2R - 30

REPORTS

DATE:

June 25, 1993

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES
119 N. Colorado, Suite 201, Midland, Texas 79701
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

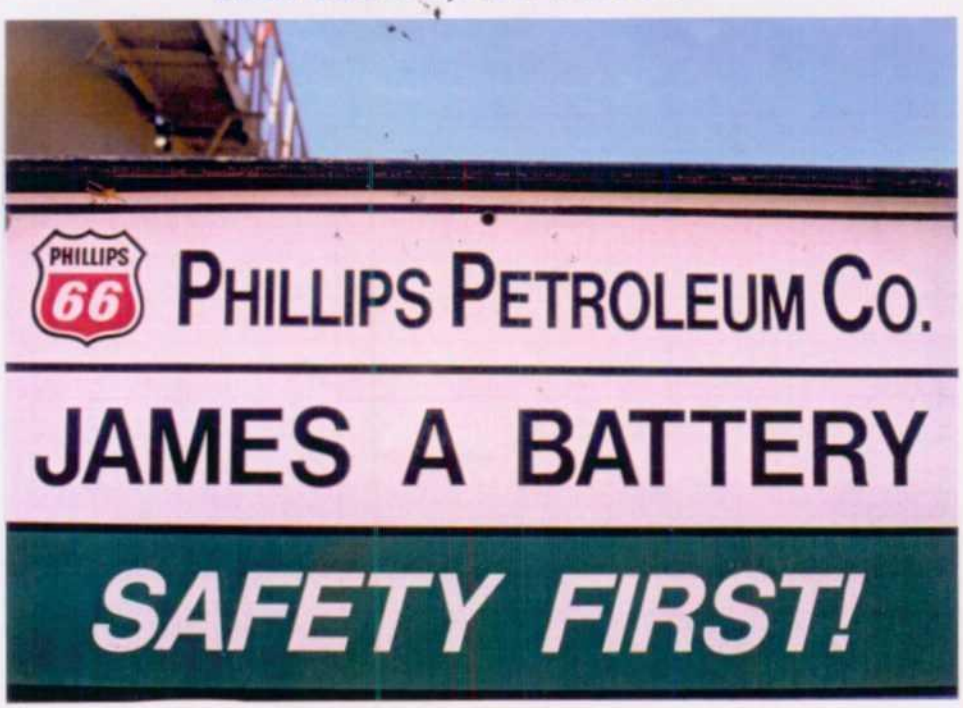
FINAL CLOSURE REPORT

UNLINED SURFACE IMPOUNDMENT CLOSURE

RECEIVED
JAN 2 4 1994
OIL CONSERVATION DIV.
SANTA FE

PHILLIPS PETROLEUM COMPANY

JAMES A LEASE
NW SE OF SECTION 2
TOWNSHIP 22 SOUTH, RANGE 30 EAST
EDDY COUNTY, NEW MEXICO



JUNE 25, 1993

PREPARED BY:

MITCHELL R. RITTER
MANAGING PARTNER
RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES (REGS)
MIDLAND, TEXAS

OIL CONSERVATION DIVISION
RECEIVED
'94 JAN 24 AM 10 10

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES
2900 N. Big Spring, Midland, Texas 79705
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

January 20, 1994

Mr. William Olson
New Mexico EM & NRO
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Re: Phillips Petroleum Company, Surface Impoundment Closures
Eddy & Lea Counties, New Mexico

Dear Bill:

We have completed the closure of several surface impoundments located in Lea and Eddy Counties on behalf of Phillips Petroleum Company. Mr. Jeff Carlson with Phillips has asked that I forward a formal copy of the final reports to your office.

REGS and Phillips are pleased with the results of our efforts and trust that you will agree. Your comments are welcome.

If you have any questions, please do not hesitate to call me at your convenience. I will place a follow-up call to make sure you have received the reports.

Sincerely,

Mitchell Ritter

MRR/amc
Enclosure


PHILLIPS
66
CABIN LAKE

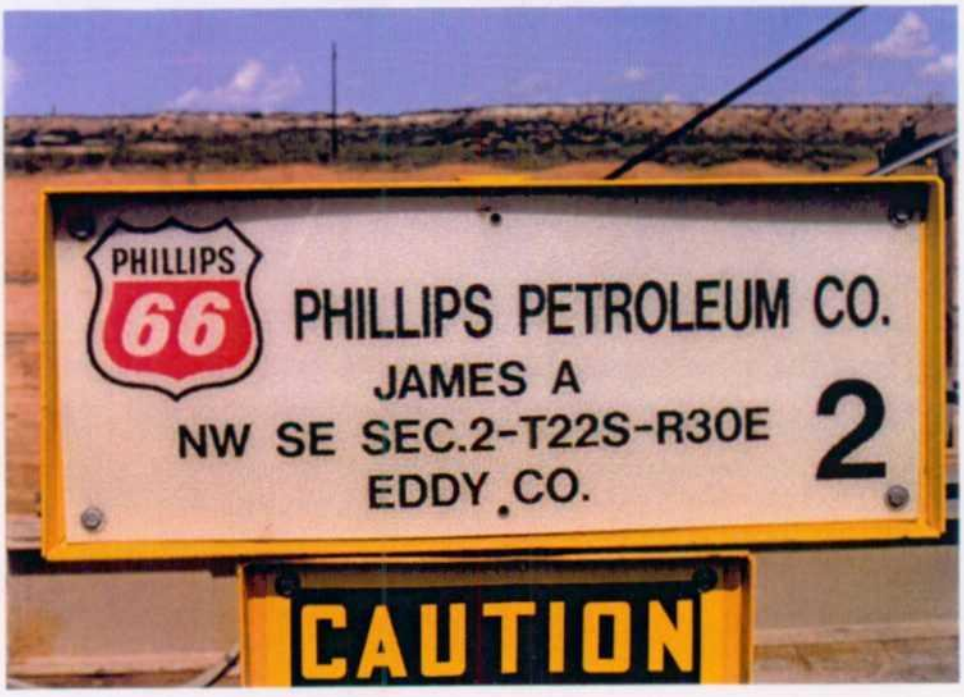

PHILLIPS
66
PHILLIPS PETROLEUM CO.
JAMES A
NW SE SEC.2-T22S-R30E
EDDY CO.
2
CAUTION

TABLE OF CONTENTS

I. INTRODUCTION & BACKGROUND

Ritter Environmental & Geotechnical Services (REGS) was contracted by Phillips Petroleum Company to properly address the closure of an unlined earthen surface impoundment located on a Phillips Petroleum lease in Eddy County, New Mexico. The impoundment is located in the northwest quarter of the southern quarter of Section 2, Township 22 South, Range 30 East.

The surface impoundment had been in place for approximately five (5) years and has been receiving produced water and small amounts of crude oil during this time. At the time the pit was decommissioned, surface hydrocarbon staining of the impoundment walls and floor were present and visible. The degree of contamination was measured in a preliminary soil sample taken prior to the remedial actions. The TPH level of this sample was measured at 138,000 ppm. Preliminary soil investigation indicated gross soil contamination did not exceed past three to four foot in depth below the surface of the impoundment. Several test areas were dug by hand to make this determination. The impoundment covers an area of approximately 300 feet by 200 feet. (Please refer to Appendix at the end of this report for map reference)

II. SCOPE OF WORK

The scope of work consisted of the necessary operations to remediate the hydrocarbons and salt affected soil by encapsulation through solidification. Visual and olfactory methods were utilized to delineate the grossly contaminated soils.

The operations began by scraping the interior sloped walls of the impoundment into the level impoundment area. The floor of the impoundment was then mechanically scraped and pushed (crowded) to the east side of the interior of the impoundment. The impoundment was dewatered at the time of the remedial action. It was noted that discolored soil was found in spotty patches to a depth of approximately four (4) feet.

Heavy staining was particularly noted to be associated with the area surrounding the inlet piping that supplies the produced water to the impoundment. The floors and walls were scraped until no visibly affected or odorous soils remained. The affected soils were piled along the east wall in preparation for treatment. An elevated berm was built near the east center of the impoundment floor to assist in the treatment process. Cementious materials were then thoroughly mixed with the affected soils while adding fresh water. Areas of approximately 30' X 20 feet were mechanically mixed and subsequently allowed to harden and cure. Core sampling of each day's mixing was performed prior to hardening. Proper sample techniques and protocol were utilized in the acquisition, handling and transport of all samples. Analytical results are presented in the following section of this report. After all affected soils were thoroughly mixed and solidified, a smooth finish was placed on the mixture. After allowing approximately 120 hours (5 days) of curing time, the remaining impoundment walls were utilized to cover the solidified materials and bring the impoundment back to grade. The area of solidified soil was bermed one to two feet above the surrounding terrain to prevent rain water pooling and run-on from up gradient rain water.

III. ANALYTICAL

Analyses of the solidified soil core sampling were conducted on six (6) separate samples. The samples were taken on a daily basis as to represent a typical cross section of that particular day's work. Samples were collected with a clean core sampling device and immediately placed in clean glass sample containers and sealed with a teflon lined septum. After collection, each sample was placed on ice and chilled to approximately 4 ° C until delivered to the laboratory for analyses. The following table represents the analytical results:

TCLP Analyses

SAMPLE #	TPH mg/kg	TOTAL BTEX mg/l	BENZENE mg/l	TOLUENE mg/l	ETHYL BENZENE mg/l	XYLENES mg/l
61093-1J	118	0.019	<0.004	0.019	<0.004	<0.004
61193-2J	31	0.181	0.011	0.017	<0.004	<0.004
61293-3J	34	0.037	0.008	0.029	<0.004	<0.004
61393-4J	443	0.162	<0.004	0.10	<0.004	<0.004
61493-5J	234	0.025	0.005	0.02	<0.004	<0.004
61593-6J	232	0.184	0.014	0.13	0.007	0.033

Proper chain of custody documentation is provided in the appendix of this report. Subsequent to TPH and BTEX analyses, a seven day lechate test was performed on each of the six daily samples. The seven day lechate test simulates actual undisturbed subsurface conditions and allows the sample to remain in an partially water filled glass container for a period of seven days. The liquid lechate is then measured for any TPH or BTEX constituents. The results of the seven day lechate test are as follows:

Seven Day Lechate Test

SAMPLE #	TPH mg/l	TOTAL BTEX mg/l	BENZENE mg/l	TOLUENE mg/l	ETHYL BENZENE mg/l	XYLENES mg/l
61093-1J	1.14	<0.004	<0.004	<0.004	<0.004	<0.004
61193-2J	0.61	<0.004	<0.004	<0.004	<0.004	<0.004
61293-3J	0.52	<0.004	<0.004	<0.004	<0.004	<0.004
61393-4J	1.12	<0.004	<0.004	<0.004	<0.004	<0.004
61493-5J	1.69	<0.004	<0.004	<0.004	<0.004	<0.004
61593-6J	1.13	<0.004	<0.004	<0.004	<0.004	<0.004

All analytical methodology used in the previous analyses conform to NMOCD and US EPA

standards. QA/QC information is included with the formal laboratory reports in the appendix of this report.

IV. CONCLUSIONS

Solidification refers to a treatment system designed to improve the handling and physical characterization of wastes, to decrease the surface area across which the loss or transfer of waste characteristics can occur, and to limit the solubility of those characteristics.

Review of the core sample analyses strongly supports the use of the encapsulation/solidification process as an environmentally safe and sound technology to control and remediate hydrocarbon affected soils. The encapsulation/solidification process, as applied to the James Pit, effectively limits the leachability of the hydrocarbons previously entrained in the floor and walls of the impoundment and prevents the hydrocarbons from entering subsurface groundwater and soils.

The James surface impoundment has been properly closed in accordance with the NMOCD published guidelines for "Unlined Surface Impoundment Closure" dated February 1993. No further actions are recommended or anticipated at this site.

PHOTOGRAPHS

5/93

JAMES A. PIT

FORMER CONTENT: PRODUCED WATER & CRUDE

1. Prior to treatment, looking NE from SW corner

2. Looking north from SW corner

3. Heaviest concentration of hydrocarbons, NE corner of surface

4. Pushing wall materials into pit area

5. Excavation of heaviest section of sludge to 4 feet deep

6. Unaffected soil below 3-4 feet

7. Unaffected soil below 3-4 feet

8. Crowding pit to east side

9. Crowding pit

10. Crowding pit after pushing in wall material

11. Visual staining

12. Building treatment area

13. **Solidified Pit**

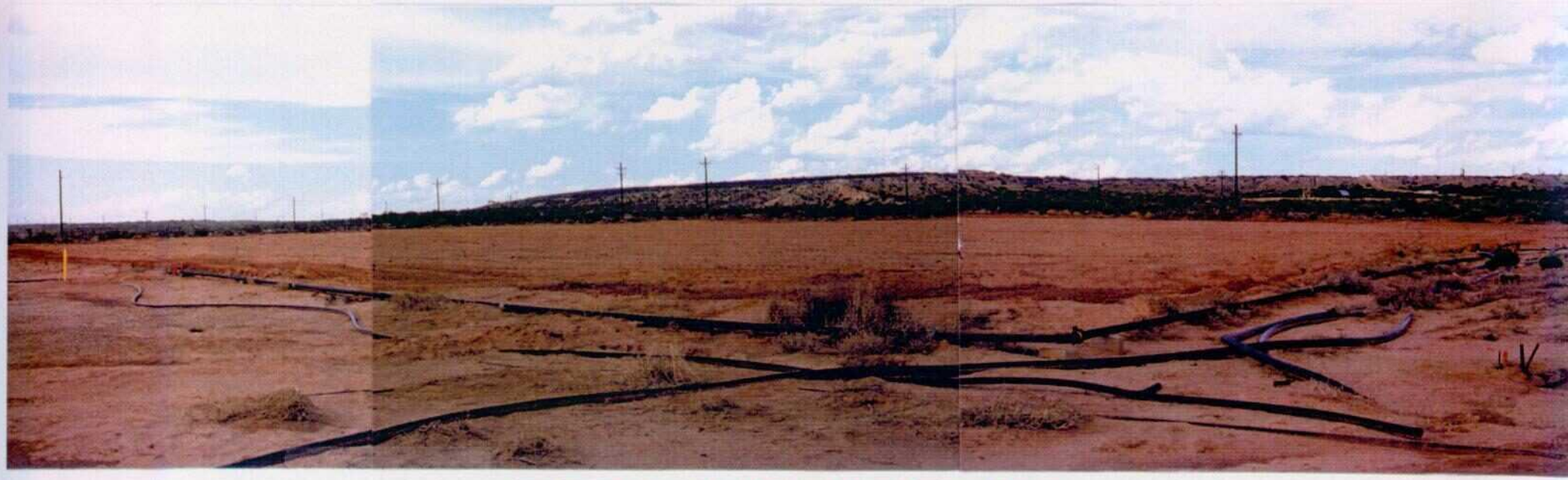
14. **Solidified Pit**

15. **Reclaiming pit to original grade**

16. Covering pit and berming

17. Covering pit

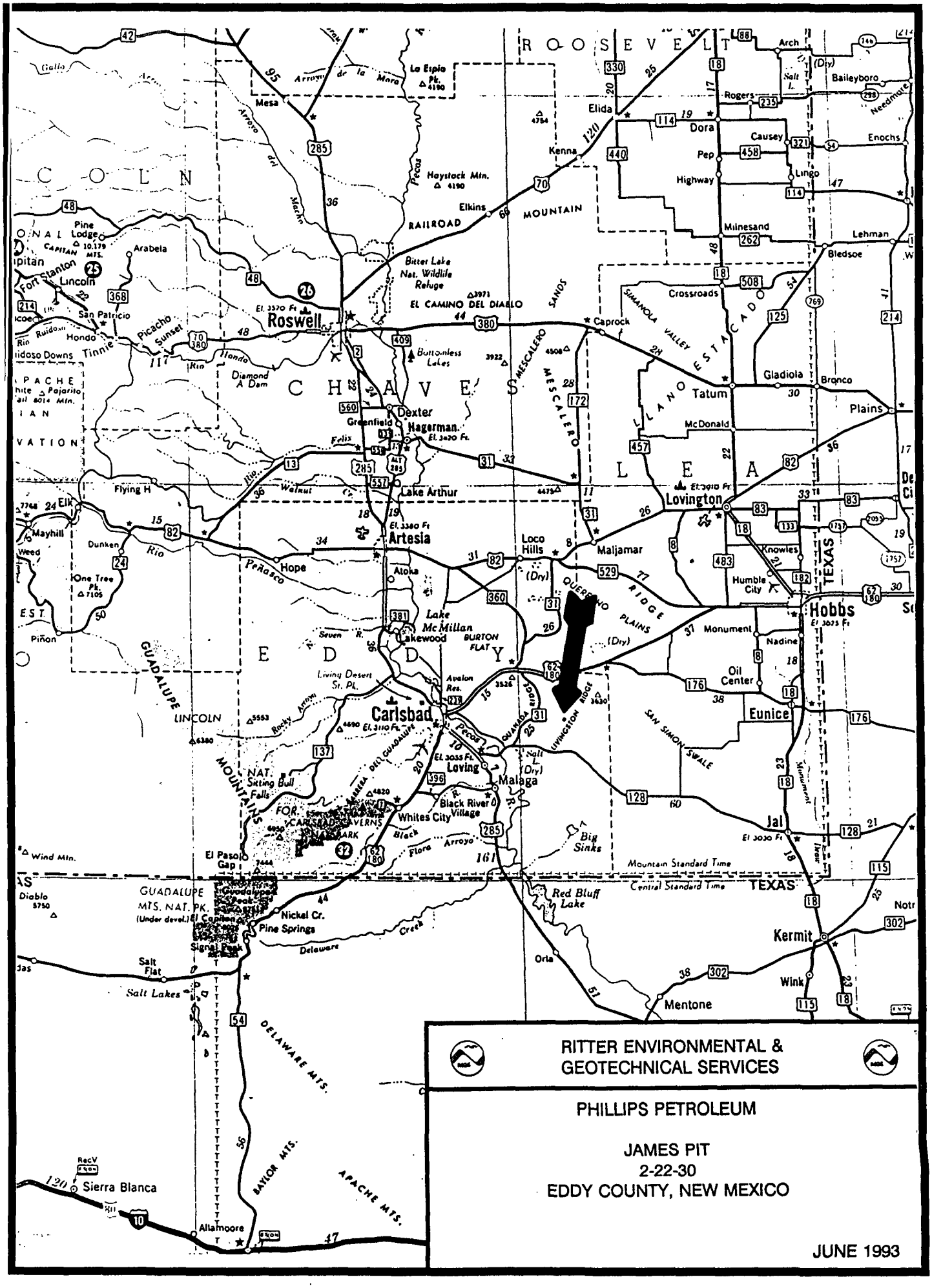
SURFACE RECLAMATION

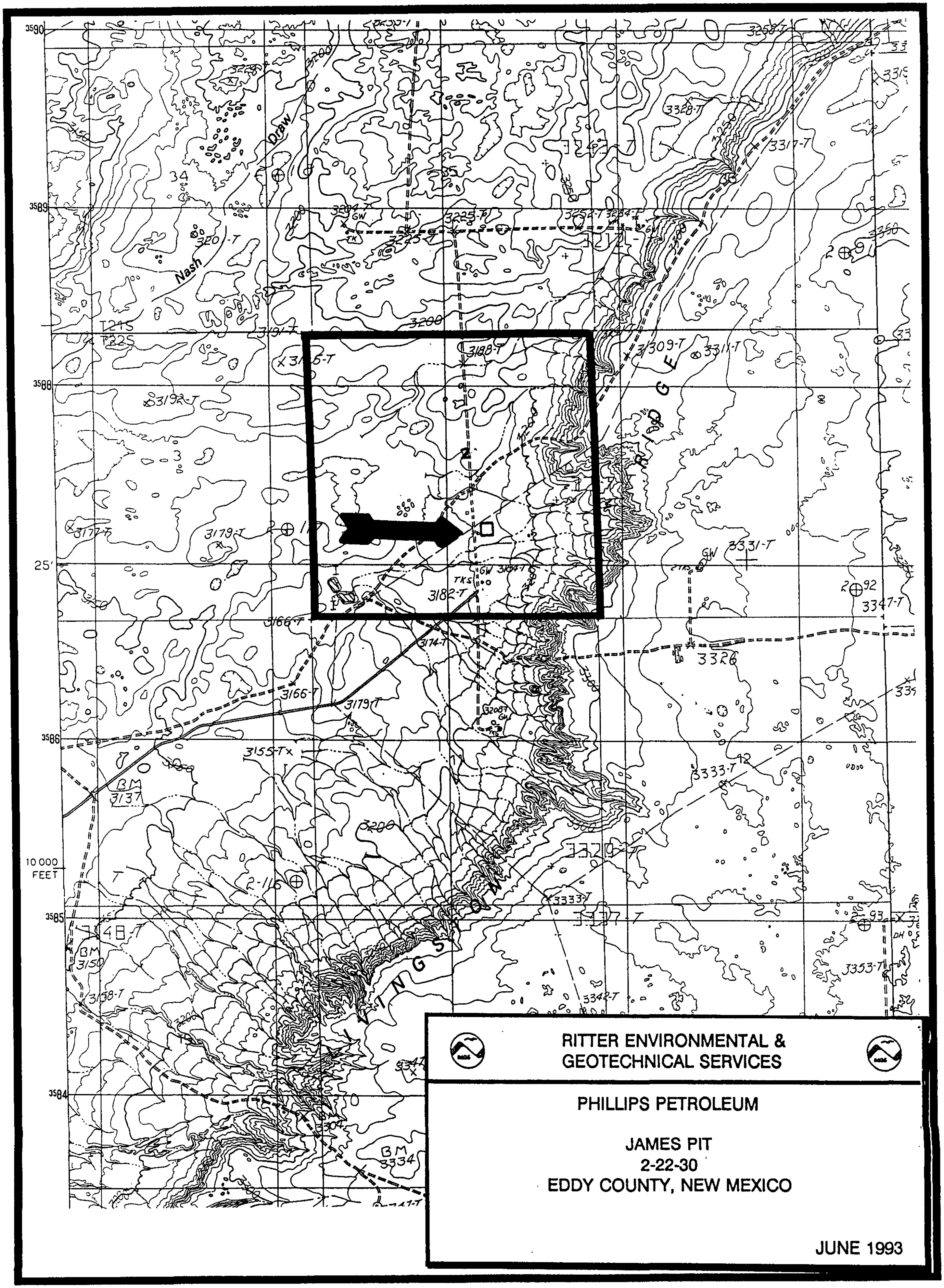


REMEDIATION & RECLAMATION CONCLUDED
START DATE: 6/7/93– FINISH DATE: 6/22/93 (TOTAL: 15 DAYS)

REMEDIATION AND RECLAMATION COMPLETE

MAPS


RITTER ENVIRONMENTAL &
GEOTECHNICAL SERVICES
PHILLIPS PETROLEUM
JAMES PIT
2-22-30
EDDY COUNTY, NEW MEXICO
JUNE 1993
ROOSEVELT
CHAVES
EDDY
LEA
TEXAS
Roswell
Artesia
Carlsbad
Hobbs
Lovington
Dexter
Hagerman
Tatum
Eunice
Jal
Kermit
Wink
Mentone
Loving
Malaga
Whites City
Lake Arthur
Maljamar
Loco Hills
Monument
Oil Center
Plains
Bledsoe
Crossroads
Caprock
Milnesand
Dora
Elida
Roswell
Fort Stanton
Lincoln
Mayhill
Elk
Flying H
Hope
Atoka
Lakewood
Seven Rivers
Living Desert St. Pk.
Avalon Res.
Pecos
Black River Village
Nickel Cr.
Pine Springs
Salt Flat
Salt Lakes
Signal Peak
Guadalupe Peak
El Capitan
Wind Mtn.
El Paso Gap
Diablo
Sierra Blanca
Allamoore
Red Bluff Lake
Big Sinks
Orla
Delaware Creek
Mountain Standard Time
Central Standard Time
Lake McMillan
Bottomless Lakes
Haystock Mtn.
La Espia Pt.
Elkins
Kenna
Mesa
Arabela
Pine Lodge
San Patricio
Hondo
Tinnie
Picacho
Sunset
Diamond A Dam
Greenfield
Felix
Walnut Cr.
Dunken
Weed
Piñon
One Tree Pk.
Pajarito Mtn.
Rocky Arroyo
Whites City
Black River
Flora Vista
Livingston Ridge
Querecho Plains
Mescalero Sands
Monument
Nadine
Humble City
Knowles
Lingo
Pep
Causey
Enochs
Lehman
Baileyboro
Arch
Rogers
Gladiola
Bronco
McDonald
Tatum
Highway
Salt L. (Dry)
Delaware Mts.
Baylor Mts.
Apache Mts.
Guadalupe Mts. Nat. Pk.
(Under devel.)
Carlsbad Caverns Nat. Park
Nat. Sitting Bull Falls
Guadalupe Mts.
Lincoln
Eddy
Chaves
Roosevelt
Lea
Texas

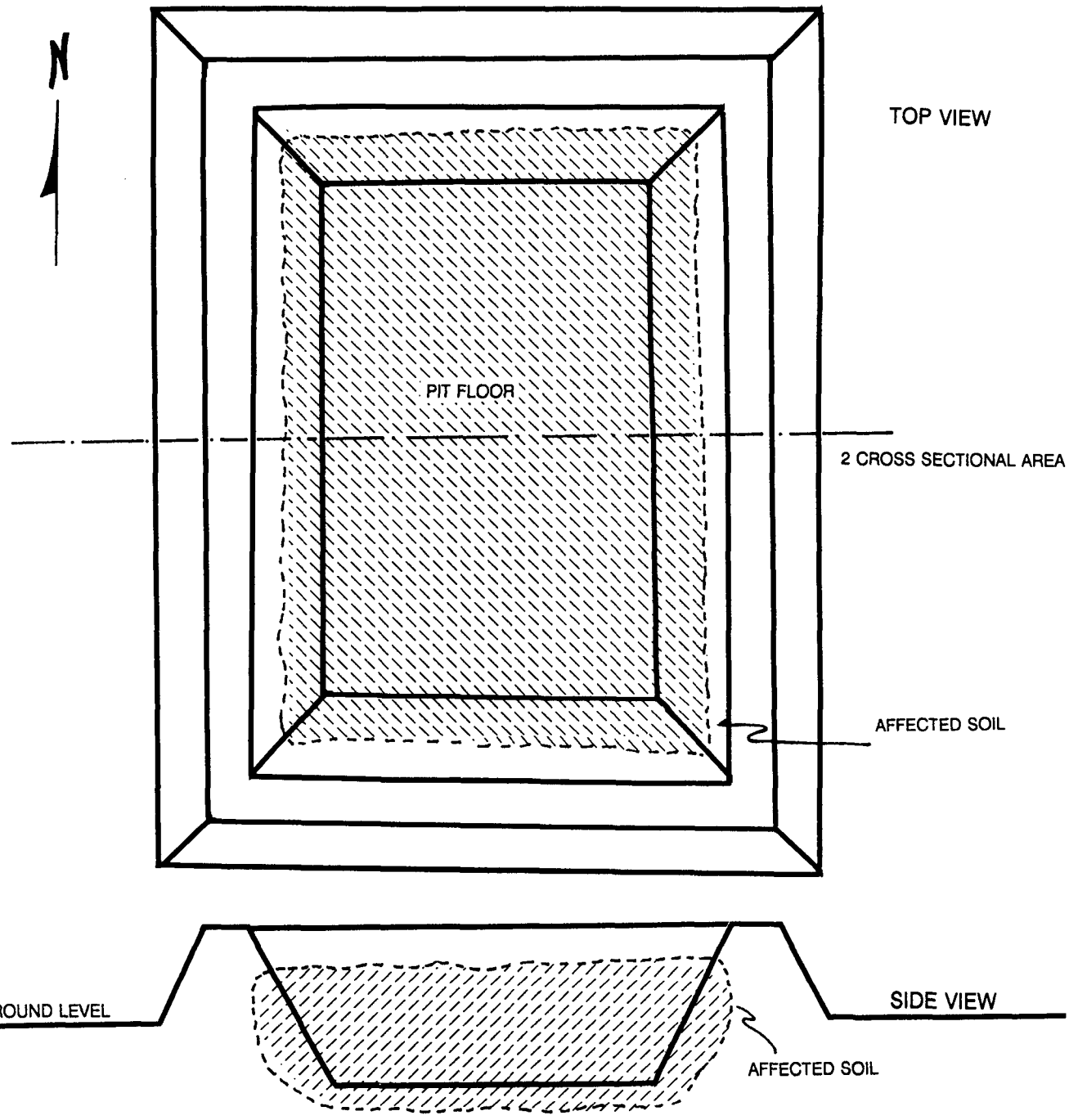


RITTER ENVIRONMENTAL &
GEOTECHNICAL SERVICES

PHILLIPS PETROLEUM

JAMES PIT
2-22-30
EDDY COUNTY, NEW MEXICO

JUNE 1993



VERTICAL SCALE EXAGGERATED

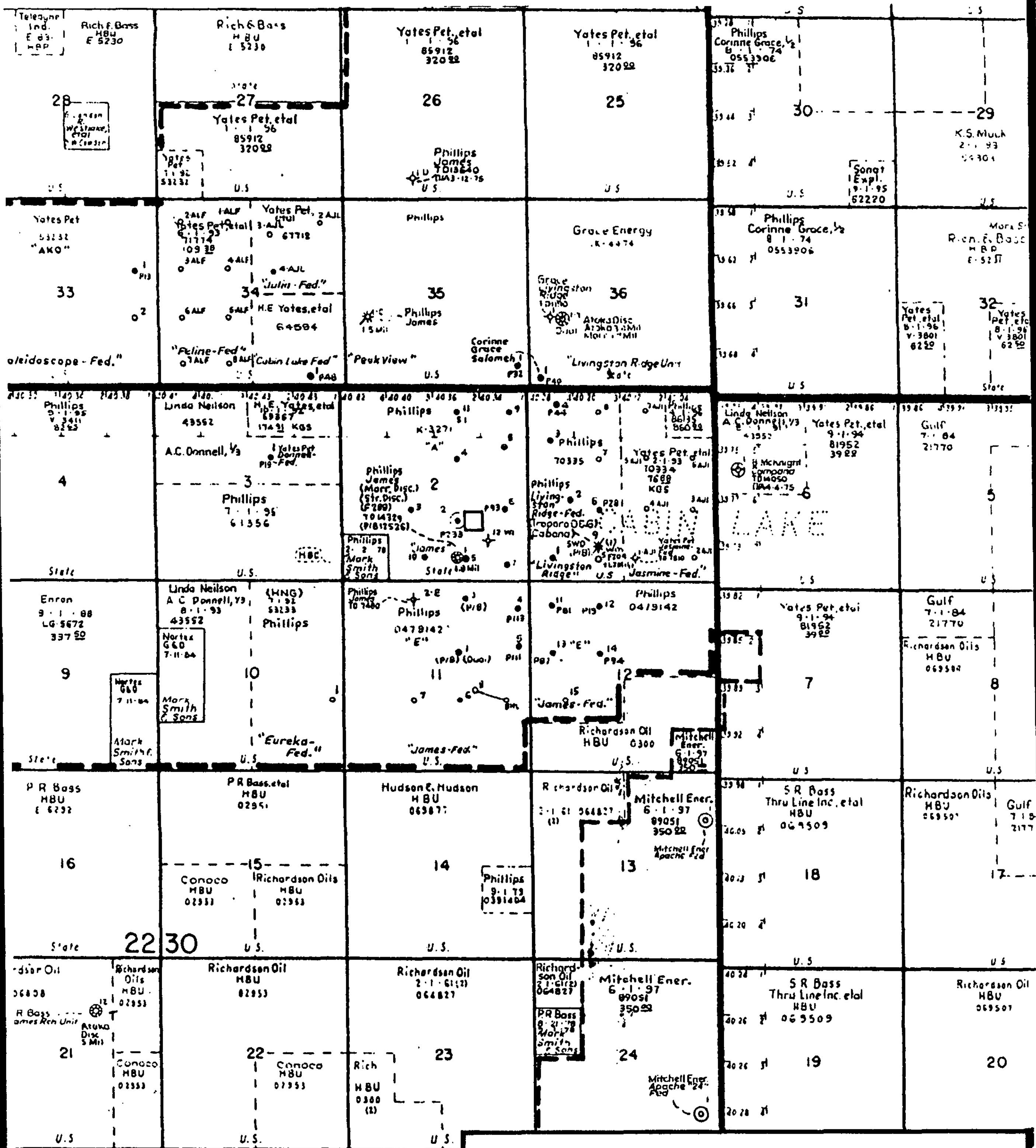
RITTER ENVIRONMENTAL &
GEOTECHNICAL SERVICES

PHILLIPS PETROLEUM

JAMES PIT
2-22-30
EDDY COUNTY, NEW MEXICO

SCALE 1' - 50'

JUNE 1993



RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES

PHILLIPS PETROLEUM

JAMES PIT
2-22-30
EDDY COUNTY, NEW MEXICO

SCALE 1' - 50'

JUNE 1993

CORRESPONDENCE

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
ARTESIA DISTRICT OFFICE

BRUCE KING
GOVERNOR

P.O. DRAWER DD
ARTESIA, NEW MEXICO 88211
(505) 748-1283

May 25, 1993

MAY 2 6 1993

Mr. Jeff Carlson
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

RE: **Cabin Lake Field Surface Impoundment Closure**
Phillips Petroleum Company
Sec.2, T.22S, R.30E
Eddy County, New Mexico

Dear Mr. Carlson:

The New Mexico Oil Conservation Division (OCD) has completed a reviewed of the May 13, 1993 "SURFACE IMPOUNDMENT CLOSURE-PHILLIPS PETROLEUM COMPANY CABIN LAKE FIELD OF EDDY COUNTY, NEW MEXICO. SECTION, 2 TWP 22 SOUTH RANGE 30 EAST" which was submitted by Ritter Environmental & Geotechnical Services on behalf of Phillips Petroleum Company.

The above mentioned closure plan is hereby approved with the following conditions:

1. Upon completion of the closure activities the pit area will be mounded to prevent ponding.

2. A closure report will be submitted to the OCD within 60 days of the "post treatment core sampling" event.

3. The OCD will be notified at least 72 hours in advance of all closure activities such that the OCD may have the opportunity to witness the activities and/or split samples.

Please be advised that OCD approval does not relieve Phillips of liability if closure activities determine that contamination exists which is beyond the scope of the closure plan. In addition, OCD approval does not relieve Phillips of liability for compliance with other federal, state or local laws and/or regulations.

If you have any questions, please do not hesitate to contact me at (505) 748-1283.

Sincerely,

Mark Ashley
District Geologist
Oil Conservation Division

cc: Mitchell Ritter - Ritter Environmental & Geotechnical Services

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES
119 N. Colorado, Suite 201, Midland, Texas 79701
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

May 13, 1993

Mr. Mark Ashley
Mr. Mike Williams
New Mexico Oil Conservation Division
P.O. Drawer DD
Artesia, New Mexico 88211

Re: Surface Impoundment Closure - Phillips Petroleum Company
Cabin Lake Field of Eddy County, New Mexico. Section 2, TWP 22 South Range 30 East

Dear Messrs. Ashley and Williams:

I am writing to seek your approval of the closure of an unlined surface impoundment (pit) located at the above referenced facility operated by Phillips Petroleum Company.

In conjunction with Mr. Jeff Carlson, Phillips Petroleum's safety and environmental representative, Ritter Environmental & Geotechnical Services (REGS) would like to present the enclosed proposal and information for your review and approval prior to pit closure.

As this pit is being decommissioned by the operator, Phillips Petroleum Company, it is their desire to adhere to the currently established guidelines for pit (surface impoundment) closure as published by the NMOCD in February 1993 and to address the closure of this pit in a safe and cost effective manner. As an alternative to transporting and landfilling of these wastes (where in only a transfer of the problem occurs) and to long term bioremedial activities that would involve many months and possibly years to accomplish the current remedial guidelines as set forth by the NMOCD, we (REGS) through currently developed solidification techniques propose to treat the waste materials on site by stabilization of the waste through solidification.

We are currently utilizing combinations or separate application of portland cement, kiln dust and/or fly ash to bind the wastes into a hardened monolithic block of concrete type material. Solidification refers to treatment systems which are designed to improve the handling and physical characteristics of such wastes, to decrease the surface area across which the transfer or loss of the waste characteristics can occur, and to limit the solubility of those waste characteristics. This treatment effectively limits the leachate process and .prevents the materials from entering the subsurface soils and groundwater. Stabilization

prevents the materials from entering the subsurface soils and groundwater. Stabilization techniques, such as solidification, have benefits primarily in limiting the solubility of the waste or by detoxifying the waste contaminants, even though the physical characteristics of the waste may or may not appear to be changed. It is intended that the following procedures will be followed in the performance of our services:

I. **Preliminary Site Evaluation** - Includes a visual inspection and sampling of each pit and the surrounding area to determine site specific conditions such as; nearby surface waters, streams, surface soil types and depths, proximity to groundwater supply wells, physical and chemical properties of the contents of each pit and the treatability of those contents.

II. **Treatment/Solidification** - After careful preparation of the site for safe operations the solidification process begins. Solidification begins with the physical addition of the appropriate product(s) in the correct proportions to the type of waste involved. Mechanical mixing methods are utilized to thoroughly blend the waste material and the appropriate solidifying agent(s) with correct proportions of water. At this time, a curing process is allowed to take place for a period of approximately 48 hours. Post treatment core samples will be taken from each pit to determine TCLP parameters for volatile organic compounds (VOC's) such as Benzene and Total BTEX.

III. **Site Reclamation** - After treatment, the site will be reclaimed by placing native soils over the treated area and recontouring the site back to the original grade (if possible).

I have included analytical results of one series of bench tests we have performed on actual pit material from the Cabin Lake field. These tests have generated very pleasing results, wherein we have solidified pit sludge and performed TCLP, BTEX, and TPH analyses on the solidified samples. As you can see, in each case the solidified material renders the levels of BTEX and TPH leachability to acceptable levels in accordance with the NMOCD guidelines.

The series of analyses was run and dated 5-3-93. The series labeled J-1, J-2, and J-3 represent the James Pit in the Cabin Lake field. The analytical results of the treated pit sludge are within current NMOCD guidelines.

In reference to analytical tests currently run, we would like to suggest to the NMOCD an alternative to testing the pit material after treatment. We have determined through past

experience with the solidification process that the TCLP procedure and methodology currently being used for identification of elevated levels of toxic compounds may not be the most appropriate methods for the analysis of actual site conditions post treatment.

We would suggest the adoption of a seven (7) day leachate test in lieu of the TCLP analysis. The seven (7) day leachate test is a non-violent test in which actual sub surface conditions are simulated by submersing the sample to be tested in deionized water for a period of seven (7) days prior to analyses of the water. This test simulates actual saturated groundwater conditions at the site and relates to leachability as opposed to the violent tumbling action the samples are subjected to in the TCLP methodology. Also, the approximately 20 to 1 dilution factor utilized in the TCLP methodology is not utilized in the seven (7) day leachate method.

We have obtained the following results utilizing the seven (7) day leachate test on the same samples previously run for TCLP:

SAMPLE #	TPH mg/l	BENZENE mg/l	ETHLYBENZENE mg/l	TOLUENE mg/l	XYLENE mg/l
J-3 (JAMES PIT)	2.2	<.004	<.004	<.004	<.004

The methodology for the seven (7) day leachate test is as follows and is a part of the accepted methodology utilized by the Texas Water Commission (TWC) for landfill evaluations:

7-Day Distilled Water Leachate Test

This test is intended only for dry, solid wastes, i.e., waste materials without any free liquids.

1. Place a 250 gm. (dry weight) representative sample of the waste material in a 1500 ml. Erlenmeyer flask.
2. Add 1 liter of deionized or distilled water into the flask and mechanically stir the material at a low speed for five (5) minutes.
3. Stopper the flask and allow to stand for seven (7) days.
4. At the end of the seven (7) days, filter the supernatant solution through a .45 micron filter, collecting the supernatant into a separate flask.
5. subject the filtered leachate to the appropriate analysis.

Although we feel the above methodology is more appropriate, we will provide TCLP analyses should the above methodology not be approved.

I have included photographs of pit solidification performed in Southeast Montana, northeast of Wyoming and southwest of Wyoming. These pits were solidified with appropriate state agency approval.

We have also included copies of two excerpts from the Superfund Innovative Technology Evaluation program (SITE) funded and directed by the EPA to evaluate new technologies. These excerpts, although not identical to our process, are similar and provide some insight into the feasibility of our work.

We are hereby requesting your approval to apply and utilize the above described technology in the treatment of the surface impoundment referenced at the beginning of this correspondence. Your response should be directed to me at the letterhead address.

Thank you for taking the time to review this proposal. Your comments and assistance will be greatly appreciated.

Sincerely,

Mitchell Ritter

MRR/bk
cc: Mr. Bill Olson/NMOCD - Santa Fe, New Mexico

ANALYTICAL

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 Soil
Client Ritter Environmental & Geotechnical Services
Delivered by Mitch Ritter

File No. 6750100
Report No. 80622
Report Date 05-13-93
Date Received March 1993

Identification Phillips Petroleum Co.

REPORT OF TOTAL PETROLEUM HYDROCARBONS

Date of Analysis 05-12-93
Analyst S. Stovall

Method SW846,3550;EPA 418.1
MDL 5.0 mg/kg

Sample Identification	Results, mg/kg
James Pit	138000

*Denotes "less than"

Copies: Ritter Environmental & Geotechnical Services
Attn: Mitch Ritter

Reviewed by

SOUTHWESTERN LABORATORIES

Our letters and reports are for the exclusive use of the client to whom they are addressed. The letters and reports shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive prior written approval.

SWL SOUTHWESTERN LABORATORIES

1703 West Industrial Avenue * P.O. Box 2150, Midland, Texas 79702 * 915/683-3349

Client REGS
119 N. Colorado Suite 201
Midland, Tx. 79701

Attn: Mitch Ritter

Client No. 6750100
Report No. M3-06-232
Report Date 06/28/93 16:35

Project Phillips Petro James "A" Pit

Date Sampled 06/10/93 06/16/93

Sampled By Client

Sample Type Soil

Transported by Mitch Ritter

P.O. # _____

Date Received 06/17/93

Lab No.	Sample Identification
M3-06-232-01	61093-1J
M3-06-232-02	61193-2J
M3-06-232-03	61293-3J
M3-06-232-04	61493-4J
M3-06-232-05	61593-5J
M3-06-232-06	61693-6J

Reviewed By

SOUTHWESTERN LABORATORIES

JACK H. BARTON

TEST RESULTS BY SAMPLE

Sample: 01A 61093-1J Collected: 06/10/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	5.9	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 02A 61193-2J Collected: 06/11/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	1.5	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 03A 61293-3J Collected: 06/12/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	1.7	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 04A 61493-4J Collected: 06/14/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	22	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 05A 61593-5J Collected: 06/15/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	12	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

TEST RESULTS BY SAMPLE

Sample: 06A 61693-6J Collected: 06/16/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	12	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

TEST RESULTS BY SAMPLE

Sample Description: 61093-1J
Test Description: TCLP BTEX
Collected: 06/10/93

Lab No: 01A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	< 0.004
TOLUENE	0.019
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61193-2J
Test Description: TCLP BTEX
Collected: 06/11/93

Lab No: 02A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	0.011
TOLUENE	0.17
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61293-3J
Test Description: TCLP BTEX
Collected: 06/12/93

Lab No: 03A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

TEST RESULTS BY SAMPLE

Sample Description: 61293-3J
Test Description: TCLP BTEX
Collected: 06/12/93

Lab No: 03A
Method: SW-846, 8020 Test Code: BTX_TC

Compound	Results
BENZENE	0.008
TOLUENE	0.029
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61493-4J
Test Description: TCLP BTEX
Collected: 06/14/93

Lab No: 04A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	< 0.004
TOLUENE	0.10
ETHYLBENZENE	0.011
XYLENE	0.051

Sample Description: 61593-5J
Test Description: TCLP BTEX
Collected: 06/15/93

Lab No: 05A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	0.005
TOLUENE	0.020

TEST RESULTS BY SAMPLE

Sample Description: 61593-5J
Test Description: TCLP BTEX
Collected: 06/15/93

Lab No: 05A
Method: SW-846, 8020 Test Code: BTX_TC

ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61693-6J
Test Description: TCLP BTEX
Collected: 06/16/93

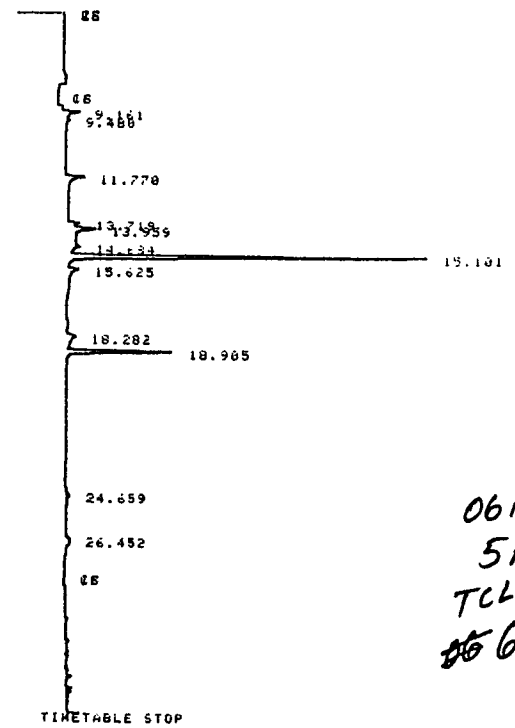
Lab No: 06A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	0.014
TOLUENE	0.13
ETHYLBENZENE	0.007
XYLENE	0.033

* RUN # 11 JUN 22, 1993 06:12:16

START



TIMETABLE STOP

0615801
5 m/s
TCLP Extract
61093-1J

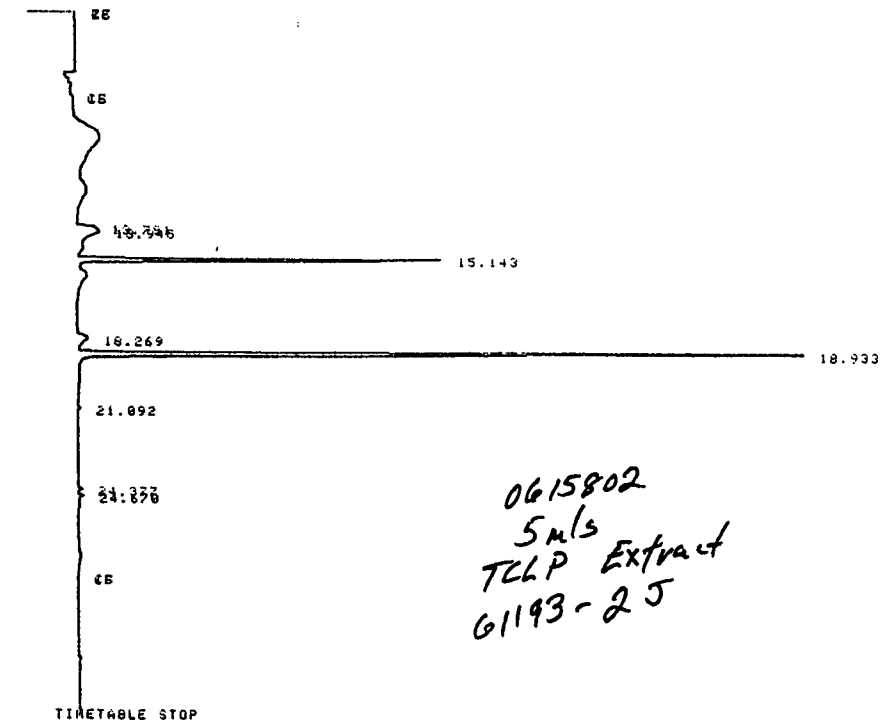
RUN# 11 JUN 22, 1993 06:12:16

AREA%

RT	AREA	TYPE	WIDTH	AREA%	
9.161	650790	PV	.194	5.06332	
9.460	196124	VB	.161	1.76699	
11.770	444971	PB	.145	4.00899	
13.719	179486	PV	.096	1.61703	B
13.959	583657	VB	.147	5.25848	
14.684	110207	BP	.112	.99291	
15.101	6256691	FB	.104	56.36994	S
15.625	222604	BB	.131	2.00556	
16.282	396690	PV	.258	3.57400	
18.985	1765353	VB	.106	16.08522	T
24.659	97899	VB	.111	.88203	M,p-X
26.452	174680	BB	.120	1.57559	O-X

* RUN # 12 JUN 22, 1993 07:04:39

START



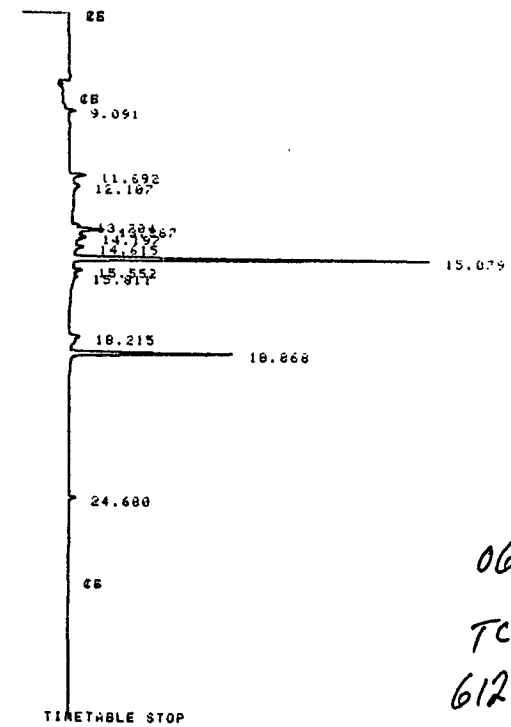
0615802
5 ml s
TCLP Extract
61193-25

RUN# 12 JUN 22, 1993 07:04:39

AREA%

RT	AREA	TYPE	WIDTH	AREA%
13.791	290388	PV	.094	1.17435
13.945	1175516	VB	.336	4.75386
15.143	6293827	BB	.102	25.44951
18.269	510623	PP	.292	2.06500
18.933	16237072	PB	.096	65.66480
21.092	50814	BB	.098	.20550
24.377	74284	BP	.101	.30041
24.670	95790	PB	.102	.38738

* RUN # 13 JUN 22, 1993 07:56:37



0615803
5 MLS
TCLP Extract
61293-3J

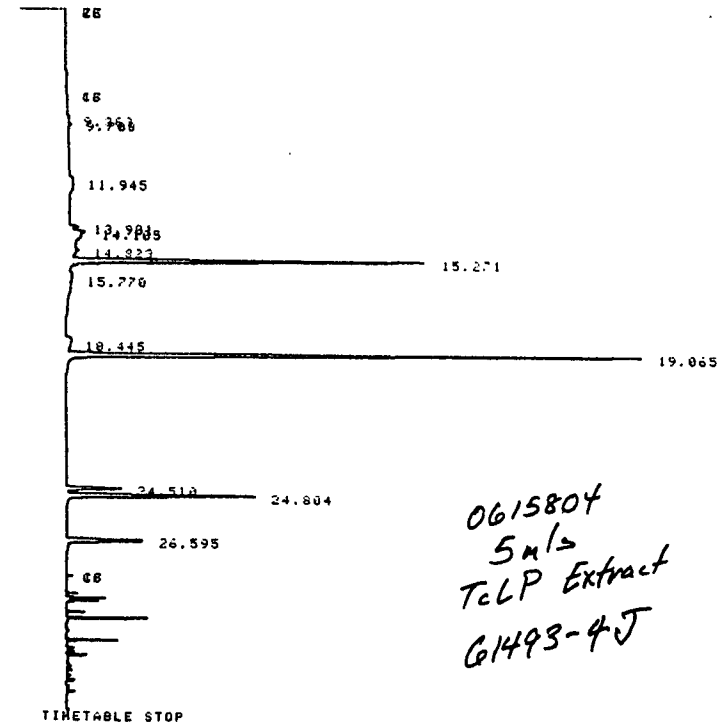
RUN# 13 JUN 22, 1993 07:56:37

AREA%

RT	AREA	TYPE	WIDTH	AREA%	
9.091	201129	PB	.126	1.62203	
11.692	339867	BV	.137	2.74090	
12.107	338640	VB	.254	2.73100	
13.784	151831	PV	.097	1.22446	
13.887	801650	VV	.150	6.46500	B
14.197	480414	VV	.197	3.87435	
14.615	360028	VV	.188	2.90349	
15.079	6308109	VB	.104	50.87246	S
15.552	203996	BV	.121	1.64515	
15.811	239695	VB	.235	1.93466	
18.215	134255	PB	.114	1.08272	
18.668	2724754	PB	.098	21.97409	T
24.600	115285	BB	.102	.92975	MPX

* RUN # 14 JUN 22, 1993 08147137

START



TIMETABLE STOP

0615804
5 ml's
TCLP Extract
61493-4J

RUN# 14 JUN 22, 1993 08147137

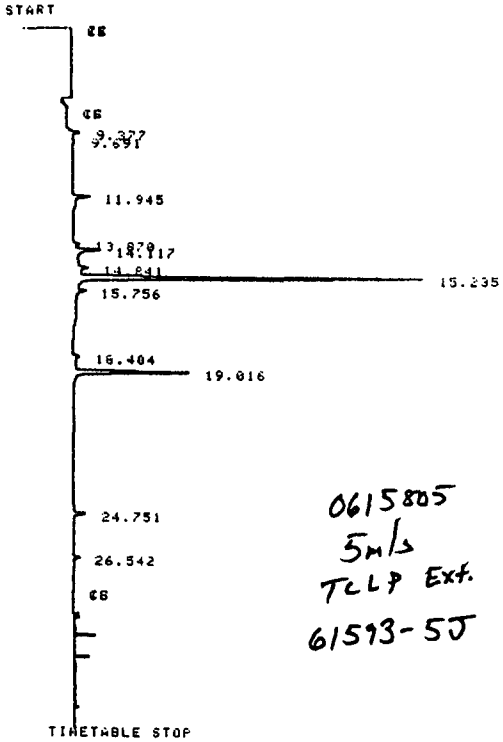
AREA%

RT	AREA	TYPE	WIDTH	AREA%	
9.383	70458	PB	.138	.31526	
9.708	58035	BB	.098	.25967	
11.945	62146	PB	.123	.27807	
13.901	91250	PP	.078	.40829	B
14.105	179504	PB	.110	.80318	
14.823	121161	BP	.169	.54213	
15.271	6184253	PB	.104	27.67111	S
15.770	231898	BB	.357	1.03762	
18.445	294073	PP	.306	1.31581	T
19.065	9420550	PB	.097	42.18757	T
24.510	937836	PV	.100	4.19630	B-B
24.804	3347360	VB	.105	14.97759	M/P T
26.595	1342602	PB	.103	6.00740	O T

TOTAL AREA= 22345407

* RUN # 15 JUN 22, 1993 15:25:02

START



0615805
5m/s
TCLP Ext.
61593-5J

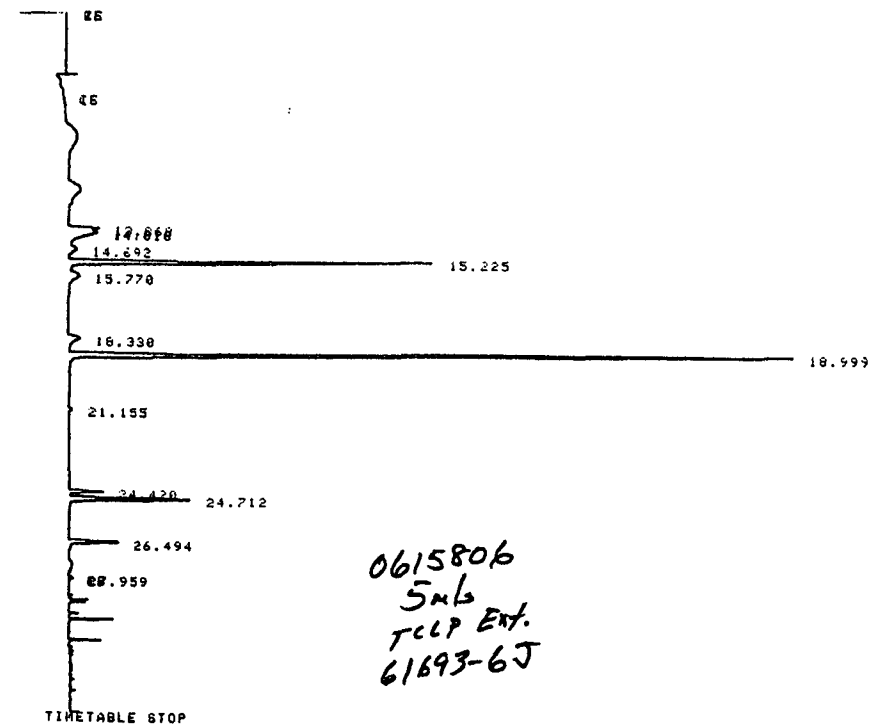
RUN# 15 JUN 22, 1993 15:25:02

AREA%

RT	AREA	TYPE	WIDTH	AREA%
9.377	244591	PV	.132	2.43097
9.691	85655	VB	.115	.85132
11.945	298583	PB	.111	2.96759
13.670	71725	PV	.069	.71287
14.117	549329	VB	.131	5.45973 B
14.641	195520	BV	.130	1.94326
15.235	6054762	VB	.104	60.17776 S
15.756	151824	BB	.105	1.50897
16.404	135190	PB	.133	1.34364
19.016	1940894	PB	.100	19.29039 T
24.751	222919	BB	.102	2.21557
26.542	110468	PB	.130	1.09795

MP-X
O-X

* RUN # 16 JUN 22, 1993 16:16:22
START



0615806
5mL
TCLP Ext.
61693-6J

RUN# 16 JUN 22, 1993 16:16:22

AREA%

RT	AREA	TYPE	WIDTH	AREA%	
13.868	550644	BV	.103	2.13788	
14.018	1405297	VV	.233	5.45410	B
14.692	419603	VP	.262	1.62852	
15.225	6396122	PB	.104	24.82398	S
15.770	476770	BB	.264	1.85042	
18.330	467211	PP	.235	1.81329	
18.999	12352960	PB	.096	47.94306	T
21.155	79339	BB	.108	.30792	
24.420	568618	PV	.098	2.20680	E3
24.712	2141090	VB	.104	8.30978	MPK
26.494	849781	PB	.103	3.29806	OK
27.959	56279	I PH	.085	.32619	

SOUTHWESTERN LABORATORIES

1703 West Industrial Avenue * P.O. Box 2150, Midland, Texas 79702 * 915/683-3349

Client REGS
119 N. Colorado Suite 201
Midland, Tx. 79701

Attn: Mitch Ritter

Client No. 6750100
Report No. M3-06-233
Report Date 06/28/93 17:04

Project Phillips

Date Sampled 06/10/93 06/16/93

Sampled By Client

Sample Type Soil

Transported by Mitch Ritter

P.O. # _____

Date Received 06/17/93

NOTE: Samples analyzed on TWC 7 Day Leachate

Lab No.	Sample Identification
M3-06-233-01	61093-1J
M3-06-233-02	61193-2J
M3-06-233-03	61293-3J
M3-06-233-04	61493-4J
M3-06-233-05	61593-5J
M3-06-233-06	61693-6J

Reviewed By

SOUTHWESTERN LABORATORIES

JACK H. BARTON

Sample: 01A 61093-1J Collected: 06/10/93 16:45

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
7 DAY TPH	EPA 418.1	1.14	mg/L	0.50	06/25/93	SLS

Sample: 02A 61193-2J Collected: 06/11/93 16:40

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
7 DAY TPH	EPA 418.1	0.61	mg/L	0.50	06/25/93	SLS

Sample: 03A 61293-3J Collected: 06/12/93 15:50

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
7 DAY TPH	EPA 418.1	0.52	mg/L	0.50	06/25/93	SLS

Sample: 04A 61493-4J Collected: 06/14/93 16:27

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
7 DAY TPH	EPA 418.1	1.12	mg/L	0.50	06/25/93	SLS

Sample: 05A 61593-5J Collected: 06/15/93 16:59

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
7 DAY TPH	EPA 418.1	1.69	mg/L	0.50	06/25/93	SLS

Sample: 06A 61693-6J Collected: 06/16/93 15:30

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
7 DAY TPH	EPA 418.1	1.13	mg/L	0.50	06/25/93	SLS

Order # M3-06-233
06/28/93 16:41
Client: REGS

TEST RESULTS BY SAMPLE

Sample Description: 61093-1J
Test Description: 7 DAY BTEX
Collected: 06/10/93 16:45

Lab No: 01A
Method: EPA 602 Test Code: BTX_7D

Date Started	06/25/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	EPA 602		

Compound	Results
BENZENE	< 0.004
TOLUENE	< 0.004
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61193-2J
Test Description: 7 DAY BTEX
Collected: 06/11/93 16:40

Lab No: 02A
Method: EPA 602 Test Code: BTX_7D

Date Started	06/25/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	EPA 602		

Compound	Results
BENZENE	< 0.004
TOLUENE	< 0.004
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61293-3J
Test Description: 7 DAY BTEX
Collected: 06/12/93 15:50

Lab No: 03A
Method: EPA 602 Test Code: BTX_7D

Date Started	06/25/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	EPA 602		

TEST RESULTS BY SAMPLE

Sample Description: 61293-3J
Test Description: 7 DAY BTEX
Collected: 06/12/93 15:50

Lab No: 03A
Method: EPA 602 Test Code: BTX_7D

Compound	Results
BENZENE	< 0.004
TOLUENE	< 0.004
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61493-4J
Test Description: 7 DAY BTEX
Collected: 06/14/93 16:27

Lab No: 04A
Method: EPA 602 Test Code: BTX_7D

Date Started	06/25/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	EPA 602		

Compound	Results
BENZENE	< 0.004
TOLUENE	< 0.004
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

Sample Description: 61593-5J
Test Description: 7 DAY BTEX
Collected: 06/15/93 16:59

Lab No: 05A
Method: EPA 602 Test Code: BTX_7D

Date Started	06/25/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	EPA 602		

Compound	Results
BENZENE	< 0.004
TOLUENE	< 0.004

TEST RESULTS BY SAMPLE

Sample Description: 61593-5J
Test Description: 7 DAY BTEX
Collected: 06/15/93 16:59

Lab No: 05A
Method: EPA 602 Test Code: BTX_7D

ETHYLBENZENE	< 0.004
XYLENE	< 0.004

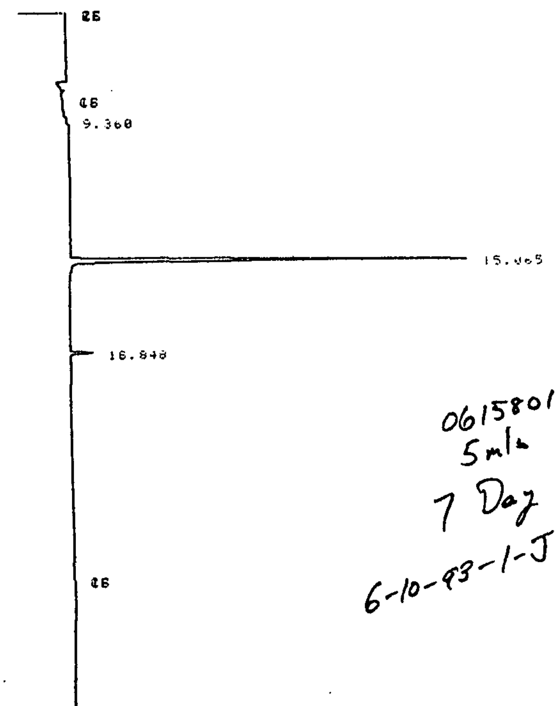
Sample Description: 61693-6J
Test Description: 7 DAY BTEX
Collected: 06/16/93 15:30

Lab No: 06A
Method: EPA 602 Test Code: BTX_7D

Date Started	06/25/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	EPA 602		

Compound	Results
BENZENE	< 0.004
TOLUENE	< 0.004
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

* RUN # 3 JUN 25, 1993 14:28:55
START



TIMETABLE STOP

0615801
5mls
7 Day Leach
6-10-93-1-J

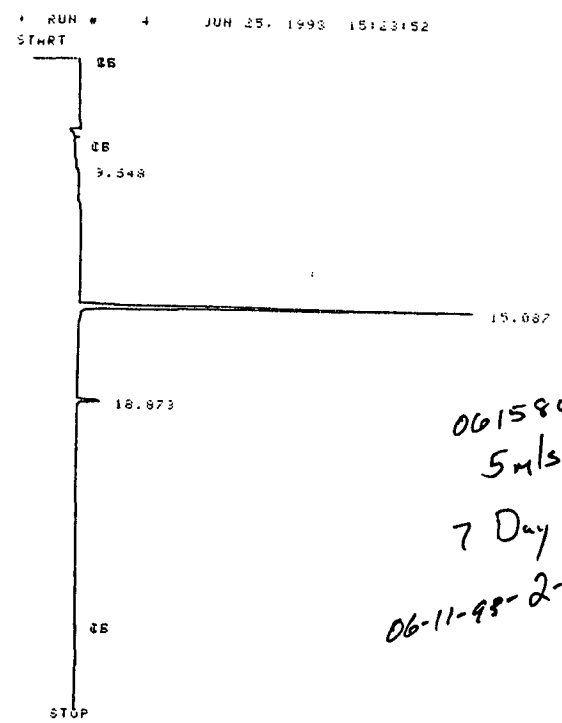
Storing processed peaks to M:Q6AC1228.PRO
Storing report to M:Q6AC1228.RPT

RUN# 3 JUN 25, 1993 14:28:55

REPORT FILE: M:Q6AC1228.RPT
PEAK FILE : M:Q6AC1228.PRO
AREA%

RT	AREA	TYPE	WIDTH	AREA%
9.360	77944	PV	.242	1.05562
15.065	6943418	BB	.104	94.03706 S
16.848	362342	BB	.096	4.90732 T

TOTAL AREA=7363702
MUL FACTOR=1.0000E+00



0615802
5 ml/s
7 Day Leach
06-11-98-2-J

Storing processed peaks to M:Q6HC1F0A.PRO
Storing report to M:Q6HC1F0A.RPT

RUN# 4 JUN 25, 1993 15:23:52

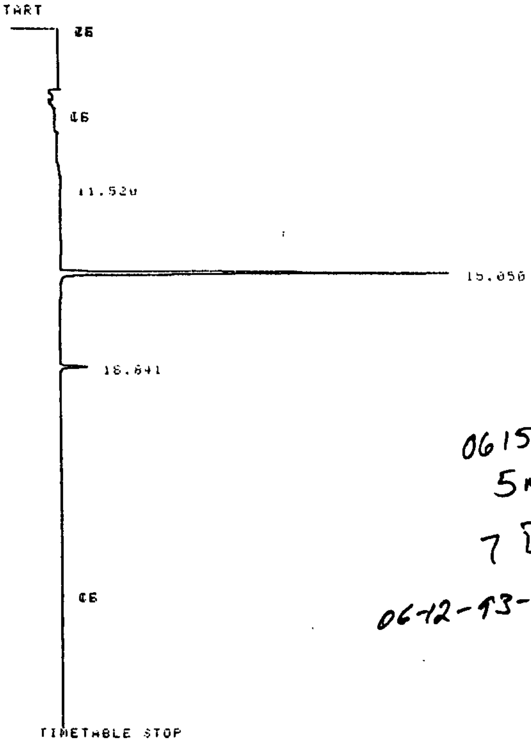
REPORT FILE: M:Q6HC1F0A.RPT
PEAK FILE : M:Q6HC1F0A.PRO
AREA%

RT	AREA	TYPE	WIDTH	AREA%
9.548	24821	PB	.083	.33930
15.087	6921341	BB	.104	94.61395 S
18.873	369187	BB	.097	5.04675 T

TOTAL AREA=7315347
MUL FACTOR=1.0000E+00

* RUN # 5 JUN 25, 1993 16:13:47

START



TIMETABLE STOP

0615803
5mls
7 Day Leach
06-12-93-3-J

Storing processed peaks to M:Q6AC2ABD.PRO
Storing report to M:Q6AC2ABD.RPT

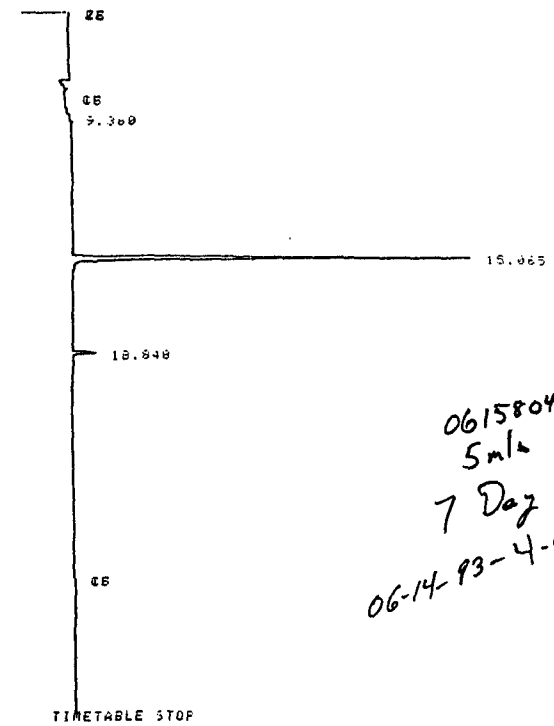
RUN# 5 JUN 25, 1993 16:13:47

REPORT FILE: M:Q6AC2ABD.RPT
PEAK FILE : M:Q6AC2ABD.PRO
AREA%

RT	AREA	TYPE	WIDTH	AREA%	
11.520	432336	BV	3.412	5.65300	
15.050	6779802	BB	.103	88.64922	S
18.841	435761	BB	.098	5.69779	T

TOTAL AREA=7647898
MUL FACTOR=1.0000E+00

* RUN # 6 JUN 25, 1993 17:04:49
START



0615804
5 ml
7 Day Leach
06-14-93-4-5

TIMETABLE STOP

Storing processed peaks to M:Ø6HC36B2.PRO
Storing report to M:Ø6HC36B2.RPT

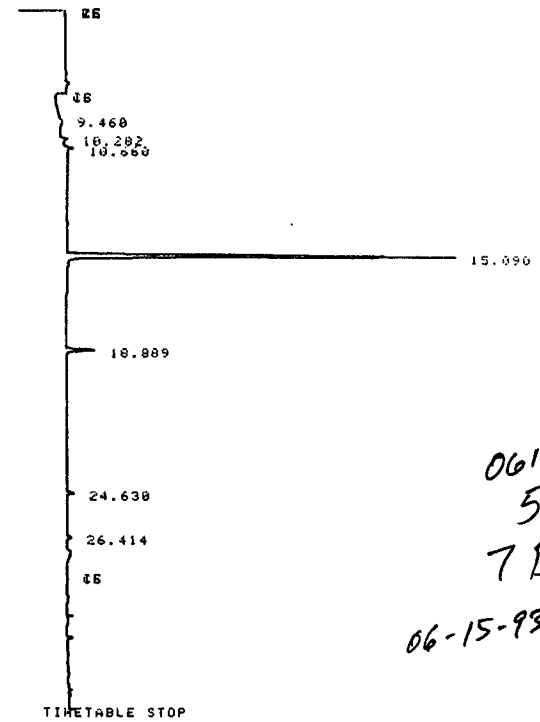
RUN# 6 JUN 25, 1993 17:04:49

REPORT FILE: M:Ø6HC36B2.RPT
PEAK FILE : M:Ø6HC36B2.PRO
AREA%

RT	AREA	TYPE	WIDTH	AREA%
9.360	77944	PV	.242	1.05562
15.865	6943416	BB	.104	94.03706
16.848	362342	BB	.096	4.90732

TOTAL AREA=7383702
MUL FACTOR=1.0000E+00

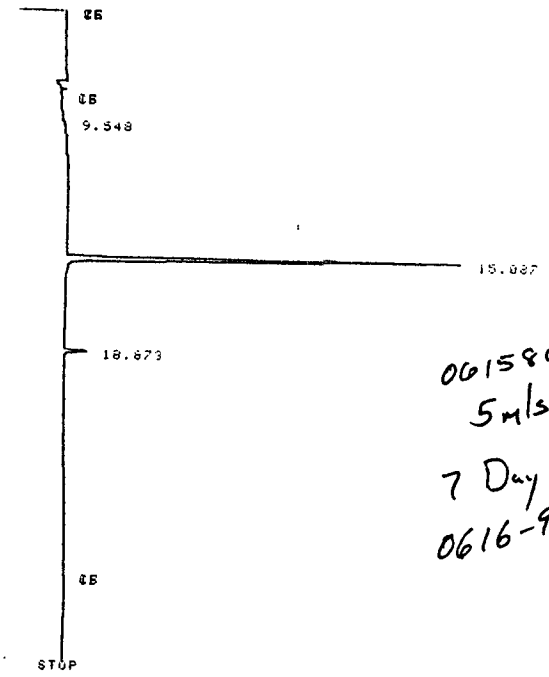
```
* RUN #    7     JUN 25, 1993  17:57:10
START
```



0615805
5 mls
7 Day Leach
06-15-93-5-5

```
    TIMETABLE STOP

Storing processed peaks to M:Q6AC42F7.PRO
Storing report to M:Q6AC42F7.RPT

RUN#      7          JUN 25, 1993  17:57:10

REPORT FILE: M:Q6AC42F7.RPT
PEAK FILE  : M:Q6AC42F7.PRO
AREA%
      RT       AREA TYPE  WIDTH      AREA%
   9.460      53066   BB   .216      .85276
  10.282     213788   BV   .154     2.62980
  10.660     464193   VV   .206     5.71803
  15.090    6760730   BB   .103    83.15355
  18.889     454930   BB   .096     5.59608
  24.630     117733   BB   .094     1.44823
  26.414      65000   BP   .090      .79956

TOTAL AREA=8129437
MUL FACTOR=1.0000E+00
```

* RUN # 8 JUN 25, 1993 18:49:25
START



0615806
5 ml/s
7 Day Leach
0616-93-6J

Storing processed peaks to M:Q6AC4F36.PRO
Storing report to M:Q6AC4F36.RPT

RUN# 8 JUN 25, 1993 18:49:25

REPORT FILE: M:Q6AC4F36.RPT
PEAK FILE : M:Q6AC4F36.PRO
AREA%

RT	AREA	TYPE	WIDTH	AREA%
9.548	24821	PB	.083	.33930
15.087	6921341	BB	.104	94.61395 S
18.873	369187	BB	.097	5.04675 T

TOTAL AREA=7315347
MUL FACTOR=1.0000E+00

CHAIN OF CUSTODY

PAGE 1 OF 1

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES
119 N. Colorado, Suite 201, Midland, Texas 79701
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

REPORT TO	INVOICE TO
COMPANY: REGS	COMPANY: REGS
ADDRESS: 119 N. Colorado Suite 201	ADDRESS:
CITY/STATE/ZIP: Midland, Tx 79701	CITY/STATE/ZIP:
ATTENTION: M. Ritter PHONE #: 682-7404	ATTENTION: PHONE #:
REMARKS: Call When Ready	TURN AROUND TIME
PROJECT/SITE NAME:	☐NORMAL ☐RUSH ☐OTHER
Phillips Petroleum	
James "A" Pit - Eddy Co. N.M.	

DATE	TIME	COMP.	GRAB	SAMPLE #	SAMPLE DESCRIPTION	MATRIX	# CONT	REQUESTED ANALYSIS: TPH *	BTEX *					REMARKS
6/10/93	4:45 P		✓	61093-1J	Soil from Solidified Pit		1	✓	✓					
6/11/93	4:40 p		✓	61193-2J	" "		1	✓	✓					
6/12/93	3:50 p		✓	61293-3J	" "		1	✓	✓					
6/14/93	4:27 p		✓	61493-4J	" "		1	✓	✓					
6/15/93	4:59 p		✓	61593-5J	" "		1	✓	✓					
6/16/93	3:30 p		✓	61693-6J	" "		1	✓	✓					

RELINQUISHED BY: (SIGN)	DATE/TIME:	RECEIVED BY:	DATE/TIME:	SAMPLE CONDITION:	DATE/TIME:
Mike Ritter	6/17/93 10:28 AM	[signature]	6/17/93 10:30 AM		

SwL

SOUTHWESTERN LABORATORIES, INC.

QA/QC Statement

Midland EAS

Date Received: Jun 17, 1993
TPH Analyst: S. Stovall
Sample Matrix: Solid
BTEX Analyst: L. Duty

Test Parameter	Date of Analysis	Percent Recovery (spike)	Percent Deviation (duplicate)	Blank Concentration (mg/L)	Percent of Known	Method of Analysis
Benzene	Jun 22, 1993	103	0	< 0.02	96	SW-846, 8020
Toluene	Jun 22, 1993	106	0	< 0.02	95	SW-846, 8020
Ethylbenzene	Jun 22, 1993	99	0	< 0.02	99	SW-846, 8020
m,p-Xylenes	Jun 22, 1993	99	0	< 0.02	98	SW-846, 8020
o-Xylene	Jun 22, 1993	110	0	< 0.02	98	SW-846, 8020
Total Petroleum Hydrocarbons	Jun 18, 1993	87	0.03	< 5.0	87	SW-846, 3550; EPA 418.1

Applicable BTEX Lab Numbers: M3-06-231-(01 thru 06)

Applicable TPH Lab Numbers: M3-06-231-(01 thru 06), M3-06-164(01 thru 04), M3-06-165-01

Lab spike no. (BTEX): M3-06-231-01
Lab dup. no. (BTEX): M3-06-231-01

Lab spike no. (TPH): M3-06-164-01
Lab dup. no. (TPH): M3-06-165-01

Notes:

Reviewed by:

SwL

SOUTHWESTERN LABORATORIES, INC.

QA/QC Statement

Midland EAS

Date Received: Jun 17, 1993
TPH Analyst: S. Stovall
Sample Matrix: TCLP Extract
BTEX Analyst: L. Duty

Test Parameter	Date of Analysis	Percent Recovery (spike)	Percent Deviation (duplicate)	Blank Concentration (mg/L)	Percent of Known	Method of Analysis
Benzene	Jun 22, 1993	103	0	< 0.004	96	SW-846, 8020
Toluene	Jun 22, 1993	106	0	< 0.004	95	SW-846, 8020
Ethylbenzene	Jun 22, 1993	99	0	< 0.004	98	SW-846, 8020
m,p-Xylenes	Jun 22, 1993	99	0	< 0.004	95	SW-846, 8020
o-Xylene	Jun 22, 1993	110	0	< 0.004	96	SW-846, 8020
Total Petroleum Hydrocarbons	Jun 22, 1993	83	4.4	< 0.50	87	EPA 418.1

Applicable BTEX Lab Numbers: M3-06-232-(01 thru 06)

Applicable TPH Lab Numbers: M3-06-232-(01 thru 06)

Lab spike no. (BTEX): M3-06-232-01
Lab dup. no. (BTEX): M3-06-232-01

Lab spike no. (TPH): Blank
Lab dup. no. (TPH): Known

Notes:

Reviewed by:

SwL

SOUTHWESTERN LABORATORIES, INC.

QA/QC Statement

Midland EAS

Date Received: Jun 17, 1993
TPH Analyst: S. Stovall
Sample Matrix: 7 Day Leach
BTEX Analyst: L. Duty

Test Parameter	Date of Analysis	Percent Recovery (spike)	Percent Deviation (duplicate)	Blank Concentration (mg/L)	Percent of Known	Method of Analysis
Benzene	Jun 25, 1993	100	0	< 0.004	103	EPA 602
Toluene	Jun 25, 1993	100	0	< 0.004	101	EPA 602
Ethylbenzene	Jun 25, 1993	101	0	< 0.004	103	EPA 602
m,p-Xylenes	Jun 25, 1993	100	0	< 0.004	101	EPA 602
o-Xylene	Jun 25, 1993	102	0	< 0.004	101	EPA 602
Total Petroleum Hydrocarbons	Jun 25, 1993	90	4.0	< 0.50	95	EPA 418.1

Applicable BTEX Lab Numbers: M3-06-233-(01 thru 06)

Applicable TPH Lab Numbers: M3-06-233-(01 thru 06)

Lab spike no. (BTEX): M3-06-233-01
Lab dup. no. (BTEX): M3-06-233-01

Lab spike no. (TPH): Blank
Lab dup. no. (TPH): Known

Notes:

Reviewed by:

SWL SOUTHWESTERN LABORATORIES

1703 West Industrial Avenue * P.O. Box 2150, Midland, Texas 79702 * 915/683-3349

Client REGS
119 N. Colorado Suite 201
Midland, Tx. 79701

Attn: Mitch Ritter

Client No. 6750100
Report No. M3-06-232
Report Date 07/06/93 12:57

Project Phillips Petro James "A" Pit

Date Sampled 06/10/93 06/16/93

Sampled By Client

Sample Type Soil

Transported by Mitch Ritter

P.O. # _____

Date Received 06/17/93

NOTE: TCLP TPH analysis was performed on the semi-volatile extraction fluid.

Lab No.	Sample Identification
M3-06-232-01	61093-1J
M3-06-232-02	61193-2J
M3-06-232-03	61293-3J
M3-06-232-04	61493-4J
M3-06-232-05	61593-5J
M3-06-232-06	61693-6J

SOUTHWESTERN LABORATORIES

JN

Reviewed By

ALLAN B. JOHNSTON

TEST RESULTS BY SAMPLE

Sample: 01A 61093-1J Collected: 06/10/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	5.9	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 02A 61193-2J Collected: 06/11/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	1.5	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 03A 61293-3J Collected: 06/12/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	1.7	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 04A 61493-4J Collected: 06/14/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	22	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

Sample: 05A 61593-5J Collected: 06/15/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	12	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

TEST RESULTS BY SAMPLE

Sample: 06A 61693-6J Collected: 06/16/93

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
TCLP PREP.	SW-846, 1311	06/22/93	Date		06/22/93	SLS
TCLP TPH	EPA 418.1	12	mg/L	0.50	06/22/93	SLS
ZERO HEADSPACE EXTRACTION	SW846 1311	06/22/93	Date		06/22/93	LWD

TEST RESULTS BY SAMPLE

Sample Description: 61093-1J
Test Description: TCLP BTEX
Collected: 06/10/93

Lab No: 01A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	< 0.004
TOLUENE	0.019
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

TEST RESULTS BY SAMPLE

Sample Description: 61093-1J
Test Description: TCLP TPH
Collected: 06/10/93

Lab No: 01A
Method: EPA 418.1 Test Code: TPH_T

Parameter	Results	Detection Limit	Units	Date Started	Analyst
TOTAL PETROLEUM HYDROCARBONS	118	5	mg/kg	06/22/93	SLS

TEST RESULTS BY SAMPLE

Sample Description: 61193-2J
Test Description: TCLP BTEX
Collected: 06/11/93

Lab No: 02A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	0.011
TOLUENE	0.17
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

TEST RESULTS BY SAMPLE

Sample Description: 61193-2J
Test Description: TCLP TPH
Collected: 06/11/93

Lab No: 02A
Method: EPA 418.1 Test Code: TPH_T

Parameter	Results	Detection Limit	Units	Date Started	Analyst
TOTAL PETROLEUM HYDROCARBONS	31	5	mg/kg	06/22/93	SLS

TEST RESULTS BY SAMPLE

Sample Description: 61293-3J
Test Description: TCLP BTEX
Collected: 06/12/93

Lab No: 03A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	0.008
TOLUENE	0.029
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

TEST RESULTS BY SAMPLE

Sample Description: 61293-3J
Test Description: TCLP TPH
Collected: 06/12/93

Lab No: 03A
Method: EPA 418.1 Test Code: TPH_T

Parameter	Results	Detection Limit	Units	Date Started	Analyst
TOTAL PETROLEUM HYDROCARBONS	34	5	mg/kg	06/22/93	SLS

Order # M3-06-232
07/06/93 11:18
Client: REGS

TEST RESULTS BY SAMPLE

Sample Description: 61493-4J
Test Description: TCLP BTEX
Collected: 06/14/93

Lab No: 04A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	< 0.004
TOLUENE	0.10
ETHYLBENZENE	0.011
XYLENE	0.051

TEST RESULTS BY SAMPLE

Sample Description: 61493-4J
Test Description: TCLP TPH
Collected: 06/14/93

Lab No: 04A
Method: EPA 418.1 Test Code: TPH_T

Parameter	Results	Detection Limit	Units	Date Started	Analyst
TOTAL PETROLEUM HYDROCARBONS	443	5	mg/kg	06/22/93	SLS

TEST RESULTS BY SAMPLE

Sample Description: 61593-5J
Test Description: TCLP BTEX
Collected: 06/15/93

Lab No: 05A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	0.005
TOLUENE	0.020
ETHYLBENZENE	< 0.004
XYLENE	< 0.004

TEST RESULTS BY SAMPLE

Sample Description: 61593-5J
Test Description: TCLP TPH
Collected: 06/15/93

Lab No: 05A
Method: EPA 418.1 Test Code: TPH_T

Parameter	Results	Detection Limit	Units	Date Started	Analyst
TOTAL PETROLEUM HYDROCARBONS	234	5	mg/kg	06/22/93	SLS

Order # M3-06-232
07/06/93 11:18
Client: REGS

TEST RESULTS BY SAMPLE

Sample Description: 61693-6J
Test Description: TCLP TPH
Collected: 06/16/93

Lab No: 06A
Method: EPA 418.1 Test Code: TPH_T

Parameter	Results	Detection Limit	Units	Date Started	Analyst
TOTAL PETROLEUM HYDROCARBONS	232	5	mg/kg	06/22/93	SLS

TEST RESULTS BY SAMPLE

Sample Description: 61693-6J
Test Description: TCLP BTEX
Collected: 06/16/93

Lab No: 06A
Method: SW-846, 8020 Test Code: BTX_TC

Date Started	06/22/93	Analyst	LWD
Detection Limit	0.004	Units	mg/L
Method	SW-846, 8020		

Compound	Results
BENZENE	0.014
TOLUENE	0.13
ETHYLBENZENE	0.007
XYLENE	0.033

SwL

SOUTHWESTERN LABORATORIES, INC.

QA/QC Statement
Midland EAS

Test Parameter	Lead	Method of Analysis	SM 3500-Pb, D
Analyst	G. Bunch	Matrix	Water
Date Received	Jun 16, 1993	Date of Analysis	Jun 22, 1993
Blank Concentration	< 0.01	Percent Recovery of Known	103
Percent Recovery (spike)	102	Percent Deviation (duplicate)	0
Lab spike number	M3-06-159-07	Lab dup. number	M3-06-159-08

Applicable Lab Numbers: M3-06-125-01, M3-06-159-(07 thru 08)

Notes:

Reviewed by:

SwL

SOUTHWESTERN LABORATORIES, INC.

QA/QC Statement

Midland EAS

Date Received: Jun 16, 1993
TPH Analyst: S. Stovall
Sample Matrix: Water
BTEX Analyst: L. Duty

Test Parameter	Date of Analysis	Percent Recovery (spike)	Percent Deviation (duplicate)	Blank Concentration (mg/L)	Percent of Known	Method of Analysis
Benzene	Jun 21, 1993	104	0	< 0.004	96	EPA 602
Toluene	Jun 21, 1993	108	0	< 0.004	95	EPA 602
Ethylbenzene	Jun 21, 1993	107	0	< 0.004	98	EPA 602
m,p-Xylenes	Jun 21, 1993	107	0	< 0.004	95	EPA 602
o-Xylene	Jun 21, 1993	108	0	< 0.004	96	EPA 602
Total Petroleum Hydrocarbons	Jun 21, 1993	80	5.9	< 0.50	91	EPA 418.1

Applicable BTEX Lab Numbers: M3-06-159-(01 thru 08), M3-06-165-01

Applicable TPH Lab Numbers: M3-06-159-(01 thru 08)

Lab spike no. (BTEX): M3-06-159-01
Lab dup. no. (BTEX): M3-06-159-01

Lab spike no. (TPH): Blank
Lab dup. no. (TPH): M3-06-159-06

Notes:

Reviewed by: