State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Risk - Vertical extent

RECEIVED
SEP 23 1999
OIL CON. DIV.
DIST. 3

PIT REMEDIATION AND CLOSURE REPORT

Operator: Phillips Petroleum (Williams Field Services) **Telephone:** (801) 584-6361

Address: P.O. Box 58900, Salt Lake City, Utah 84158-0900

WellName: SJ 29-6 UNIT #45A (86949)

Location: Unit or Qtr/Qtr Sec I Sec 27 T 29N R 6W County Rio Arriba

PitType: Dehydrator

LandType: Fee

Pit Location: Pit dimensions: length 16 ft., width 14 ft., depth 7 ft.
(Attach diagram)

Reference: Wellhead

Footage from reference: 60 ft.

Direction from reference: 0 Degrees North

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet	(20 points)	
	50 feet to 99 feet	(10 points)	
	Greater than 100 feet	(0 points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes	(20 points)	
	No	(0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet	(20 points)	
	200 feet to 1,000 feet	(10	20

Ranking Score (TOTAL POINTS): 40

Form A

(86949)

Date Remediation Started: 11/13/96 Date Completed: 12/21/96

Remediation Method: (check all appropriate sections)
Excavation ☑ Approx. Cubic Yard 70
Landfarmed ☑ Insitu Bioremediation ☐
Other Stockpiled soil after mechanical aeration.

Remediation Location: (ie. landfarmed onsite, name and location of offsite facility)
Onsite ☑ Offsite

General Description Of Remedial Action:

The pit was excavated to remove gross petroleum contamination. The excavated material was mechanically aerated and placed into an onsite landfarm. Returned to site 4/6/99 and utilized hydraulic probe to collect sample at 21-23'. TPH: 257 BTEX: 36.6

Ground Water Encountered: No

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location SJ 29-6 #45A-V-EX-01

A composite sample, made up of 4 points from each excavation face, was collected..

Sample depth Up to 7 feet.

Sample date 11/16/96 Sample time 8:00

Sample Result

Benzene (ppm) <0.77

Total BTEX (ppm) 68.3

Field Headspace (ppm)

TPH (ppm) 165

Ground Water Sample: No

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 9-20-99

SIGNATURE M Harvey FOR WFS

PRINTED NAME AND TITLE MARK HARVEY PROJECT COORDINATOR

Form B

Environmental Services
P.O. Box 58900
Salt Lake City, UT 84158-0900

Pit Closure and Retirement Addendum- Risk Assessment

The sample analyzed for confirmation at this site exhibited slightly elevated levels of xylene. Xylene toxicity information indicates that such low levels (<200 ppm) pose very low risk to human health and the environment. This conclusion is based in part on the information below:

Toxicity Information

Xylene is a colorless liquid with a strong, sweetish aromatic odor. Studies have indicated that it is neither a carcinogen or mutagen. Bio-accumulation of xylene is limited due to the fact that it is rapidly metabolized and eliminated from the body in urine within a few hours. Rats and dogs exposed to xylene vapor for 13 weeks at 180 - 810 ppm showed no adverse effects related to dose or treatment. (1)

Environmental Effects

Xylene released to soil will volatilize and leach into the ground where it will degrade 70% under aerobic conditions in approximately 10 days or under anaerobic (six months before degradation starts) denitrifying conditions.(2) If released to surface water, the half life of xylene is approximately 1-5 days with the main attenuation process being volatilization.

When released to the atmosphere, xylene may degrade by reactions with hydroxyl radicals which are produced photochemically. As a result of this reaction, xylene has been determined to have a half life of 1.5 hours in summer and 15 hours in winter.(2)

EPA's Office of Air Quality Planning and Standards, has evaluated mixed xylenes for chronic toxicity in order to determine a hazard ranking under Section 112(g) of the Clean Air Act Amendments and assigned a composite score of 8. The scores are based on the minimal effect-dose and a rating on the type of effect. Scores range from 1 to 100, with 100 representing the most toxic. (3)

Based on an evaluation of topography, this site is believed to have ground water greater than 75' below ground surface. Due to the immobility of xylene through soil and a lack of continuous transporting mechanisms, it is very likely that the residual xylene remaining in the pit will degrade in the short term under existing conditions, or certainly during the life of the producing well. Granular fertilizer has been added to the soil in order to facilitate further degradation. Observations and data collected from other sites suggests that the concentration of xylene would diminish vertically and likely be less than 10 ppm within the next 1-5 feet of soil depth.

Since there are no nearby receptors or domestic water sources, this site poses little risk to human health and the environment. Closure is justified based on the relatively low total petroleum hydrocarbon (TPH) concentration and the fact that benzene, toluene, and ethylbenzene meet applicable closure criteria.

(1) Canadian Department of Occupational Health and Database, CCINFO Xylene 1991.

(2) *Handbook of Environmental Fate and Exposure Data for Organic Chemicals*, Vol 1, Large Production and Priority Pollutants, Philip H. Howard. Lewis Pub. 1989.

(3) USEPA. *Technical Background Document to Support Rulemaking Pursuant to the Clean air Act Section 112(g). Ranking of Pollutants with Respect to Hazard to Human Health.* EPAB450/3-92-010. Emissions Standards Division, Office of Air Quality Planning and Standards, Research Triangle Park, NC. 1994.

86949 X

PIT RETIREMENT FORM

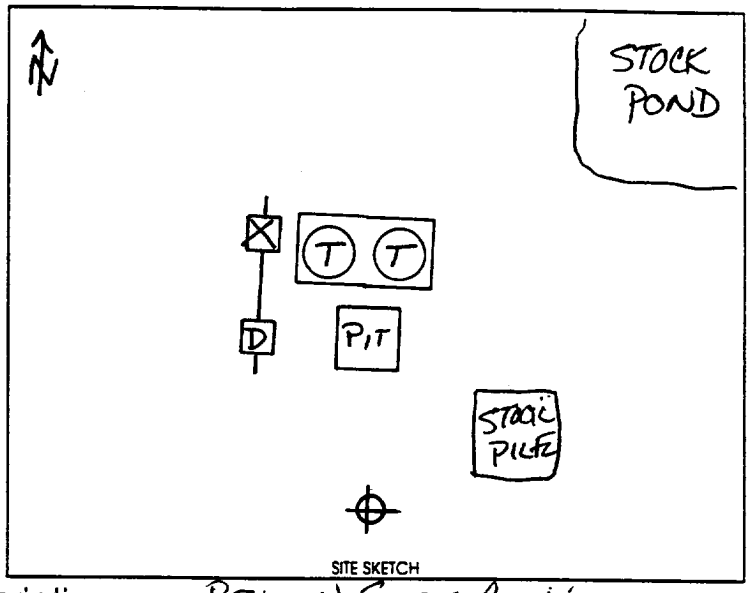
Date: 11-13-96 Weather 50° SUNNY

Well Name SJ 29-6 #45A Operator PHILLIPS PETROLEUM Sec 27 T29N R 6W UL 1650 FSL 990 FEL

Land Type: BLM STATE (FEE) INDIAN County RIO ARRIBA

One Call Made (505-765-1234)? (Y) N

Line Marking Evident? (Y) N



Pit Location:

Reference Wellhead X Other

Distance from: 60'

Direction: 0° Degrees E N X of W S

Starting Pit Dimensions 10' x 10' x 2'

Final Pit Dimensions 16' x 14' x 7'

Organic Vapor Readings: Start

@ 2'

@ 4'

@ 6'

@ 8'

@

@

Soil Description: BROWN SILTY CLAY

DARK BROWN CLAY

" " "

" " "

Well Proximity To: Residence, Domestic Water Well, Stock Well STOCK TANK ~ 150 feet

Arroyo, Wash, Lake, Stream STOCK POND 250' NE OF PIT

Estimated or Known Distance to Ground Water

Source of Backfill (if other than processed material

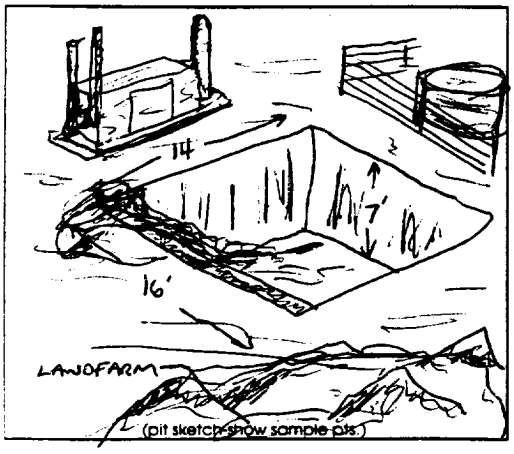
Samples collected: Type

Progress: Verification: ID SJ 29-6 #45A-V-EX-01 (soil) / water

Progress: Verification: ID SJ 29-6 #45A-V-LF-02 (soil) / water

Progress: Verification: ID soil / water

Sample sent to Lab Via: Courier Hand Carried Other Preservative: (ICE) Other



Comments: SET UP & MIX SOIL — SOIL VERY MOIST NEAR SURFACE — HIGH CLAY & MOISTURE CONTENT SLOWS SHREDDING — SHALLOW STOCK POND NE OF LOCATION — DOWNGRADIENT BERM FORMED BY SITE ACCESS ROAD — THIS LOCATION ~ 250 YDS OFF HWY 64 — COULD NOT EXCAVATE FURTHER ON TWO SIDES DUE TO DEBRIS & FENCING —

Soil Shipped to:

Prepared by:

ANAITAS ENVIRONMENTAL LABS

Organic Analysis - Pit Closure

Williams Field Services

Project ID:	OCD Pits	Report Date:	11/22/96
Sample ID:	SJ 29-6 #45A-V-EX-01	Date Sampled:	11/16/96
Lab ID:	5684	Date Received:	11/18/96
Sample Matrix:	Soil	Date Extracted:	11/19/96
Preservative:	Cool	Date Analyzed:	11/20/96
Condition:	Intact		

Target Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Aromatic Hydrocarbons	**68.3**	
Benzene	ND	0.77
Toluene	7.57	0.77
Ethylbenzene	3.01	0.77
m,p-Xylenes	45.4	1.54
o-Xylene	12.3	0.77
Total Recoverable Petroleum Hydrocarbons	**165**	**24.2**

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Trifluorotoluene	87	81 - 117%
	Bromofluorobenzene	120	74 - 121%

Reference: Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Final Update I, July, 1992.

Method 3550 - Sonication Extraction; Test Methods for Evaluating Solid Waste, SW-846, United States Environmental Protection Agency, September, 1986; Method 418.1 - Petroleum Hydrocarbons, Total Recoverable; Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Comments:

Review

ANAITAS ENVIRONMENTAL LABS

Organic Analysis - Pit Closure

Williams Field Services

Project ID:	OCD Pits	Report Date:	12/18/96
Sample ID:	SJ 29-6 #45A V-LF-02	Date Sampled:	12/16/96
Lab ID:	5980	Date Received:	12/16/96
Sample Matrix:	Soil	Date Extracted:	12/17/96
Preservative:	Cool	Date Analyzed:	12/17/96
Condition:	Intact		

Target Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Aromatic Hydrocarbons	**5.51**	
Benzene	ND	0.77
Toluene	ND	0.77
Ethylbenzene	ND	0.77
m,p-Xylenes	4.70	1.53
o-Xylene	0.82	0.77
Total Recoverable Petroleum Hydrocarbons	**ND**	**25.2**

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Trifluorotoluene	101	81 - 117%
	Bromofluorobenzene	100	74 - 121%

Reference: Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Final Update I, July, 1992.

Method 3550 - Sonication Extraction; Test Methods for Evaluating Solid Waste, SW-846, United States Environmental Protection Agency, September, 1986; Method 418.1 - Petroleum Hydrocarbons, Total Recoverable; Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Comments:

Review

Q W A L L A B O R A T O R I E S, I N C.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT: **REFERENCE #:** 9904322

SENT TO: *WILLIAMS FIELD SERVICE*
295 CHIPETA WAY
SALT LAKE CITY, UTAH 84158
MARK HARVEY
PROJECT: NM PITS

DATE REPORTED: 04/19/99
DATE COLLECTED: 04/06/99
DATE RECEIVED: 04/09/99

Reference Fraction:9904322-12A
Sample ID: SJ29-6 #45A @21-23/86949
Sample Date Collected: 04/06/9914:00:00
Sample Matrix: SOIL

TEST	METHOD	RESULT	UNITS	DL	ANALYZED	BY
TPH	SW846-8015	257	MG/KG	20	04/19/99	KKL
BTEX	SW846 8021			3.0		
BENZENE		ND	MG/KG	0.050	04/16/99	JDH
TOLUENE		6.73	MG/KG	0.050	04/16/99	JDH
ETHYLBENZENE		ND	MG/KG	0.050	04/16/99	JDH
TOTAL XYLENES		29.9	MG/KG	0.050	04/16/99	JDH
BFB (SURROGATE)		96	125	75		

ND=NONE DETECTED
DL=DETECTION LIMIT
SU=STANDARD UNITS
B=DETECTED IN METHOD BLANK

APPROVED BY: _____
TERRY KOESTER
LABORATORY DIRECTOR

PROBE SAMPLE