Denny G. Foust
DEPUTY OIL & GAS INSPECTOR

MAY 04 1998

State of New Mexico
Energy, Minerals and Natural Resources Department

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

OK

# PIT REMEDIATION AND CLOSURE REPORT

Approved

**Operator:** Burlington Resources (Williams Field Services) **Telephone:** (801) 584-6361

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

**WellName:** SJ 27-5 UNIT #84 NP ( 73525 )

**Location:** Unit or Qtr/Qtr Sec N Sec 3 T 27N R 5W County Rio Arriba

**PitType:** Dehydrator

**LandType:** BLM

**Pit Location:** Pit dimensions: length 30 ft., width 27 ft., depth 8 ft.
(Attach diagram)

Reference: Wellhead

Footage from reference: 91 ft.

Direction from reference: 63 Degrees West of South

| | | | |
|---|---|---|---|
| **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) | 0 |
| **Wellhead Protection Area:** (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources) | Yes | (20 points) | |
| | No | (0 points) | 0 |
| **Distance To Surface Water:** (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches) | Less than 200 feet | (20 points) | |
| | 200 feet to 1,000 feet | (10 | 0 |
| **Ranking Score (TOTAL POINTS):** | | | 0 |

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Form A

**Date Remediation Started:** 11/25/96 **Date Completed:** 12/21/96

Excavation ☑ Approx. Cubic Yard 240

Landfarmed ☑ Insitu Bioremediation ☐

Other Stockpiled soil after mechanical aeration.

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

**General Description Of Remedial Action:**

The pit was excavated to remove gross petroleum contamination. The excavated material was mechanically aerated, mixed with fertilizer, and placed into an onsite stockpile. After remediation goals were confirmed, the soil was returned to the excavation.

**Ground Water Encountered:** No

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

Sample location SJ 27-5 #84 V-EX-01

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

Sample depth Up to 8 feet.

Sample date 12/4/96 Sample time 13:40

Sample Result

Benzene (ppm) 0.43

Total BTEX (ppm) 155

Field Headspace (ppm

TPH (ppm) 773

**Ground Water Sample:** No

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

DATE 3/20/97

SIGNATURE MH FOR WFS PRINTED NAME MARK HARVEY AND TITLE PROJECT COORDINATOR

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.

1552'S

# PIT RETIREMENT FORM

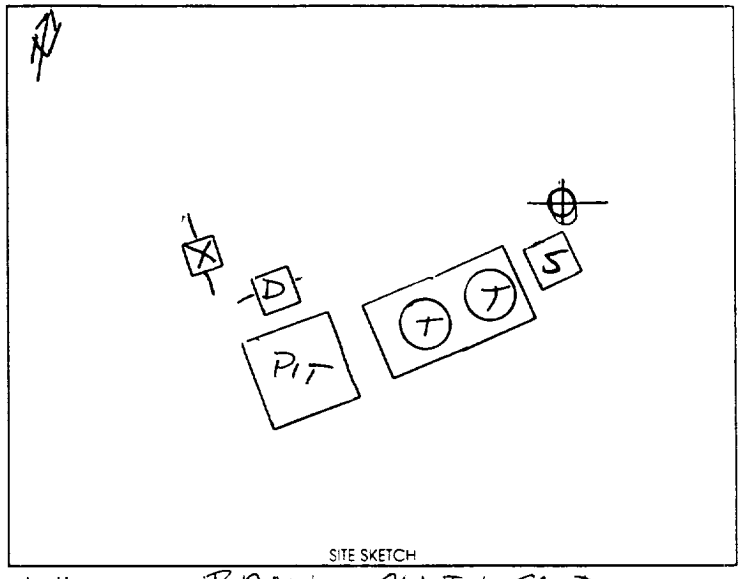
Date: 11-25-96 Weather _____

Well Name SJ 27-5 #84 Operator BURLINGTON RESOURCES Sec 3 T 27N R 5W UL 790'S 1825'W

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

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

Line Marking Evident? (Y) N



SITE SKETCH

**Pit Location:**

Reference Wellhead X Other _____

Distance from: 9 feet

Direction: 63° Degrees ____ E N ____ of X W S X

Starting Pit Dimensions 19' x 19' x 3'

Final Pit Dimensions 30' x 27' x 8'

**Organic Vapor Readings:** Start _____ Soil Description: BROWN SILTY SAND

@ 2' _____ BROWN SANDY SILT

@ 4' _____ " "

@ 6' _____ " "

@ 8' _____ BEDROCK " "

@ _____

@ _____

Well Proximity To: Residence, Domestic Water Well, Stock Well NONE

Arroyo, Wash, Lake, Stream NONE

Estimated or Known Distance to Ground Water >100 feet

Source of Backfill (if other than processed material _____

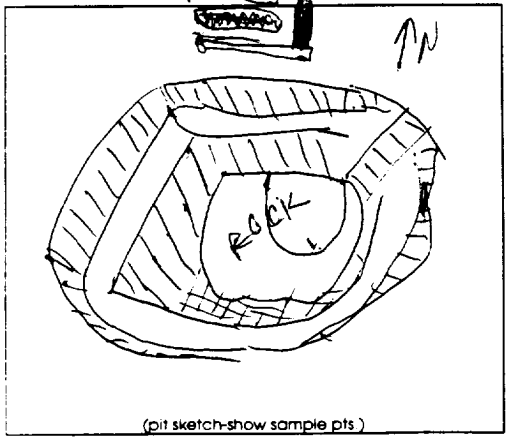
**Samples collected:** Type

Progress: Verification: ID SJ27-5 #84 V-EX-01 (soil) / water

Progress: Verification: ID SJ27-5 #84 V-EF-02 (soil) / water

Progress: Verification: ID _____ soil / water

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



(pit sketch-show sample pts)

Comments: SET UP, EXCAVATE, SHRED MATERIAL, AND ADD FERTILIZER. STOCKPILED MATERIAL ONSITE. ROCK WAS ENCOUNTERED. AFTER REMEDIATION CONFIRMED, STOCKPILED MATERIAL WAS USED TO BACKFILL EXCAVATION.

Soil Shipped to: _____

Prepared by: M. S. Harris

ANAITAS ENVIRONMENTAL LABS

# Organic Analysis - Pit Closure

## Williams Field Services

| | | | |
|---|---|---|---|
| Project ID: | OCD Pits | Report Date: | 12/09/96 |
| Sample ID: | SJ 27-5 #84 V-EX-01 | Date Sampled: | 12/04/96 |
| Lab ID: | 5841 | Date Received: | 12/04/96 |
| Sample Matrix: | Soil | Date Extracted: | 12/05/96 |
| Preservative: | Cool | Date Analyzed: | 12/5-7/96 |
| Condition: | Intact | | |

| Target Analyte | Concentration (mg/kg) | Detection Limit (mg/kg) |
|---|---|---|
| **Total Aromatic Hydrocarbons** | **155** | |
| Benzene | 0.43 | 0.31 |
| Toluene | 22.7 | 3.09 |
| Ethylbenzene | 6.07 | 0.31 |
| m,p-Xylenes | 103 | 6.17 |
| o-Xylene | 23.3 | 3.09 |
| **Total Recoverable Petroleum Hydrocarbons** | **773** | **281** |

| **Quality Control:** | Surrogate | Percent Recovery | Acceptance Limits |
|---|---|---|---|
| | Trifluorotoluene | 87 | 81 - 117% |
| | Bromofluorobenzene | 94 | 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

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# Organic Analysis - Pit Closure

**Williams Field Services**

| | | | |
|---|---|---|---|
| Project ID: | OCD Pits | Report Date: | 12/18/96 |
| Sample ID: | SJ 27-5 #84 V-LF-02 | Date Sampled: | 12/16/96 |
| Lab ID: | 5981 | 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** | | **54.1** | |
| | Benzene | ND | 0.74 |
| | Toluene | 4.50 | 0.74 |
| | Ethylbenzene | 1.42 | 0.74 |
| | m,p-Xylenes | 38.1 | 1.48 |
| | o-Xylene | 10.1 | 0.74 |
| **Total Recoverable Petroleum Hydrocarbons** | | **1,010** | **54.6** |

| **Quality Control:** | Surrogate | Percent Recovery | Acceptance Limits |
|---|---|---|---|
| | Trifluorotoluene | 104 | 81 - 117% |
| | Bromofluorobenzene | 102 | 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:**

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