

Date Remediation Started: _____ Date Completed: 4-21-95

Remediation Method: Excavation X Approx. cubic yards 600
(Check all appropriate sections) Landfarmed X Insitu Bioremediation _____

Other _____

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

General Description Of Remedial Action: _____

Excavation

Ground Water Encountered: No X Yes _____ Depth _____

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

Sample location see Attached Documents

Sample depth 13'

Sample date 4-21-95 Sample time _____

Sample Results

Benzene(ppm) ND

Total BTEX(ppm) ND

Field headspace(ppm) 365

TPH 16 ppm

Ground Water Sample: Yes _____ No X (If yes, attach sample results)

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

DATE 5-2-95

SIGNATURE B. Shaw

PRINTED NAME
AND TITLE

Buddy D. Shaw
Environmental Coordinator

4-21-95

BLAGG ENGINEERING, INC.

P.O. Box 87, Bloomfield, New Mexico 87413

Phone: (505)632-1199 Fax: (505)632-3903

**FIELD MODIFIED EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS**

Client: Amoco
Sample ID: CB @ 13'
Project Location: Gallegos 008
Laboratory Number: TPH-1470

Project #:
Date Analyzed: 4-21-95
Date Reported: 4-24-95
Sample Matrix: Soil

Parameter -----	Result, mg/kg -----	Detection Limit, mg/kg -----
Total Recoverable Petroleum Hydrocarbons	16	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg -----	Duplicate TPH mg/kg -----	% *Diff. -----
	3,000	3,182	6

*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit - B0265

R. E. O'Neil
Analyst

Review

BLAGG ENGINEERING, INC.

P.O. Box 87, Bloomfield, New Mexico 87413

Phone: (505)632-1199 Fax: (505)632-3903

**FIELD MODIFIED EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS**

Client: Amoco
Sample ID: WS @ 8'
Project Location: Gallegos 008
Laboratory Number: TPH-1469

Project #:
Date Analyzed: 4-21-95
Date Reported: 4-24-95
Sample Matrix: Soil

Parameter -----	Result, mg/kg -----	Detection Limit, mg/kg -----
Total Recoverable Petroleum Hydrocarbons	34	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg -----	Duplicate TPH mg/kg -----	% *Diff. -----
	3,000	3,182	6

*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit - B0265

R. E. O'Neil
Analyst

Review

VOLATILE AROMATIC HYDROCARBONS

Blagg Engineering, Inc.

Project ID: Gallegos 008
Sample ID: WS @ 8' Sep. Pit
Lab ID: 890
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 04/25/95
Date Sampled: 04/21/95
Date Received: 04/21/95
Date Extracted: 04/21/95
Date Analyzed: 04/24/95

Target Analyte	Concentration (ug/kg)	Detection Limit (ug/kg)
Benzene	ND	25.1
Toluene	ND	25.1
Ethylbenzene	ND	25.1
m,p-Xylenes	ND	50.2
o-Xylene	ND	25.1

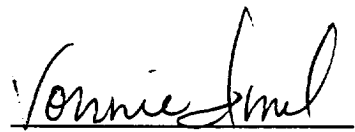
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	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.

Comments:


Analyst


Review

Well Name:**Well Site location:****Pit Type:****Producing Formation:****Pit Category:****Horizontal Distance to Surface Water:****Vicinity Groundwater Depth:****Gallegos #8**

Unit M, Sec. 34, T26N, R11W

Separator Pit

Basin Dakota

Vulnerable Area

> 1000 ft.

< 50 ft.

RISK ASSESSMENT

Pit remediation activities were terminated when trackhoe encountered sandstone bedrock at 13 feet below grade.

No past or future threat to surface water or groundwater is likely based on the following considerations:

1. Past production fluids were contained locally by a relatively shallow sandstone bedrock located 13 feet below grade. Groundwater levels located on or close to the well pad are estimated to be at a much greater depth below sandstone bedrock.
2. Topographic information does not indicate off site lateral fluid migration near the earthen pit.
3. Daily discharge into the earthen pit has been terminated (double sidewall steel tank installed). Prior discharge into the pit is believed to be under 5 barrels per day.
4. Field headspace readings (OVM/PID) on Basin Dakota type locations do not reflect direct correlation to total BTEX per USEPA Method 8020 concentrations. Listed below are several typical AMOCO Basin Dakota pit soil analyses comparing headspace to Benzene and total BTEX results.

LOCATION	HEADSPACE (ppm)	BENZENE (ppm)	TOTAL BTEX (ppm)
Frost, Jack B 1E	1100	0.011	5.889
Berger A1	482	0.084	0.681
Mudge Com B 1E	684	0.017	16.438
L.C. Kelly #5	1235	0.643	13.908

The comparisons listed above demonstrates that headspace testing is not an accurate measurement to Benzene or total BTEX concentrations when above standards for Basin Dakota type pits.

Based upon the information given, we conclude that the subsurface lateral impact from the earthen pit is very limited and that the sandstone bottom creates enough of a permeable barrier as to subdue impact to groundwater below it (please refer to AMOCO's report "Post Excavation Pit Closure Investigation Summary, July, 1995", with cover letter dated November 30, 1995). AMOCO requests pit closure approval on this location.