unit was located.

I have submitted the final C-103's to our District I supervisor for his approval. I have also signed off on these.

If you think there is a problem with the lead contamination please advise me on what action we need to take. Also should we ask for the pit closure form to be used or does this project predate your forthcoming memorandum on pit closures?

If you have any questions please don't hesitate to call or write.

cc: Jerry Sexton-District I Supervisor
Attachments-Greenhill file

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

NMOCD Inter-Correspondence

To: Roger Anderson-Environmental Bureau Chief

From: Wayne Price-Environmental Engineer District I

Date: June 13, 1994

Reference: Greenhill Petroleum Pit Closures

Subject: Lovington Paddock/San Andres units pit closures and the Walker/Getty pit closure.

Comments:

Per your request, I am enclosing a copy of the District I file on the above mentioned closures. As of to date, Greenhill has closed all three pits and have submitted the C-103's subsequent reports.

Gary Wink and I visited the site on February 24, 1994. I have included my field report also. The site looks very good and they are in process of bioremediating all of the soil carried from the three pits to the central unit. This bioremediation site is actually located at the location of where the north and south pits of the Paddock/San Andres unit was located.

I have submitted the final C-103's to our District I supervisor for his approval. I have also signed off on these.

If you think there is a problem with the lead contamination please advise me on what action we need to take. Also should we ask for the pit closure form to be used or does this project predate your forthcoming memorandum on pit closures?

If you have any questions please don't hesitate to call or write.

cc: Jerry Sexton-District I Supervisor
Attachments-Greenhill file

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

NMOCD Inter-Correspondence

To: Jerry Sexton-District I Supervisor

From: Wayne Price-Environmental Engineer District I

Date: June 13, 1994

Reference: Greenhill Petroleum Pit Closures

Subject: Lovington Paddock/San Andres units pit closures and the Walker/Getty pit closure.

Comments:

Jerry, please find attached the final C-103's submitted by Greenhill. I have reviewed these and signed off on these. Gary Wink and I visited the sites some time ago. They look very good and the central bioremediation unit is working very well. When they are down to guideline levels they will then submit the final closure on this unit.

I have also attached a copy of a letter sent to Roger Anderson concerning this project. Roger requested to have a copy on file in Santa Fe. After your approval I would like to keep these in our environmental files.

Thanks!

Submit 3 Copies to Appropriate District Office

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

Form C-103
Revised 1-1-89

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Lovington Paddock/San Andres Units

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER Emergency Overflow Pits (2)

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Box 609, Lovington NM 88260

9. Pool name or Wildcat

RECEIVED
MAY 25 '94
OCD HOBBS OFFICE

4. Well Location
Unit Letter _____ : _____ Feet From The _____ Line and _____ Feet From The _____ Line

Section 1 Township 17S Range 36E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☒	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

12. Describe Proposed or Completed Operations (*Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work*) SEE RULE 1103.

There were two (2) pits, above ground, plastic lined with four foot steel siding that were removed, one from each unit. There was approximately 700 cubic yards of exempt, non-hazardo oilfield waste in both pits, with another 200 to 300 cubic yards of slight contamination und the pits that was removed and stabilized along with the 700 cubic yards. The contaminated material was removed to a bioremediation area, adjacent to the pits to the south for remediation. The area w ere the pits were located was restored and diluted with fresh fill, dressed off to grade. A third party laboratory analysis has been furnished on each of the two (2) sites. The sites were closed under OCD guidelines, with Total Petroleum Hydrocarbon (TPH) well under the 1,000 ppm rating range under 10 ppm with BTEX less than 1.0 ppm.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE David M. Tilley TITLE Production Supt. DATE 5/18/94

TYPE OR PRINT NAME David M. Tilley, P.E. TELEPHONE NO. (505) 396-7503

(This space for State Use) 6/13/94

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

ENVIRONMENTAL
LAB OF , INC.
"Don't Treat Your Soil Like Dirt!"

March 21, 1994

Environmental Spill Control
Mr. Allen Hodge
P.O. Box 5890
Hobbs, NM 88241

Sample Matrix: Soil

Project: Paddock San Andres North
Submitted By: Allen Hodge

Date Received: 3/17/94
Date Reported: 3/21/94

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Test Method
Sample ID: Paddock San Andres North 8" Composite			
Benzene	<0.1	ppm	8020/5030
Toluene	<0.1	ppm	
Ethylbenzene	<0.1	ppm	
Xylene (omp)	<0.1	ppm	
Total Petroleum Hydrocarbons	<10.0	ppm	418.1

Total QC (Quality Control)

Tot. BTEX QC:Blank spiked with 100 ppb BTE and 200 ppb (m,p)Xylene, 100 ppb (o) Xylene
Detection Limits 0.1 ppm
Total Petroleum Hydrocarbons QC: Blank spiked with 162 ppm
Detection Limit 10 ppm

	Result (ppb)	% Accuracy
Benzene	101.5	102
Toluene	102.9	104
Ethylbenzene	102.4	103
Xylene (mp)	208.9	104
Xylene (o)	104.2	106
TPH	163 ppm	101

Kirk Robinson

ENVIRONMENTAL
LAB OF TEXAS, INC.
"Don't Treat Your Soil Like Dirt!"

March 21, 1994

Environmental Spill Control
Mr. Allen Hodge
P.O. Box 5890
Hobbs, NM 88241

Sample Matrix: Soil

Project: Paddock San Andres South
Submitted By: Allen Hodge

Date Received: 3/17/94
Date Reported: 3/21/94

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Test Method
Sample ID: Paddock San Andres South 8" Composite			
Benzene	<0.1	ppm	8020/5030
Toluene	<0.1	ppm	
Ethylbenzene	<0.1	ppm	
Xylene (omp)	<0.1	ppm	
Total Petroleum Hydrocarbons	<10.0	ppm	418.1

Total QC (Quality Control)

Tot. BTEX QC:Blank spiked with 100 ppb BTE and 200 ppb (m,p)Xylene, 100 ppb (o) Xylene
Detection Limits 0.1 ppm
Total Petroleum Hydrocarbons QC: Blank spiked with 162 ppm
Detection Limit 10 ppm

	Result (ppb)	% Accuracy
Benzene	101.5	102
Toluene	102.9	104
Ethylbenzene	102.4	103
Xylene (mp)	208.9	104
Xylene (o)	104.2	106
TPH	163 ppm	101

Kirk Robinson

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION

310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Lovington Paddock Unit (Walker/Getty Pit)

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER Emergency Overflow Pit

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Box 609, Lovington, NM 88260

9. Pool name or Wildcat

4. Well Location

Unit Letter C : _____ Feet From The _____ Line and _____ Feet From The _____ Line

Section 6 Township 17S Range 37E NMPM Lea County

10. Elevation (*Show whether DF, RKB, RT, GR, etc.*)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	X	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

12. Describe Proposed or Completed Operations (*Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work*) SEE RULE 1103.

There was an in-ground, unlined earthen, emergency overflow pit with the approximate dimensions of 75 feet by 75 feet that was contaminated down to approximately 30 feet with RCRA exempt petroleum hydrocarbons. The top 13 feet of heavy contamination was stabilized and removed to a bioremediation area adjacent to the south of the main Paddock/San Andres Units. There was approximately 2200 cubic yards of contaminated material transported to the bioremediation area. The contamination below the 13 feet to 30 feet was diluted with fresh fill below OCD closure guidelines ranking limits of 1,000 ppm of Total Petroleum Hydrocarbons (TPH) and well under the BTEX limits. A third party laboratory analysis is furnished for the closure.

RECEIVED
MAY 25 1994
OCD HOBBS OFFICE

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE David M Tilley TITLE Production Supt. DATE 5/18/94

TYPE OR PRINT NAME David M. Tilley, P.E. TELEPHONE NO. (505) 396-7503

(This space for State Use) Approved 6/13/94

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

March 21, 1994

Environmental Spill Control
Mr. Allen Hodge
P.O. Box 5890
Hobbs, NM 88241

Sample Matrix: Soil

Project: Walker Getty 8" Composite
Submitted By: Allen Hodge

Date Received: 3/17/94
Date Reported: 3/21/94

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Test Method
Sample ID: Walker Getty 8" Composite			
Benzene	<0.1	ppm	8020/5030
Toluene	<0.1	ppm	
Ethylbenzene	<0.1	ppm	
Xylene (omp)	<0.1	ppm	
Total Petroleum Hydrocarbons	<10.0	ppm	418.1

Total QC (Quality Control)

Tot. BTEX QC:Blank spiked with 100 ppb BTE and 200 ppb (m,p)Xylene, 100 ppb (o) Xylene
Detection Limits 0.1 ppm
Total Petroleum Hydrocarbons QC: Blank spiked with 162 ppm
Detection Limit 10 ppm

	Result (ppb)	% Accuracy
Benzene	101.5	102
Toluene	102.9	104
Ethylbenzene	102.4	103
Xylene (mp)	208.9	104
Xylene (o)	104.2	106
TPH	163 ppm	101

Kirk Robinson

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

NMOCD Inter-Correspondence

To: Roger Anderson-Environmental Bureau Chief

From: Wayne Price-Environmental Engineer District I

Date: June 13, 1994

Reference: Greenhill Petroleum Pit Closures

Subject: Lovington Paddock/San Andres units pit closures and the Walker/Getty pit closure.

Comments:

Per your request, I am enclosing a copy of the District I file on the above mentioned closures. As of to date, Greenhill has closed all three pits and have submitted the C-103's subsequent reports.

Gary Wink and I visited the site on February 24, 1994. I have included my field report also. The site looks very good and they are in process of bioremediating all of the soil carried from the three pits to the central unit. This bioremediation site is actually located at the location of where the north and south pits of the Paddock/San Andres unit was located.

I have submitted the final C-103's to our District I supervisor for his approval. I have also signed off on these.

If you think there is a problem with the lead contamination please advise me on what action we need to take. Also should we ask for the pit closure form to be used or does this project predate your forthcoming memorandum on pit closures?

If you have any questions please don't hesitate to call or write.

cc: Jerry Sexton-District I Supervisor
Attachments-Greenhill file

STATE OF NEW MEXICO
NMOCD District I

INTER-OFFICE MEMO

To file: Greenhill Petroleum

Date: June 13, 1994
Time: 9:30 am

Telephone call:____ Meeting:_XX__ Other:____

Person called or attending:
Wayne Price-NMOCD
Ed Slavens-Environmental Spill Control
Allen Hodge- "

REFERENCE: Lovington Paddock/San Andres Units Pit Closure
Walker/Getty Pit Closure

Subject: C-103's Subsequent Reports and investigation of Lead Contamination.

Comments: Reviewed project with Greenhill's consultant Environmental Spill Control. They indicated that the initial sampling revealed that total lead contents were around 130 ppm. This sample was taken off the top crust of material. It was worst case and considered judgmental according to Environmental Spill Control. They then re-sampled using techniques to reveal a more representative sample. These results were submitted to the district office on August 17, 1993. They indicated that by TCLP the results were non-hazardous.

They also indicated that after discussing the original results with the laboratory, that the lab indicated that they were off by some factor. The amount of the factor was not determined at this time.

The bioremediation area was discussed, they indicated that when they get ready to close this site they will run TPH,BTEX, and full TCLP.

Wayne Price Wayne Price
NMOCD Environmental Engineer-District I

INTER-OFFICE MEMO

To file: Greenhill Petroleum

Date: 2/24/94
Time: 2:oopm

Telephone call:____ Meeting:___ Other:__field trip__

Personal called or attending: Ron Mathews - Greenhill
Gary Wink NMOCD

REFERENCE: Pit Closures

Subject: Checked progress

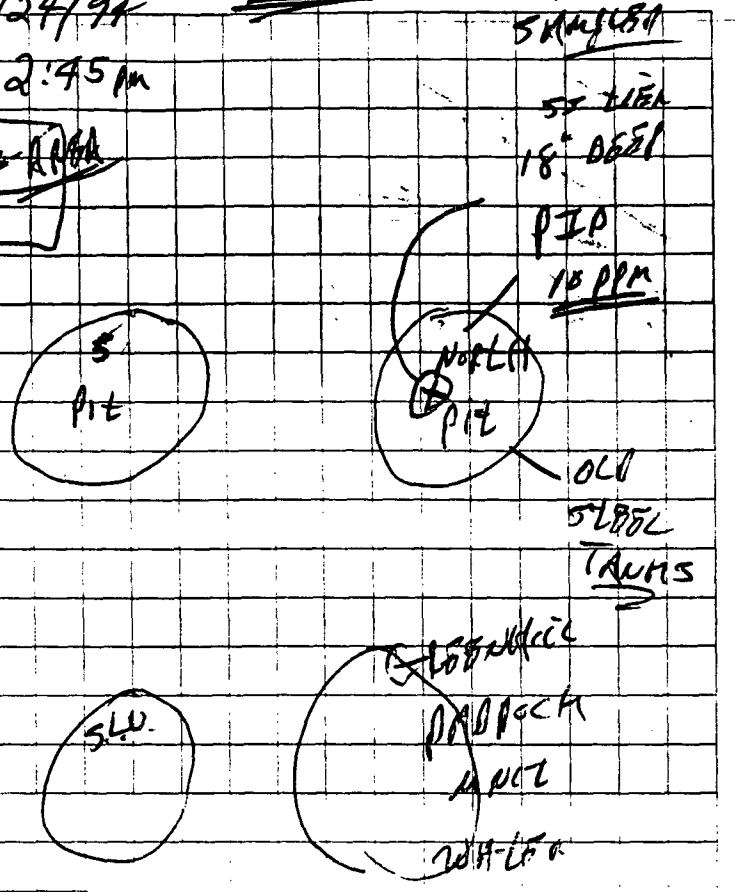
Comments: Met with Ron Mathews inspected N&S old pits and waker pit. Sampled North pit with PID dirt headspace 10 ppm; Sampled Walker pit .7 ppm. see field notes.
Allen Hodge with Environmental spill control was treating bioremediation area.
Allen said they will be taking final samples on pits and submitting to 3 rd party. He indicated that bioremediation area will take about 6 months.

Wayne Price

GREEN HILL!

2/24/94

2:45 PM



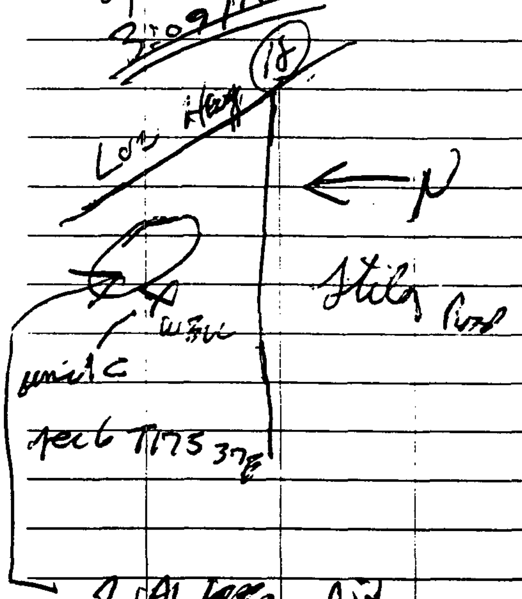
GPC

BUS. (505) 396-7503
FAX. (505) 396-5950
RES. (505) 392-4745

Ron W. Matthews
FIELD OPERATING TECHNICIAN

GREENHILL PETROLEUM CORPORATION
P.O. BOX 1949
HOBBS, NEW MEXICO 88240

2/24/94
3:09 PM



WALKER pit

PID .7 ppm

8" Deep
55 Dust Tri

1) met with Allen Hodge - He wa
2) get 3rd PARTY TPH on TAN
pit No 5 on closure report!

INTER-OFFICE MEMO

To file: Greenhill Petroleum

Date: 2/23/94
Time: 2:30 pm

Telephone call: X Meeting: ___ Other: ____

Personal called or attending: Carrol Hulse

REFERENCE: Pit Closures

Subject:

Comments: Checked on status of pits, he said they are closed and contractor will be submitting reports. He will leave message with Ron Mathews and Dave Tilley. He said pits have been filled back in and the soil is being remediated.

Wayne Price

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION

310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Lovington Paddock/San Andres Un

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER Emergency Overflow Pits (2)

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Kox 609, Lovington, NM 88260

9. Pool name or Wildcat

4. Well Location
Unit Letter _____ : _____ Feet From The _____ Line and _____ Feet From The _____ Line

Section Township 175 Range 36E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	X	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:	☐		

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

SEE ATTACHED PAGE

BLM8910085390
Lovington San Andres Unit

BLM8910088180
Lovington Paddock Unit

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE David M Tilley TITLE Production Superintendent DATE 10/27/93

TYPE OR PRINT NAME David M. Tilley, PE. TELEPHONE NO. (505)396-7503

(This space for State Use)

APPROVED BY ORIGINAL SIGNED BY JERRY SEXTON DISTRICT I SUPERVISOR TITLE _____ DATE OCT 27 1993

CONDITIONS OF APPROVAL, IF ANY:

It is our intent to remediate the emergency overflow pits which are associated with the Paddock/San Andres Units. The approximate dimensions of each pit are one hundred ten (110) feet in diameter. The pits have four (4) feet galvanized steel sides built on earthen pads. The pits are plastic lined.

The pits are characterized as containing oilfield wastes associated in oil and gas production practices which are exempt from the RCRA Subtitle C Regulations. The north tank impoundment has approximately two and one half (2 1/2) feet of sludge. The south tank impoundment has approximately one foot of sludge. The sludge would be characterized as a partially dried mass of BS & W mixed with paraffins, asphaltines (tar), oil and blow sand. Both pits would account for approximately 700 cubic yards of hydrocarbon contaminated sludge.

Our intent is to build a central bioremediation area to remediate the sludge south of the units. There is other sludge that we will also remediate in the same area in the Paddock Unit known as the Walker /Getty Emergency Overflow Pit. The approximate dimension of the bioremediation area is five hundred (500) feet by five hundred (500) feet. The entire area will be leveled with a two foot berm built around the outside and the area fenced. The heavy contaminated material will be mixed with clean soil, manure, cotton seed hulls and spread over the bioremediation area in a six (6) inch lift for bioremediation. The tanks will be removed along with the liners and the pads leveled to grade.

A fast line will be constructed to the bioremediation area and a sprinkler system built to water the bioremediation area for moisture content and to control dust and enhance the bioremediation process. The watering of the area will be on a timer system with sprinklers and monitored periodically to make certain that ponding or run-off is not allowed.

The microbes *(Micro-Blaze Out)*, nutrients, biocatalysts, will be placed on the lift as soon as possible after spreading (initial application). The lift will be disked on a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants. Subsequent applications of nutrients and biocatalysts will be applied on an as needed basis.

Monitoring

We will obtain background soil samples from the bioremediation area prior to spreading contaminated material for analysis of TPH. Subsequent three (3) feet treatment zone samples will be taken on a monthly basis until the lift is below the OCD guideline limits. For the area, we request that the total TPH be at 1,000 parts per million range with the Benzene and BTEX below the 10 ppm and 60 ppm range, respectively.

When the bioremediation limits have been reached, we will discontinue monitoring, reseed for vegetation cover and discontinue watering.

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION

310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Lovington Paddock Unit (Walker/Getty Pit)

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER Emergency Overflow pit

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Box 609, Lovington NM 88260

9. Pool name or Wildcat

4. Well Location
Unit Letter C : _____ Feet From The _____ Line and _____ Feet From The _____ Line
Section 6 Township 175 Range R37E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	X	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

See attached page

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE David M Tilley TITLE Production Superintendent DATE 10/27/93

TYPE OR PRINT NAME David M. Tilley, PE. TELEPHONE NO. (505) 396-7503

(This space for State Use)
ORIGINAL SIGNED BY JERRY SEXTON
DISTRICT I SUPERVISOR

APPROVED BY _____ TITLE _____ DATE OCT 27 1993

CONDITIONS OF APPROVAL, IF ANY:

It is our intent to remediate the emergency overflow pit which is associated with the Paddock Unit C (Walker/Getty Pit). The approximate dimensions of the pit are seventy-five (75) feet by seventy-five (75) feet, including berm material. The pits is an inground, unlined earthen pit.

The pit is characterized as containing oilfield wastes associated in oil and gas production practices which are exempt from the RCRA Subtitle C Regulations. The pit was cored and sampled to determine the depth of contamination. The pit has a crusty top layer with a semi-solid layer to approximately three (3) feet with heavy TPH to approximately ten (10) feet. The contamination did not move laterally outside of the confines or boundaries of the pit. The semi-solid layer would be characterized as a partially dried mass of BS & W mixed with paraffins, asphaltines (tar), oil and blow sand. Both the upper three (3) feet and the lower ten (10) feet would account for approximately 2050 cubic yards of hydrocarbon contamination that we are requesting to be remediated. The remainder of the contamination down to thirty (30) feet will be excavated and diluted with fresh soil below OCD Guidleine Limits and the pit backfilled to grade and the area reseeded.

Our intent is to build a central bioremediation area to remediate the hydrocarbon contaminated soil and semi-solid layer along with the sludge from the Paddock/San Andres Units to the south of those units. The approximate dimension of the bioremediation area is five hundred (500) feet by five hundred (500) feet. The entire area will be leveled with a two foot berm built around the outside and the area fenced. The heavy contaminated material will be mixed with clean soil, manure, cotton seed hulls and spread over the bioremediation area in a six (6) inch lift for bioremediation.

A fast line will be constructed to the bioremediation area and a sprinkler system built to water the bioremediation area for moisture content and to control dust and enhance the bioremediation process. The watering of the area will be on a timer system with sprinklers and monitored periodically to make certain that ponding or run-off is not allowed.

The microbes *(Micro-Blaze Out)*, nutrients, biocatalysts, will be placed on the lift as soon as possible after spreading (initial application). The lift will be disked on a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants. Subsequent applications of nutrients and biocatalysts will be applied on an as needed basis.

Monitoring

We will obtain background soil samples from the bioremediation area prior to spreading contaminated material for analysis of TPH. Subsequent three (3) feet treatment zone samples will be taken on a monthly basis until the lift is below the OCD guideline limits. For the area, we request that the total TPH be at 1,000 parts per million range with the Benzene and BTEX below the 10 ppm and 60 ppm range, respectively.

When the bioremediation limits have been reached, we will discontinue monitoring, reseed for vegetation cover and discontinue watering.

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

August 17, 1993

Greenhill Petroleum Corporation
P.O. Box 609
Lovington, New Mexico 88260

Mr. Jerry Sexton
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Dear Mr. Sexton,

Greenhill Petroleum is ready to begin work to close several open pits on its operated units in the Lovington area. Towards this end we have done extensive assessment work to identify the problems particular to each pit and have put together a basic scope of work to be performed. Prior to letting the work to contractors for bid we would like to review our site assessment information and basic scope of work with your office.

I will be out of town until Wednesday August 25 th, but will contact you upon my return. If you have any questions regarding the enclosed scope of work, site assessments, and TCLP analysis; or have any suggestions to offer, Greenhill would greatly appreciate your input.

GREENHILL PETROLEUM CORPORATION

Thankyou

David M. Tilley
Superintendent

P.S. Closures

GREENHILL PETROLEUM CORPORATION

P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

B I D S O L I C I T A T I O N

Project Description: Pit Closures using existing OCD guidelines.

Location: Six miles south of Lovington, New Mexico.

Scope of Work

Bids are being solicited to close three pits containing **non-hazardous oilfield waste** under existing OCD guidelines. The waste is partially solidified containing paraffins, oil, sand, asphaltines (tar) and BS&W. It is considered RCRA exempt waste and is also characteristically non hazardous. TCLP, TPH and BTEX analyses are attached for your information.

Two of the pits are open topped tanks, 110 ft. in diameter, constructed of 4 ft. galvanized steel sides with a rubber liner. The third pit is an unlined dirt pit measuring 75 ft. by 75 ft.

All free liquid will be removed by GPC prior to commencement of work by the successful bidder. Pit closure will be by mechanical means with final cleanup of contaminated soil achieved using accepted bioremediation techniques.

Pit Closure:

Closure of the two steel tanks is to be done first. The materials within the tanks is to be removed to a site immediately west of the tanks suitable for establishing a bioremediation area. The tanks will then need to be cleaned out, disassembled and removed. The area around the tanks would then be taken to ground level and included in an expanded soil remediation area.

Closure of the dirt pit is to be done second and may necessitate excavation to a depth of approximately 30 ft. The top ±10 ft of excavated soil will be removed to the central soil remediation area near the old steel pits. The remainder of the soil excavated will be stockpiled to use in backfilling operations. The pit will be backfilled using concrete blocks and a mixture of diluted soil (diluted soil must be below OCD guidelines for TPH) and clean native soil (top 36"). The entire pit area will also have to be reseeded. **(NOTE: The blocks will be provided by Greenhill. Each weighs approximately 5 tons. Contractor will be responsible for transportation to site and equipment to position same in excavation).**

GREENHILL PETROLEUM CORPORATION
P. O. BOX 1949
HOBBS, NEW MEXICO 88240
TELEPHONE (505) 396-7503
FAX. (505) 396-5950

Incorporated in Delaware, U.S.A.

In addition to the pit, two small surface spills (approximately 300 cubic yards of soil) where pit runover has occurred will need to be excavated to a ± two foot depth. This material will be transported to the central bioremediation site and the site backfilled and leveled. These areas are outlined on the attached map.

Bioremediation

The bioremediation program goal will be to reach the accepted OCD required levels of TPH within 180 days. Product selection should be supported with confirming data from similar projects in the Permian Basin area. The contaminated soil and solid emulsified hydrocarbon (estimated volume 2540 cubic yards) should be spread in the selected area at a depth not to exceed six inches. Fresh water is available on-site with all other equipment to be supplied by the contractor.

Reporting

Contractor will be responsible for developing a site specific Closure Plan, Work Plan, and a Health and Safety Plan together with a final Closure Report, all of which must meet federal and state requirements, subject to final approval by Greenhill and the New Mexico Oil Conservation Division.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/25/93
Address: P.O. Box 5890 Lab#: H1228-1
City, State: Hobbs, NM 88241

Project Name: Greenhill Petroleum
Project Location: San Andres Pit
Sampled by: ES Date: 05/20/93
Type of Sample: Water Sample Condition: GST

Sample ID: Paddock/San Andres Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.030	mg/L
Barium	1.71	mg/L
Cadmium	0.006	mg/L
Chromium	<0.01	mg/L
Lead	0.25	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.008	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Environmental Spill Control Inc.
Address: P.O. Box 5890
City, State: Hobbs, NM 88241

Date: 05/25/93
Lab#: H1228-2

Project Name: Greenhill Petroleum
Project Location:
Sampled by: ES
Type of Sample: Water

Date: 05/20/93
Sample Condition: GST

Sample ID: Walker/Getty Pit

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.003	mg/L
Barium	<0.10	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.01	mg/L
Lead	0.10	mg/L
Mercury	<0.0002	mg/L
Selenium	<0.002	mg/L
Silver	<0.01	mg/L

METHODS: TCLP INORGANICS (Leachate) - EPA 1311/7000/7060/7471/7740

Michael R. Fowler

Date 5/25/93

Michael R. Fowler

ENVIRONMENTAL
SPILL CONTROL, INC.

SITE SURVEY

DATE: August 13, 1993

CLIENT: Greenhill Petroleum ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty Pit WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: N : A AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES X NO

DATE CONTACTED: 08/12/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 08/13/93 TIME ON LOCATION: 9 : 00 AM PM

SUPERVISOR: A. Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__x__OTHER To run add TpH test on soil outside pit area.

****

SUPERVISOR SIGNATURE CUSTOMER SIGNATURE

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: August 13, 1993 **FACILITY:** Walker Getty Pit

CLIENT: Greenhill Petroleum **ORDER NO:** Mr. David Tilley

SUPERVISOR: Allen Hodge **HOLE # :** _____

	TPH		DEPTH	LOCATION
SAMPLE NO. 1:	8760	**PPM**	1'	SWC
SAMPLE NO. 2:	5680	**PPM**	1'	NWC
SAMPLE NO. 3:	39	**PPM**	Surface	Middle/East Side
SAMPLE NO. 4:	88	**PPM**	Surface	Middle/West Side
SAMPLE NO. 5:		**PPM**		
SAMPLE NO. 6:		**PPM**		
SAMPLE NO. 7:		**PPM**		
SAMPLE NO. 8:		**PPM**		
SAMPLE NO. 9:		**PPM**		
SAMPLE NO. 10:		**PPM**		

COMMENTS: Sample #1 was taken 50' outside pit area in the south west corner. Some old surface overflow is visible. Sample #2 was taken 50' outside pit area in the north west corner. Some old surface contamination was found. Samples #3 & #4 were surface samples in the middle of the east and west sides. Overflow from pit site would be to the south west.

PHONE (505) 392-6167
FAX (505) 392-8788

ENVIRONMENTAL
SPILL CONTROL, INC.

P.O. BOX 5890 ★ HOBBS, NM 88241

May 24, 1993

Mr. David Tilley
Greenhill Petroleum Corporation
P.O. Box 1949
Hobbs, New Mexico 88241

Attention: Mr. David M. Tilley, P.E.
Production Superintendent

Reference: Walker/Getty Site Assessment

As per your request, you will find the site assessment and soil analysis for the Walker/Getty pit.

The Walker/Getty lease pit is an unlined, in-ground, earthen pit, approximately 65' x 65' in size, excluding berm material. The pit contains oilfield production associated materials and has been in use for the past 30 to 40 years. There were two holes drilled 10' outside the pit on the south and east side of the pit to check for lateral contamination. None was found. One hole was tried 25' into the center of the pit. The hole was not completed because of the wet condition of the pit. A good sample could not be taken. The hole was drilled 10' in on the pit from the west side. The contamination cleaned up at 22'. Based on past experience, the contamination in the center of the pit will reach the 30' level. Based on these numbers, this would be 4694 cubic yards of contaminated soil to be remediated. There was a hard layer of rock at 18' that has helped to contain the contamination of the pit.

We would like to thank you for allowing us to be of service to Greenhill Petroleum Corporation. If you have any questions, please contact us at any time.

Best Regards,

Allen Hodge
Field Superintendent

cc: Mr. Dwayne Taylor
Mr. Jimmy Curtis
Mr. Eddie Slavens

ENVIRONMENTAL
SPILL CONTROL, INC.

SITE SURVEY

DATE: May 19, 1993

CLIENT: Greenhill Petroleum Corp. ORDERED BY: Mr. David Tilley

FACILITY: Walker Getty WELL #: _____

****

DATE OF SPILL: N/A TIME OF SPILL: - : - AM PM

OF BARRELS: N/A CLOSE PROXIMITY: ____ YES _X_ NO

DATE CONTACTED: 5/18/93 TIME CONTACTED: 3 : 00 AM PM

DATE ON LOCATION: 5/19/93 TIME ON LOCATION: 8 : 00 AM PM

SUPERVISOR: Allen Hodge CLIENT CONTACT: Mr. David Tilley

SUPERVISOR PHONE: 392-6167 CLIENT PHONE: 396-7503

****

REMEDIATION METHOD

____DILUTION # OF CU. YDS. USED: _____

SOURCE OF SOIL: _____

____ENHANCED REMEDIATION BACTERIA TYPE: _____

AMOUNT USED: _____

____OFF-SITE DISPOSAL DISPOSAL SITE NAME: _____

MANIFEST #: _____

MINOR PERMIT #: _____

__X__OTHER Core testing and site assessment

****

SUPERVISOR SIGNATURE CUSTOMER SIGNATURE

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93 FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp. WELL #: --

SUPERVISOR: Allen Hodge ORDER NO.: 10' in on pit from west side

	TPH		PH	CL	
SAMPLE NO. 1:	3580	PPM	10'		PPM
SAMPLE NO. 2:	1050	PPM	20'		PPM
SAMPLE NO. 3:	350	PPM	30'		PPM
SAMPLE NO. 4:	043	PPM	40'		PPM
SAMPLE NO. 5:		PPM			PPM
SAMPLE NO. 6:		PPM			PPM
SAMPLE NO. 7:		PPM			PPM
SAMPLE NO. 8:		PPM			PPM
SAMPLE NO. 9:		PPM			PPM
SAMPLE NO. 10:		PPM			PPM

COMMENTS: The contamination cleaned up at 22' (- below 1000), but was unable to drill test hole in center. Pit was too wet.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 05/19/93

FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp.

WELL #: --

SUPERVISOR: Allen Hodge

ORDER NO.: South side 10' out from pit

	TPH		PH	CL	
SAMPLE NO. 1:	034	PPM	10'		PPM
SAMPLE NO. 2:	014	PPM	20'		PPM
SAMPLE NO. 3:	±01	PPM			PPM
SAMPLE NO. 4:		PPM			PPM
SAMPLE NO. 5:		PPM			PPM
SAMPLE NO. 6:		PPM			PPM
SAMPLE NO. 7:		PPM			PPM
SAMPLE NO. 8:		PPM			PPM
SAMPLE NO. 9:		PPM			PPM
SAMPLE NO. 10:		PPM			PPM

COMMENTS: No lateral contamination found on south side of pit.

ENVIRONMENTAL
SPILL CONTROL, INC.

SOIL ANALYSIS REPORT

DATE: 5/19/93 FACILITY: Walker Getty Pit

CLIENT: Greenhill Petroleum Corp. WELL #: --

SUPERVISOR: Allen Hodge ORDER NO.: East side 10' out from pit

	TPH	PH	CL
SAMPLE NO. 1:	066 PPM	10'	PPM
SAMPLE NO. 2:	010 PPM	20'	PPM
SAMPLE NO. 3:	+ 01 PPM	30'	PPM
SAMPLE NO. 4:	PPM		PPM
SAMPLE NO. 5:	PPM		PPM
SAMPLE NO. 6:	PPM		PPM
SAMPLE NO. 7:	PPM		PPM
SAMPLE NO. 8:	PPM		PPM
SAMPLE NO. 9:	PPM		PPM
SAMPLE NO. 10:	PPM		PPM

COMMENTS: No lateral contamination found on east side of pit.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Environmental Spill Control Inc. Date: 05/20/93
Address: P.O. Box 5890 Lab#: H1227
City, State: Hobbs, NM 88241

Project Name: Greenhill Prod.
Project Location: Walker Getty
Sampled by: AH Date: Time:
Analyzed by: HM Date: 05/20/93 Time: 1100
Type of Samples: Soil Sample Condition: GST Units: mg/kg, mg/l

Samp #	Field Code	TRPHC	BENZENE	TOLUENE	ETHYL BENZENE	PARA-XYLENE	META-XYLENE	ORTHO-XYLENE	MTBE
1	10' In On Pit	***	<0.001	0.054	0.017	<0.001	0.008	0.018	<0.001
2	20' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	<0.001
3	30' In On Pit	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	QC Recovery	***	2.070	2.213	2.131	2.132	2.086	2.307	1.519
	QC Spike	***	2.053	2.091	2.038	2.053	2.043	2.113	1.647
	Accuracy	***	100.8%	105.8%	104.6%	103.8%	102.1%	109.2%	92.2%
	Air Blank	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Methods - AUTOMATED HEADSPACE GC; INFRARED SPECTROSCOPY
- EPA SW-846; EPA METHODS 8020, 418.1, 3540 OR 3510

Michael R. Fowler

Michael R. Fowler

Date 5/20/93

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

January 13, 1993

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P667-242-149

Mr. Clark Evans
Environmental Spill Control, Inc.
P.O. Box 5890
Hobbs, New Mexico 88241

RE: Tank Bottom Disposal
Greenhill Petroleum Corp.

Dear Mr. Evans:

The Oil Conservation Division (OCD) has evaluated your request for the proper disposal of materials from the "duck ponds" and the Walter-Getty pit. In your request you stated the materials were tank bottoms and were exempt from RCRA regulations.

Based on the information and analyses provided, the materials cannot be disposed of without further investigation. The analytical results for lead indicate wastes other than exploration and production exempt wastes may have been placed in the pits. A full TCLP analysis must be run on a representative sample to determine if the materials will be disposed of and the pits closed pursuant to hazardous waste regulations or pursuant to OCD disposal regulations. The representative sample will be obtained pursuant to hazardous waste and EPA SW 846 sampling procedures.

For information on hazardous waste regulations and requirements on hazardous waste disposal please contact Mr. Ed Horst, Hazardous Waste Program Manager, New Mexico Environment Department, at (505) 827-4308.

If you have any questions please do not hesitate to contact me at (505) 827-5812.

Sincerely:

Roger C. Anderson
Environmental Bureau Chief

xc: Rich Myers - Greenhill Petroleum
Ed Horst - NMED Hazardous Waste
Jerry Sexton - OCD Hobbs

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION
310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Paddock Central Injection Station

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER: Production Chemical Spill

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Box 609, Lovington, NM 88260

9. Pool name or Wildcat

4. Well Location
Unit Letter _____ : _____ Feet From The _____ Line and _____ Feet From The _____ L

Section Township 17S Range 36E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☒	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

We called out an environmental company on 7/1/94 to remediate and contain a production chemical spill that was caused by a broken nipple between the storage tank and chemical. 51.8 cubic yards of contaminated dirt was removed and placed on bermed plastic awaiting disposition. We request a one time removal of contaminated material to a bioremediation area we are now using which is adjacent to the contamination. The area where the leaks occurred have been restored with fresh fill. Lab analyses have been attached for your review of the material which was contaminated.

RECEIVED
AUG 0 1 1994
OCD HOBBS OFFICE

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Ron Matthews TITLE Field Operating Tech DATE 8/1/94

TYPE OR PRINT NAME Ron Matthews TELEPHONE NO. (505) 396-7503

(This space for State Use) Wayne Price Energy Engr 8/2/94

APPROVED BY _____ TITLE DISTRICT 1 SUPERVISOR DATE DEC 06 1994

CONDITIONS OF APPROVAL, IF ANY:

cc: ROGER ANDERSON

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

HOBBS DISTRICT OFFICE

RECEIVED

'94 AUG 4 AM 8 50

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

NMOCD Inter-Correspondence

To: Roger Anderson-Environmental Bureau Chief

From: Wayne Price-Environmental Engineer District I

Date: August 3, 1994

Reference: Greenhill Petroleum Corporation-Paddock Central Injection Station

Subject: Recent chemical spills-

Comments:

Dear Roger:

Please find enclosed the C-103's submitted by Greenhill requesting they be allowed to dispose of some chemical contaminated soil into an existing bioremediation area which was a result of three pit closures. Please note this is the same area in which you requested more information concerning "levels of lead".

Please note these chemical spills are considered non-exempt and therefore I am sending the C-103's for your approval. Please note I allowed Greenhill to use a certain amount of "Process Knowledge" in determining if this material is hazardous. Please find attached to the C-103's the analytical work we requested. Also please refer to documentation previously copied to you dated July 8, 1994.

I have also included the MSDS's of the two chemicals involved and information submitted to me by Petrolite concerning the biodegradability of this material.

Recommendations:

1. If we allow them to add this material to the existing bio-area, then Greenhill should demonstrate that the chemical constituents contained in the chemicals will be compatible for bioremediation.

2. Since this bio-area is not lined, then Greenhill should test the area below for these constituents. My concern is primarily the water soluble Phenols and the Alkylpyridine salts.

cc: Jerry Sexton-District I Supervisor

Attachments-4

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION

310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Paddock Central Injection Station

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER Production Chemical Spill

2. Name of Operator: Greenhill Petroleum Corporation

8. Well No.

3. Address of Operator: P.O. Box 609, Lovington, NM 88260

9. Pool name or Wildcat

4. Well Location

Unit Letter _____ : _____ Feet From The _____ Line and _____ Feet From The _____ Line

Section Township 17S Range 36E NMPM Lea County

10. Elevation (*Show whether DF, RKB, RT, GR, etc.*)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☒	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

12. Describe Proposed or Completed Operations (*Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work*) SEE RULE 1103.

We called out an environmental company on 7/1/94 to remediate and contain a production chemical spill that was caused by a broken nipple between the storage tank and chemical. 51.8 cubic yards of contaminated dirt was removed and placed on bermed plastic awaiting disposition. We request a one time removal of contaminated material to a bioremediation area we are now using which is adjacent to the contamination. The area where the leaks occurred have been restored with fresh fill. Lab analyses have been attached for your review of the material which was contaminated.

RECEIVED
AUG 0 1 1994
OCD HOBBS OFFICE

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Ron Matthews TITLE Field Operating Tech DATE 8/1/94

TYPE OR PRINT NAME Ron Matthews TELEPHONE NO. (505) 396-7503

(This space for State Use) Approved for Expir 8/2/94

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

ENVIRONMENTAL SPILL CONTROL, INC.
1213 West County Road
P.O. Box 5890
Hobbs, NM 88241
(505) 392-6167 (800) 390-6167

SOIL ANALYSIS REPORT

DATE: 07/02/94
CLIENT: Greenhill
SUPERVISOR: A. HODGE
Sample Mattrix: Soil

FACILITY: Paddock / San Andres Cent. Battery
Test Method: EPA 418.1
LOCATION: Central Injection System

	TPH		DEPTH	LOCATION
SAMPLE NO. 1:	1470	PPM	6"	Composite

Sample is a four point composite sample taken from the stockpiled soil from the chemical spill.

ENVIRONMENTAL SPILL CONTROL, INC.
1213 West County Road
P.O. Box 5890
Hobbs, New Mexico 88240
(505)392-6167

CHEMICAL ANALYSIS REPORT

DATE: 07/02/94
CLIENT: Greenhill
SUPERVISOR: Allen Hodge
SAMPLE MATRIX: Soil

SITE ID: Paddock Central Injection
ORDERED BY: Ron Mathews
TEST METHOD: EPA 8020

Parameter	Value	Units	Test Method
Sample #1, composite stockpile			
Benzene	<0.2	Mg/L	Headspace GC
Toluene	<0.2	Mg/L	8020/EPA
Ethylbenzene	<0.2	Mg/L	
Xylene (OMP)	<0.2	Mg/L	
Sample # 2,			
Benzene		Mg/L	Headspace GC
Toluene		Mg/L	8020/EPA
Ethylbenzene		Mg/L	
Xylene (OMP)		Mg/L	
Sample # 3,			
Benzene		Mg/L	Headspace GC
Toluene		Mg/L	8020/EPA
Ethylbenzene		Mg/L	
Xylene (OMP)		Mg/L	
Sample # 4.			
Benzene		Mg/L	Headspace GC
Toluene		Mg/L	8020/EPA
Ethylbenzene		Mg/L	
Xylene (OMP)		Mg/L	
Sample #5,			
Benzene		Mg/L	Headspace GC
Toluene		Mg/L	8020/EPA
Ethylbenzene		Mg/L	
Xylene (OMP)		Mg/L	

ENVIRONMENTAL
LAB OF , INC.
"Don't Treat Your Soil Like Dirt!"

July 13, 1994

Environmental Spill Control
Mr. Allen Hodge
P.O. Box 5890
Hobbs, NM 88241

Sample Matrix: Soil

Project: Greenhill Paddock Central Injection
Submitted By: Allen Hodge

Date Received: 7/11/94
Date Reported: 7/13/94

CHEMICAL ANALYSIS REPORT

Parameter		Value	Units
Sample ID: Greenhill Paddock Central Injection			
Ignitabiltiy		Nonignitable	
Reactivity			
	Sulfides (ppm)	<25.0	
	Cyanides (ppm)	<2.5	
Corrosivity	pH	7.24 Noncorrosive	

Methods: EPA SW 846-2.1.1, 2.1.2, 2.1.3

Kirk Robinson

12600 West I-20 East · Odessa, Texas 79763 · (915) 563-1800 · Fax (915) 563-1713

MATERIAL SAFETY DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST.LOUIS MO 63119 U.S.A

REVISION DATE: 12/30/91
EMERGENCY PHONE: 1-314-961-3500
CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: OSW0520C TRADE NAME: TRETOLITE LABEL: 009 089 000

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)

SHIPPING NAME: Ammonium Bisulfite Solution

HAZARD CLASS: Corrosive Material ID#: NA2693

CHEMICAL DESCRIPTION
AMMONIUM BISULFITE IN WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
10192-30-0	Ammonium bisulfite	>60	Not Established

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY(H20 = 1.0@60 F): 1.399 VOLATILITY: N/A
VAPOR PRESSURE: Not Established SOL. IN WATER: Soluble

APPEARANCE AND ODOR: Pale yellow liquid. Pungent odor.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >200 F FLAMMABLE LIMITS: Not Established

FLASH METHOD:
SFCC ASTM D-3828

EXTINGUISHING MEDIA:
Material is non-flammable. Use water spray, foam, CO2 or any other media suitable for extinguishing materials supporting combustion.

FIRE FIGHTING PROCEDURES:
Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode. Non-flammable. Keep fire-exposed containers cool using water spray.

CONTINUED ON PAGE: 2

CONTINUATION OF OSW0520C

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Thermal decomposition or contact with water may liberate sulfur dioxide gas.

****

SECTION 5 HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:
Sulfur dioxide gas, if liberated, may cause respiratory irritation. Prolonged exposure may cause irritation or burning sensations, coughing, wheezing and shortness of breath. In extreme cases, bronchitis, chemical pneumonitis or pulmonary edema may occur.

SKIN AND EYE CONTACT:
Corrosive! Contact with skin will produce severe irritation or burns with possible in-depth injury. Contact with eyes will result in severe eye irritation or burns and, if not immediately removed, may lead to permanent eye damage.

INGESTION:
Corrosive! Causes severe irritation or burns to the mouth and gastrointestinal tract. In extreme cases may cause kidney and liver damage.

EMERGENCY AND FIRST AID PROCEDURES:
If contacted, wash skin immediately with soap and water. Remove contaminated clothing and wash before reuse. If irritation or burns develop, consult a physician. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician.
If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.
If ingested, induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician immediately.

****

SECTION 6 REACTIVITY DATA

STABILITY:
Stable under normal conditions of storage and use.

INCOMPATIBILITY:
Keep away from strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
Oxides of nitrogen and sulfur.

CONTINUED ON PAGE: 3

CONTINUATION OF OSW0520C

HAZARDOUS POLYMERIZATION:

Will not occur.

****

SECTION 7 SPILL AND LEAK PROCEDURES

IF MATERIAL IS SPILLED OR RELEASED:

Small spill - Neutralize with dilute aqueous alkali such as soda ash, lime or limestone, and flush to sewer.
Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to holding container, and neutralize residue with dilute aqueous alkali as above.
Release of SO2 gas may require respirator use.

DISPOSAL METHOD:

Place chemical residues and contaminated adsorbent materials into a suitable waste container and take to an approved hazardous waste disposal site. Dispose of all residues in accordance with applicable waste management regulations.

DECONTAMINATION PROCEDURES:

Neutralize residues with lime, soda ash or dilute caustic. Flush spill area with plenty of water.

****

SECTION 8 SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

When concentrations exceed the exposure limits specified, use of a NIOSH-approved organic vapor/acid gas cartridge respirator with full facepiece is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

VENTILATION:

General ventilation should be provided to maintain ambient concentrations below nuisance levels. Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

PROTECTIVE CLOTHING:

Chemical-resistant gloves and chemical goggles, face shield and synthetic apron or coveralls should be used to prevent contact with eyes, skin or clothing.

OTHER PROTECTIVE MEASURES:

May liberate sulfur dioxide gas on dilution with water. Use self-contained breathing equipment when contact of product with water is likely.

CONTINUED ON PAGE: 4

CONTINUATION OF OSW0520C

****

SECTION 9 SPECIAL PRECAUTIONS

Avoid breathing of vapors and contact with eyes, skin or clothing. Hazardous product residue may remain in emptied container. Do not reuse container without commercial cleaning or reconditioning.

****

Although the information and recommendations set forth herein are believed to be correct as of the date hereof, Petrolite makes no representations to the accuracy of such information and recommendations. It is the user's responsibility to determine the suitability and completeness of such information and recommendation for its own particular use. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damages of whatsoever nature resulting from the publication, use of or reliance upon such information and recommendations.

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN, OR ANY USE OR RELIANCE THEREON.

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/10/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: OSW0520C

****

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

****

NFPA DESIGNATION 704

PRODUCT LABEL CODES		DEGREE OF HAZARD
HEALTH (BLUE)	= 3	0 = LEAST
FLAMMABILITY (RED)	= 1	1 = SLIGHT
REACTIVITY (YELLOW)	= 0	2 = MODERATE
SPECIAL HAZARDS	= COR	3 = HIGH
		4 = EXTREME

****

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) inventory.

****

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/10/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: OSW0520C

****

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Ammonium bisulfite	10192-30-0	5,000	616

****

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or Substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ or TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

**** NONE ****

****

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

Acute (immediate) health hazard

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/10/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: OSW0520C

****

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE
LIQUID

****

SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

**** NONE ****

****

MATERIAL SAFETY DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST.LOUIS MO 63119 U.S.A

REVISION DATE: 07/22/93
EMERGENCY PHONE: 1-314-961-3500
CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: CRW0126F TRADE NAME: TRETOLITE LABEL: 004 000 000

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)

SHIPPING NAME: Flammable liquid, n.o.s.

HAZARD CLASS: 3 ID#: UN1993

CHEMICAL DESCRIPTION

SALTS OF POLYPHOSPHATE ESTERS, ALKYLPYRIDINE SALTS, OXYALKYLATED ALKYLPHENOLS, OXYALKYLATED FATTY AMMONIUM CHLORIDE, AND A POLYAMINE IN METHANOL, ISOPROPANOL AND WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
68607-19-2	Alkylpyridine salts	10-30	Not established
00067-56-1	Methanol	10-30	ACGIH TLV: 200ppm TWA OSHA PEL: 200ppm TWA ACGIH STEL: 250 ppm
09016-45-9	Oxyalkylated alkylphenol	5-10	Not Established
**	Oxyalkylated fatty ammonium chloride	1-5	Not Established
00067-63-0	Isopropanol	1-5	ACGIH TLV: 400ppm TWA OSHA PEL: 400ppm TWA ACGIH STEL:500 ppm
00124-09-4	Polyamine	1-5	Not Established

**Specific chemical identity is being withheld for confidential business purposes.

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY(H20 = 1.0@60 F): 1.035 VOLATILITY: Significa

CONTINUED ON PAGE: 2

CONTINUATION OF CRW0126F

VAPOR PRESSURE: Not Established SOL. IN WATER: Soluble

APPEARANCE AND ODOR: Amber liquid. Alcohol odor.

****

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 93 F FLAMMABLE LIMITS: Not Established

FLASH METHOD:
SFCC ASTM D-3828

EXTINGUISHING MEDIA:
Use water spray or fog, alcohol-type foam, dry chemical or CO2.

FIRE FIGHTING PROCEDURES:
Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode. Flammable. Cool fire-exposed containers using water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Flammable liquid, vapors of which can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back.

****

SECTION 5 HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:
Exposure to elevated vapor concentrations may result in eye, nose and respiratory irritation. Prolonged contact may cause drowsiness, dizziness and, in extreme cases, narcosis.

SKIN AND EYE CONTACT:
Brief, intermittant skin contact may cause moderate to severe irritation resulting in skin rashes. Prolonged contact may cause severe irritation or burns where clothing is confined. Contact with eyes may produce severe irritation or burns with transient eye injury.

INGESTION:
Harmful if swallowed. May cause headache, gastrointestinal disturbances, dizziness, and nausea. May result in irritation or burns of mouth and digestive tract.

EMERGENCY AND FIRST AID PROCEDURES:
Wash skin thoroughly with soap and water. If rash or irritation develops, consult a physician. Launder clothing before reuse. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician promptly.

CONTINUED ON PAGE: 3

CONTINUATION OF CRW0126F

If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.
If ingested, induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician immediately.

****

SECTION 6 REACTIVITY DATA

STABILITY:

Stable under normal conditions of storage and use.

INCOMPATIBILITY:

Keep away from strong oxidizing agents, heat and open flames.

HAZARDOUS DECOMPOSITION PRODUCTS:

Oxides of nitrogen and phosphorus. HCl.

HAZARDOUS POLYMERIZATION:

Will not occur.

****

SECTION 7 SPILL AND LEAK PROCEDURES

IF MATERIAL IS SPILLED OR RELEASED:

Small spill - Absorb on paper, cloth or other material.
Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to a holding container. Cover residue with dirt, or suitable chemical adsorbent. Use personal protective equipment as necessary.

DISPOSAL METHOD:

Place chemical residues and contaminated adsorbent materials into a suitable waste container and take to an approved hazardous waste disposal site. Dispose of all residues in accordance with applicable waste management regulations.

DECONTAMINATION PROCEDURES:

Not appropriate.

****

SECTION 8 SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

When concentrations exceed the exposure limits specified, use of a NIOSH-approved organic vapor cartridge respirator is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

CONTINUED ON PAGE: 4

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 10/11/93
CHEMTREC EMER NO: 1-800-424-93
INFORMATION PHONE: 1-314-961-35

****

PRODUCT: CRW0126F

****

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

****

NFPA DESIGNATION 704

PRODUCT LABEL CODES		DEGREE OF HAZARD
HEALTH (BLUE)	= 1	0 = LEAST
FLAMMABILITY (RED)	= 3	1 = SLIGHT
REACTIVITY (YELLOW)	= 0	2 = MODERATE
SPECIAL HAZARDS	=	3 = HIGH
		4 = EXTREME

****

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) inventory.

****

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 10/11/93
CHEMTREC EMER NO: 1-800-424-930
INFORMATION PHONE: 1-314-961-350

****

PRODUCT: CRW0126F

****

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Methanol	67-56-1	5,000	3,750

****

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or Substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ o TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

**** NONE ****

****

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

Acute (immediate) health hazard

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 10/11/93
CHEMTREC EMER NO: 1-800-424-9
INFORMATION PHONE: 1-314-961-3

****

PRODUCT: CRW0126F

****

SARA TITLE III, SECTION 311: HAZARD CATEGORIES (CONT)

Fire hazard

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE
LIQUID

****

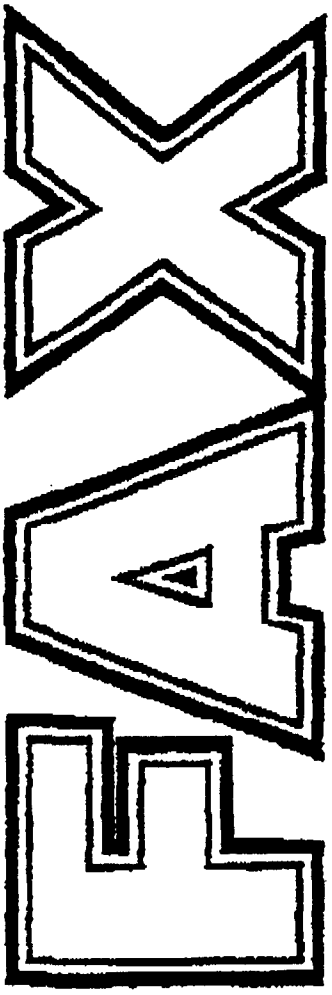
SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL	CAS NUMBER	WEIGHT PERCENT
Methanol	67-56-1	15.4 %

****

Petrolite Corporation
369 Marshall Avenue • St. Louis, Missouri 63119
314 961-3500 • Telex: 193184 • FAX: 314 968-6219



TRANSMITTAL

To: T. N. Williams (Midland, TX)

Fax: (915) 684-7873

From: J. A. McMahon

Date: July 7, 1994

Pages: 2

Re: CRW0126F ENVIRONMENTAL DATA

Tim, in regard to your request for biodegradability data for CRW0126F, we do not have specific product information. CRW0126F is a solution of alkylpyridine salts, salts of polyphosphate esters, oxyalkylated alkylphenols, oxyalkylated fatty ammonium chloride, and a polyamine in water/alcohol media. Since CRW0048E contains components which are similar in chemistry, I am providing an environmental information sheet for this product. Environmental properties of the two products would be expected to be comparable.

I hope the information provided will be helpful to you. If you have any questions or require further information, please do not hesitate to call me directly at (314) 968-6120.

Jo Ann McMahon

Copy to: G. D. Bowmen
T. G. Brega
G. A Cary
M. Henson
File (2)

ENVIRONMENTAL INFORMATION SHEET

Petrolite Corporation
Safety, Health, and
Environmental Affairs
369 Marshall Avenue
St. Louis, Missouri 63119-1897
314-961-3500
Fax: 314-968-6919

CRW0048E

ENVIRONMENTAL GROUP	TEST PROCEDURE	TEST SUBJECT	RESULT	UNITS
*CHEMICAL PROPERTIES	PERCENT VOLATILES		67.2	
	SOLUBILITY IN WATER	SOLUBLE		
	SPECIFIC GRAVITY		1.01	
	STABILITY	STABLE		
AQUATIC TOXICITY	ALGAL ASSAY 96 HR EC50	PHAEDACTYLUM TRI. (*)	15	MG/L
	FRESHWATER LC50	FATHEAD MINNOW	24	MG/L
	FRESHWATER NOEC	FATHEAD MINNOW	5.6	MG/L
	FRESHWATER EC50	DAPHNIA MAGNA	2.8	MG/L
	FRESHWATER LC50	DAPHNIA MAGNA	8.2	MG/L
	FRESHWATER NOEC	DAPHNIA MAGNA	1	MG/L
	SALTWATER LC50	SHEEPSHEAD MINNOW	13.9	MG/L
	SALTWATER NOEC	SHEEPSHEAD MINNOW	3.2	MG/L
BIODEGRADABILITY	BOD- 5	(*)	25	% COD
	BOD- 9	(*)	25	% COD
	BOD-16	(*)	29	% COD
	BOD-22	(*)	34	% COD
	BOD-28	(*)	34	% COD
CARBON ANALYSIS	COD	100 PPM CHEMICAL (*)	152	MG
MAMMALIAN TOXICITY	ACUTE ORAL LD50	RAT	2.5	G/KG

** CODE EXPLANATIONS **

< MEANS A RESULT IS LESS THAN THE NUMBER GIVEN
> MEANS A RESULT IS GREATER THAN THE NUMBER GIVEN
- MEANS A RESULT IS PART OF A RANGE
SCR MEANS THE TEST WAS A SCREENING TEST
SKIN-4 SEVERELY CORROSIVE
SKIN-3 PRIMARY SKIN IRRITANT
SKIN-2 MODERATE IRRITATION
SKIN-1 LITTLE OR NO IRRITATION
EYE -4 SEVERE OCULAR DAMAGE/PERSISTENT CORNEAL OPACITY
EYE -3 OCULAR DAMAGE/PERSISTENT CORNEAL OPACITY
EYE -2 MODERATE EYE IRRITATION
EYE -1 LITTLE OR NO IRRITATION
>MX VP GREATER THAN THE MAXIMUM VAPOR PRESSURE OBTAINABLE
~ MEANS APPROXIMATELY
(*) KIRBY PRODUCT
(**) SINGAPORE PRODUCT
NOEC NO OBSERVED EFFECT CONCENTRATION
(b) BIOMASS; RESULTS BASED UPON PARCOM/ISO PROTOCOLS
(r) GROWTH RATE; RESULTS BASED UPON PARCOM/ISO PROTOCOLS

OIL CONSERVATION DIVISION
RECEIVED
94 JU 12 AM 8 30

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

NMOCD Inter-Correspondence

To: Jerry Sexton-District I Supervisor

From: Wayne Price-Environmental Engineer District I

Date: July 8, 1994

Reference: Greenhill Petroleum Corp.-Chemical Spills

Subject: Request from Jerry Sexton for report.

Comments:

On July 1, 1994 at 4:00 pm David Tilley called in two chemical spills that occurred on May 27, and June 10, 1994. He Indicated that Greenhill was negligent in reporting these and apologized. The two spill reports are attached for your review.

Mr. Tilley indicated that he had an environmental crew responding and they were going to drum up all contaminated soils. I ask if he though this was an emergency, or had it impacted any fresh water or was it a public health problem, if so then I would come out to the site. He said no, this material had been on the ground for some time. I ask him if he needed my assistance he said no, then I told him someone from our agency probably will be by sometime next week.

On July 6, 1994 I reviewed the Greenhill report and note left by Gary Wink. Gary's note indicated that if I found a problem to give Greenhill a call.

I quickley reviewed the MSDS's and Greenhill's report, both are attached for your review.

I called Ron Mathews of Greenhill and he told me that he had discussed this with our office and that the Santa Fe Office had given a verble ok to putting this material into the existing landfarm, he said he had a crew at that time ready to move the material. I indicated to Ron that if he had permission then go ahead.

I called Santa fe and discussed this with Bill Olson, Bill and I discussed the MSDS's and the fact that the landfarm might possibly have to be a centralized permitted facility. Also the material should be tested before it was placed into the landfarm.

After this conversation, I reviewed the report in more detail and the following items were noted on my part as a problem.

1. The one chemical spill that had the Oxygen Scavenger also now was indicating a level of TPH. Therefore, this material had lost some of it's ability to be classified as non-hazardous by using "Knowledge of Process".

2. The MSDS of both products indicated that the disposal method of any residues or absorbant materials contaminated with this product, if spilled, <u>should be sent to an approved hazardous waste disposal site.</u>

3. This material was clearly non-exempt and thus it must be tested and a solid waste approval must be signed off by the district and our Santa Fe Group.

4. Also there was the Engineering Bioremediation considerations that must be addressed by mixing a crude oil bioremediation project with chemical waste. I was concerned about some of the individual components shown on the MSDS.

I called Ron back and told him I had a problem with mixing the two waste together and would like to get some information on the chemicals as to weather they would biodegrade using the same procedure as being used in the existing landfarm.

Ron told me that he had a communication problem with the contractor and they hadn't moved anything as of yet. I said good, why don't you hold off until I can investigate

more on this issue. I told him I would visit the site around 2:00 pm that day.

Ron had Steve Bennett with Treatolite call and Steve said he would get a hold of his technical personnel and they might have some info on these products.

Jerry and I visited the site. I informed Greenhill and their environmental contractor they need to test the waste pile for RCRA RCI and BETX(8020) and report this to us. We would evaluate this info along with other submitted info before allowing them to put this material into landfarm.

cc: Roger Anderson-Environmental Bureau Chief

DISTRICT I
P.O.Box 1980, Hobbs, NM 88241-1980

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 2 COPIES TO APPROPRIATE DISTRICT OFFICE IN ACCORDANCE WITH RULE 116 PRINTED ON BACK SIDE OF FORM

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

OPERATOR GREENHILL				ADDRESS		TELEPHONE # 505-396-7503
REPORT OF	FIRE	BREAK	SPILL	LEAK ✓	BLOWOUT	OTHER*
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTRY ✓	PIPE LINE	GASO PLNT	OIL RFY	OTHER* WATER INJ

FACILITY NAME: Lovington Paddock ... Facility							
LOCATION OF FACILITY Qtr/Qtr Sec. or Footage	NE/4 NE/4			SEC. 1	TWP. 17S	RGE. 36E	COUNTY LEA
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK	6 Mi S Lov - NM						
DATE AND HOUR OF OCCURRENCE	May 30 1994			DATE AND HOUR OF DISCOVERY	7:30 AM 5/30/94		
WAS IMMEDIATE NOTICE GIVEN?	YES	NO ✓	NOT REQUIRED	IF YES, TO WHOM	NO!		
BY WHOM	DAVID TILLEY			DATE AND HOUR	7/1/94 4:00 PM		
TYPE OF FLUID LOST	TRETOLITE CORR-HIB CRW 01265			QUANTITY OF LOSS	160 GAL	VOLUME RECOVERED	0
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO ✓	QUANTITY				

IF YES, DESCRIBE FULLY**

DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN**

Nipple in FD tank broke out (210 gal tank) [illegible]

DESCRIBE AREA AFFECTED AND CLEANUP ACTION TAKEN** 25' x 80'

Pick soil up & drum it - Ron Matthews will supervise
Environmental contractors is picking up!

DESCRIPTION OF AREA	FARMING	GRAZING		URBAN	OTHER* CALICHE PAD		
SURFACE CONDITIONS	SANDY	SANDY LOAM	CLAY	ROCKY	WET ✓ Rain	DRY	SNOW

DESCRIBE GENERAL CONDITIONS PREVAILING (TEMPERATURE, PRECIPITATION, ETC.)**

- A damp soil - No fumes -

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

SIGNED

PRINTED NAME AND TITLE: Taken by Wayne Price

DATE: 7/1/94 4:00 pm

*SPECIFY **ATTACH ADDITIONAL SHEETS IF NECESSARY

DISTRICT I
P.O.Box 1980, Hobbs, NM 88241-1980
DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719
DISTRICT III
1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 2 COPIES TO APPROPRIATE DISTRICT OFFICE IN ACCORDANCE WITH RULE 116 PRINTED ON BACK SIDE OF FORM

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

OPERATOR GREENHILL				ADDRESS			TELEPHONE # 505-396-7503
REPORT OF	FIRE	BREAK	SPILL	LEAK ✓	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTRY	PIPE LINE	GASO PLNT	OIL RFY	OTHER*

FACILITY NAME: LCU - SAN ANDRES - MAT

LOCATION OF FACILITY Qtr/Qtr Sec. or Footage NE4 NE4	SEC. 1	TWP. 17S	RGE. 36E	COUNTY LEA

DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK: 6 MI S of LOV NM

DATE AND HOUR OF OCCURRENCE JUNE 10, 1994		DATE AND HOUR OF DISCOVERY 7 30 am	
WAS IMMEDIATE NOTICE GIVEN?	YES	NO ✓	NOT REQUIRED
IF YES, TO WHOM			
BY WHOM DAVID TILLEY		DATE AND HOUR 7/1/94 4:00 PM	
TYPE OF FLUID LOST O2 SCAVENGER TRETOLITE 05W0520C	QUANTITY OF LOSS 110 GAL	VOLUME RECOVERED 0	
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO ✓	QUANTITY

IF YES, DESCRIBE FULLY**

DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN**
NIPPLE BROKE OUT - 210 gal

DESCRIBE AREA AFFECTED AND CLEANUP ACTION TAKEN**
25' x 80' - ENVIRONMENTAL CONTRACTOR IS PICKING UP!

DESCRIPTION OF AREA	FARMING	GRAZING	URBAN	OTHER* CALICHE PAD			
SURFACE CONDITIONS	SANDY	SANDY LOAM	CLAY	ROCKY	WET	DRY	SNOW

DESCRIBE GENERAL CONDITIONS PREVAILING (TEMPERATURE, PRECIPITATION, ETC.)**

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

SIGNED PRINTED NAME AND TITLE TAKEN BY WAYNE PRICE DATE 7/1/94 4:00pm

*SPECIFY **ATTACH ADDITIONAL SHEETS IF NECESSARY

WAYNE,

I PICKED THIS REPORT UP FROM RON MATTHEWS W/ GREENHILL. THEY HAVE PICKED UP APROX. 51 CUBIC YDS. OF CONTAMINATED DIRT + PUT ON PLASTIC. INITIAL TPH - 2260 PPM TPH NOW - 764 PPM. REVIEWED REPORT + MSDS SHEET. LOOKS O.K. TO ME THEY WANT TO SPREAD ON LANDFARM WED. (OVER)

AFTER READING THIS REPORT
IF YOU SEE ANYTHING
WRONG GIVE THEM A CALL
AT GREENHILL - 396-7503.

THANKS
GARY

Date: July 2, 1994

TO: Roland Beal

From: Ron Matthews

Subject: Reported Chemical Spills

July 1, 1994

2:30 PM Call From GPC Houston reference chemical spills on May 27, 1994 and June 10, 1994.

3:30 PM Called Petrolite in St. Louis, MO. asking for reportable volumes for the referenced products that were spilled.

Called OCD in Hobbs and reported two chemical spills to Wayne Price.

Called Environmental Spill Control in Hobbs to respond to the spill sites.

3:40 PM Michell Resneck Petrolite returned call, reference to reportable volumes.

CRW -	0126F	NO REPORTABLE AMOUNTS
OSW	0520C	616 GALLONS OR 5000 POUNDS

4:00 PM Environmental Spill Control arrived at Paddock location.

SITE DESCRIPTION:

SITE 1: Actual spill date reported on June 10, 1994. Chemical that was spilled was Tretolite's compound OSW-0520C, which is used as an oxygen scavenger. ATTACHMENT 1 gives a diagram of the spill area as well as testing locations. Spill area measured 20' X 20'. Estimated number of gallons spilled 110.

SITE 2: Actual spill date reported on May 27, 1994. Chemical that was spilled was Tretolite's compound CRW-0126F, which is used as an corrosion inhibitor. (See Attachment 1 for spill detail and testing locations.) Spill area measured 40' X 60'. Estimated number of gallons spilled 160.

SITE CLEANUP: Established a holding area for the contaminated soil that measured 45' x 15' and lined this area with plastic. From site 1 we removed 3" of top soil. Estimated volume of 3.7 cubic yards of contaminated soil was moved to the holding area. From site 2 we removed 3" of top soil. Estimated volume of 22.2 cubic yards of contaminated soil was moved to the holding area.

7:30 PM Shut down and restart in the morning.

July 2, 1994

6:30 AM Started testing both locations for TPH (Total Petroleum Hydrocarbons) using the EPA Method 418.1. Allen Hodge of Environmental Spill Control ran the tests.

I.) Initial Test Results.

A.) SITE 1 (AFTER 3" OF TOP SOIL REMOVED)

TEST SITE	TPH
1 (UNDER TANK)	2,260 PPM
2 (MIDDLE AREA)	1,012 PPM
3 (N. EDGE)	1,490 PPM

B) SITE 2 (AFTER 3" OF TOP SOIL REMOVED)

TEST SITE	TPH
1 (UNDER TANK)	120 PPM
2 (MIDDLE AREA)	1,550 PPM
3 (W. EDGE)	1,330 PPM
4 (N. EDGE)	2,480 PPM
5 (S. EDGE)	1,050 PPM

9:00 AM Evaluated test results and decided to remove an additional 3" of soil at both sites and spray each site with Micro Blaze at a rate of 10 gallons to 200 gallons of fresh water. (20% ratio)

Established an additional holding area measuring 15' x 45' which was also lined with plastic.

10:00 AM Removed from site 1 an additional 3" of contaminated soil measuring 3.7 cubic yards to the holding area. Removed from site 2 an additional 3" of contaminated soil measuring 22.2 cubic yards to the holding area.

12:00 PM Sprayed both sites with the Micro Blaze product and allowed the product to react.

1:00 PM Retested both sites.

A) SITE 1

TEST LOCATIONS:	TPH
1	640 PPM
2	465 PPM
3	439 PPM

B) SITE 2

TEST LOCATIONS:	TPH
1	18 PPM
2	389 PPM
3	764 PPM
4	492 PPM
5	538 PPM

1:30 PM Project completed - (waiting on OCD to evaluate)

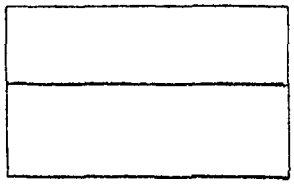
I.) Estimated costs of the cleanup $2,330.15.

II) Persons involved with the cleanup.

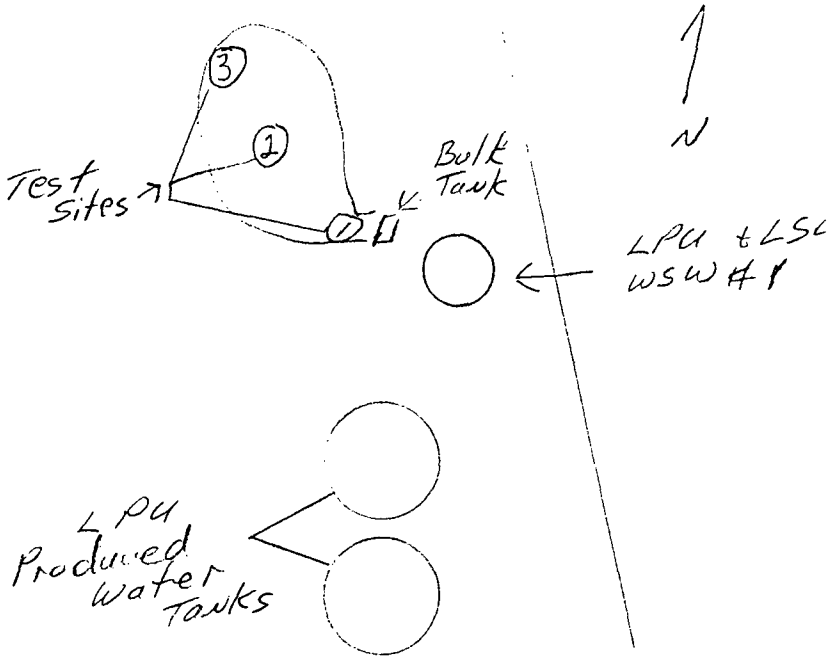
Allan Hodge - ESC - Registered Enviro. Manager
Stanley Thomas- ESC- Envir. Tech - Backhoe oper.
Stacey Friday- ESC - Hand Laborer
Bob Kincade - ESC - Hand Laborer
Ron Matthews - GPC - Field Technician

Attachment 1

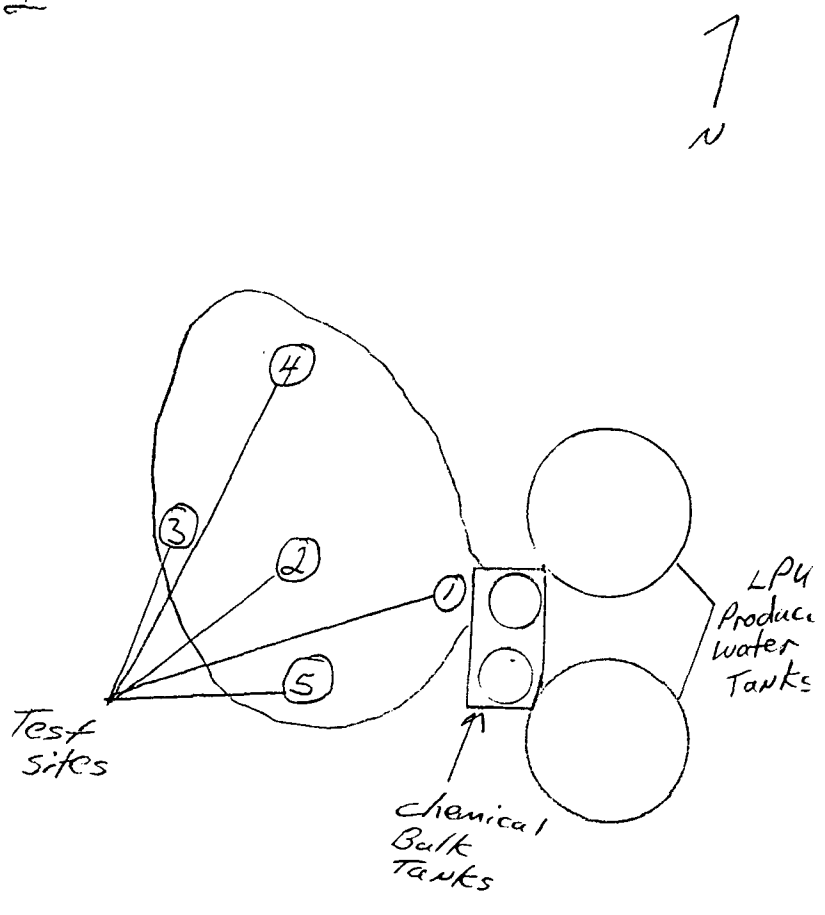
Site 1



↑
Contaminated
Soil
Holding
Area
(Both Sites)



Site 2



MATERIAL SAFETY DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST.LOUIS MO 63119 U.S.A

REVISION DATE: 12/30/91
EMERGENCY PHONE: 1-314-961-3500
CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: OSW0520C TRADE NAME: TRETOLITE LABEL: 009 089 000

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)

SHIPPING NAME: Ammonium Bisulfite Solution

HAZARD CLASS: Corrosive Material ID#: NA2693

CHEMICAL DESCRIPTION
AMMONIUM BISULFITE IN WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
10192-30-0	Ammonium bisulfite	>60	Not Established

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY(H2O = 1.0@60 F): 1.399 VOLATILITY: N/A
VAPOR PRESSURE: Not Established SOL. IN WATER: Soluble

APPEARANCE AND ODOR: Pale yellow liquid. Pungent odor.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >200 F FLAMMABLE LIMITS: Not Established

FLASH METHOD:
SFCC ASTM D-3828

EXTINGUISHING MEDIA:
Material is non-flammable. Use water spray, foam, CO2 or any other media suitable for extinguishing materials supporting combustion.

FIRE FIGHTING PROCEDURES:
Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode. Non-flammable. Keep fire-exposed containers cool using water spray.

CONTINUED ON PAGE: 2

CONTINUATION OF OSW0520C

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Thermal decomposition or contact with water may liberate sulfur dioxide gas.

****

SECTION 5 HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:
Sulfur dioxide gas, if liberated, may cause respiratory irritation. Prolonged exposure may cause irritation or burning sensations, coughing, wheezing and shortness of breath. In extreme cases, bronchitis, chemical pneumonitis or pulmonary edema may occur.

SKIN AND EYE CONTACT:
Corrosive! Contact with skin will produce severe irritation or burns with possible in-depth injury. Contact with eyes will result in severe eye irritation or burns and, if not immediately removed, may lead to permanent eye damage.

INGESTION:
Corrosive! Causes severe irritation or burns to the mouth and gastrointestinal tract. In extreme cases may cause kidney and liver damage.

EMERGENCY AND FIRST AID PROCEDURES:
If contacted, wash skin immediately with soap and water. Remove contaminated clothing and wash before reuse. If irritation or burns develop, consult a physician. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician.
If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.
If ingested, induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician immediately.

****

SECTION 6 REACTIVITY DATA

STABILITY:
Stable under normal conditions of storage and use.

INCOMPATIBILITY:
Keep away from strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
Oxides of nitrogen and sulfur.

CONTINUED ON PAGE: 3

CONTINUATION OF OSW0520C

HAZARDOUS POLYMERIZATION:
Will not occur.

****

SECTION 7 SPILL AND LEAK PROCEDURES

IF MATERIAL IS SPILLED OR RELEASED:
Small spill - Neutralize with dilute aqueous alkali such as soda ash, lime or limestone, and flush to sewer.
Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to holding container, and neutralize residue with dilute aqueous alkali as above.
Release of SO2 gas may require respirator use.

DISPOSAL METHOD:
Place chemical residues and contaminated adsorbent materials into a suitable waste container and take to an approved hazardous waste disposal site. Dispose of all residues in accordance with applicable waste management regulations.

DECONTAMINATION PROCEDURES:
Neutralize residues with lime, soda ash or dilute caustic.
Flush spill area with plenty of water.

****

SECTION 8 SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
When concentrations exceed the exposure limits specified, use of a NIOSH-approved organic vapor/acid gas cartridge respirator with full facepiece is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

VENTILATION:
General ventilation should be provided to maintain ambient concentrations below nuisance levels. Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

PROTECTIVE CLOTHING:
Chemical-resistant gloves and chemical goggles, face shield and synthetic apron or coveralls should be used to prevent contact with eyes, skin or clothing.

OTHER PROTECTIVE MEASURES:
May liberate sulfur dioxide gas on dilution with water. Use self-contained breathing equipment when contact of product with water is likely.

CONTINUED ON PAGE: 4

CONTINUATION OF OSW0520C

****

SECTION 9 SPECIAL PRECAUTIONS

Avoid breathing of vapors and contact with eyes, skin or clothing. Hazardous product residue may remain in emptied container. Do not reuse container without commercial cleaning or reconditioning.

****

Although the information and recommendations set forth herein are believed to be correct as of the date hereof, Petrolite makes no representations to the accuracy of such information and recommendations. It is the user's responsibility to determine the suitability and completeness of such information and recommendation for its own particular use.Petrolite shall not be responsible for any direct,indirect,incidental or consequential damages of whatsoever nature resulting from the publication,use of or reliance upon such information and recommendations.

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN, OR ANY USE OR RELIANCE THEREON.

PETROLITE

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/10/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: OSW0520C

****

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

****

NFPA DESIGNATION 704

PRODUCT LABEL CODES		DEGREE OF HAZARD
HEALTH (BLUE)	= 3	0 = LEAST
FLAMMABILITY (RED)	= 1	1 = SLIGHT
REACTIVITY (YELLOW)	= 0	2 = MODERATE
SPECIAL HAZARDS	= COR	3 = HIGH
		4 = EXTREME

****

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) inventory.

****

PETROLITE

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/10/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: OSW0520C

****

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Ammonium bisulfite	10192-30-0	5,000	616

****

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or Substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ or TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

**** NONE ****

****

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

Acute (immediate) health hazard

PETROLITE

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/10/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: OSW0520C

****

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE
LIQUID

****

SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

**** NONE ****

****

PETROLITE

MATERIAL SAFETY DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST.LOUIS MO 63119 U.S.A

REVISION DATE: 07/22/93
EMERGENCY PHONE: 1-314-961-3500
CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: CRW0126F TRADE NAME: TRETOLITE LABEL: 004 000 000

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)

SHIPPING NAME: Flammable liquid, n.o.s.

HAZARD CLASS: 3 ID#: UN1993

CHEMICAL DESCRIPTION

SALTS OF POLYPHOSPHATE ESTERS, ALKYLPYRIDINE SALTS, OXYALKYLATED ALKYLPHENOLS, OXYALKYLATED FATTY AMMONIUM CHLORIDE, AND A POLYAMINE IN METHANOL, ISOPROPANOL AND WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
68607-19-2	Alkylpyridine salts	10-30	Not established
00067-56-1	Methanol	10-30	ACGIH TLV: 200ppm TWA OSHA PEL: 200ppm TWA ACGIH STEL: 250 ppm
09016-45-9	Oxyalkylated alkylphenol	5-10	Not Established
**	Oxyalkylated fatty ammonium chloride	1-5	Not Established
00067-63-0	Isopropanol	1-5	ACGIH TLV: 400ppm TWA OSHA PEL: 400ppm TWA ACGIH STEL:500 ppm
00124-09-4	Polyamine	1-5	Not Established

**Specific chemical identity is being withheld for confidential business purposes.

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY(H20 = 1.0@60 F): 1.035 VOLATILITY: Significant

CONTINUED ON PAGE: 2

CONTINUATION OF CRW0126F

VAPOR PRESSURE: Not Established SOL. IN WATER: Soluble

APPEARANCE AND ODOR: Amber liquid. Alcohol odor.

****

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 93 F FLAMMABLE LIMITS: Not Established

FLASH METHOD:
SFCC ASTM D-3828

EXTINGUISHING MEDIA:
Use water spray or fog, alcohol-type foam, dry chemical or CO2.

FIRE FIGHTING PROCEDURES:
Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode. Flammable. Cool fire-exposed containers using water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Flammable liquid, vapors of which can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back.

****

SECTION 5 HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:
Exposure to elevated vapor concentrations may result in eye, nose and respiratory irritation. Prolonged contact may cause drowsiness, dizziness and, in extreme cases, narcosis.

SKIN AND EYE CONTACT:
Brief, intermittant skin contact may cause moderate to severe irritation resulting in skin rashes. Prolonged contact may cause severe irritation or burns where clothing is confined. Contact with eyes may produce severe irritation or burns with transient eye injury.

INGESTION:
Harmful if swallowed. May cause headache, gastrointestinal disturbances, dizziness, and nausea. May result in irritation or burns of mouth and digestive tract.

EMERGENCY AND FIRST AID PROCEDURES:
Wash skin thoroughly with soap and water. If rash or irritation develops, consult a physician. Launder clothing before reuse. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician promptly.

CONTINUED ON PAGE: 3

CONTINUATION OF CRW0126F

If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.
If ingested, induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician immediately.

****

SECTION 6 REACTIVITY DATA

STABILITY:

Stable under normal conditions of storage and use.

INCOMPATIBILITY:

Keep away from strong oxidizing agents, heat and open flames.

HAZARDOUS DECOMPOSITION PRODUCTS:

Oxides of nitrogen and phosphorus. HCl.

HAZARDOUS POLYMERIZATION:

Will not occur.

****

SECTION 7 SPILL AND LEAK PROCEDURES

IF MATERIAL IS SPILLED OR RELEASED:

Small spill - Absorb on paper, cloth or other material. Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to a holding container. Cover residue with dirt, or suitable chemical adsorbent. Use personal protective equipment as necessary.

DISPOSAL METHOD:

Place chemical residues and contaminated adsorbent materials into a suitable waste container and take to an approved hazardous waste disposal site. Dispose of all residues in accordance with applicable waste management regulations.

DECONTAMINATION PROCEDURES:

Not appropriate.

****

SECTION 8 SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

When concentrations exceed the exposure limits specified, use of a NIOSH-approved organic vapor cartridge respirator is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

CONTINUED ON PAGE: 4

PETROLITE

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 10/11/93
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: CRW0126F

****

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

****

NFPA DESIGNATION 704

PRODUCT LABEL CODES		DEGREE OF HAZARD
HEALTH (BLUE)	= 1	0 = LEAST
FLAMMABILITY (RED)	= 3	1 = SLIGHT
REACTIVITY (YELLOW)	= 0	2 = MODERATE
SPECIAL HAZARDS	=	3 = HIGH
		4 = EXTREME

****

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) inventory.

****

PETROLITE

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 10/11/93
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

****

PRODUCT: CRW0126F

****

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Methanol	67-56-1	5,000	3,750

****

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or Substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ or TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

**** NONE ****

****

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

Acute (immediate) health hazard

PETROLITE

ENVIRONMENTAL DATA SHEET

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 10/11/93
CHEMTREC EMER NO: 1-800-424-930
INFORMATION PHONE: 1-314-961-350

PRODUCT: CRW0126F

SARA TITLE III, SECTION 311: HAZARD CATEGORIES (CONT)

Fire hazard

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE
LIQUID

SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL	CAS NUMBER	WEIGHT PERCENT
Methanol	67-56-1	15.4 %