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REPORTS

DATE:

May 9, 1996

TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

May 9, 1996

Mr. Ray Smith
New Mexico Oil
Conservation Division
811 S. First St.
Artesia, NM 88210

Re: Remediation Plan - Navajo Truck Accident Site
N. 13th and Highway 285 - Artesia

Dear Mr. Smith:

Enclosed you should find two (2) copies of Navajo's proposed Remediation Plan for the truck accident site north of Artesia. You will notice that the proposed remediation plan differs from our previous discussions. This came about from conversations with Bill Olson in Santa Fe.

Navajo has a quote for installing the ventilation wells from Pool Environmental Drilling, so we are standing by, ready to do the job once you have approved the plan. If you have any questions or need further information please call me at 505-748-3311.

Sincerely,

David G. Griffin
Manager of Environmental
Affairs for Water & Waste

DGG/te

encl.

cc: EEC, PLY

Mr. Bill Olson
NMOCD, Santa Fe

REMEDIATION PLAN FOR
NAVAJO TRUCK ACCIDENT SITE

On March 12, 1996, one of Navajo Refining Company's crude oil transport trucks was involved in a traffic accident at the intersection of 13th Street and Highway 285 approximately 3 miles north of the City of Artesia. As a result of the accident, the tanker trailer was ruptured spilling natural gas well condensate (66° API Crude Oil) in the bar ditch of the North West corner of the intersection. The area impacted extended from the intersection 56 feet north along 13th Street, covering an area of approximately 700 ft^2.

An investigation of the vertical extent of the contamination was conducted on April 3, 1996 using a backhoe to retrieve samples at various depths from the area worst impacted by the spill. Samples were screened on site by Mr. Ray Smith of NMOCD using an organic vapor detection meter. Samples were collected down to the extent of the backhoe's reach, 13.5 ft. The readings decreased with depth, but were still readily detectable at maximum depth. In addition to the deep sample location, a second sample hole was dug near the north end of the impacted area. This location did not exhibit anywhere near the contamination seen in the first location and the digging was halted at 6 ft. The results of field measurements can be found in Appendix A.

Four (4) samples were selected from the group being screened and were shipped to Trace Analysis, Inc. Laboratory in Lubbock, Texas. Trace analyzed the samples for TPH and BTEX (see Table 1). The four selected samples consisted of Sample 1-A, which was the most contaminated sample based on the screening, Sample 1-J, which was the deepest sample, Sample 2-A from the second sample hole, and a sample of the surface soil from the spill site

excavated the day of the spill. This saturated surface soil had been excavated and spread out in an area adjacent to, but safely removed from the spill site. Spreading out the soil allowed for volatilization of the light hydrocarbons and aeration of the soil to enhance natural biodegradation.

TABLE I* All units mg/kg

Sample	TPH	Benzene	Toluene	Ethylbenzene	Xybnes	Total BTEX
1-A (Worst Case)	5,960.0	<1.0	9.9	3.5	66.7	80.2
1-J (Bottom Sample)	2,260.0	<1.0	4.4	1.5	24.9	30.8
2-A	336.0	<1.0	<1.0	<1.0	2.1	2.1
Aerated Surface	12,300.0	<1.0	20.2	5.5	106.0	131.7

* Laboratory Analytical Report is Appendix B

Navajo believes that no significant environmental risk would result from taking no remediation steps beyond what has already been done. Navajo bases this opinion on the location, the nature of the spilled material, and the depth to usable groundwater in the area (≈ 200 ft). Natural gas condensate is a water clear, very volatile mixture of hydrocarbons typically C_1 through C_{10}. The majority of hydrocarbon compounds are in the C_5, C_6, and C_7 range and are predominately alkanes (paraffins) with traces of aromatics (BTEX) present. The extremely volatile nature of this condensate (True Vapor Pressure in the range of 12 to 25 psi) has resulted in the vast majority of the material having already evaporated. This volatilization is still continuing and will until all the VOC's are gone. The location prevents any long term exposure with the typical exposure being the brief time someone would wait in their automobile stopped at the intersection or someone mowing the bar ditches or picking up trash. Since even the most contaminated sample showed < 1 ppm benzene and only 132 ppm total BTEX there appears to be no threat to groundwater 200 feet below or to surface water in the Pecos River five (5) miles away.

Discussion with Mr. Bill Olsen, NMOCD-Santa Fe, has raised a question concerning the actual depth to protectable groundwater. Some areas within five miles of the site have proven to have protectable groundwater as shallow as 25 feet. Residual hydrocarbon levels measured at the site are unacceptably high if water actually exists as shallow as 25 feet.

In light of this concern, Navajo proposes to determine if shallow groundwater exists and install a passive soil venting system to accelerate remediation of the site. Navajo will contract with an environmental drilling company to bore two holes at the site. One boring will be taken to at least 40 feet if no groundwater is encountered prior to that depth. If shallow groundwater is discovered then efforts will be made to retrieve a sample for analysis to include electrical conductivity, BTEX, and TPH. Samples from the drilling of this boring will identify the vertical extent of the contamination. The bore hole will be plugged with bentonite from its total depth to the bottom of the contaminated zone. From the bottom of the contaminated zone to within 5 feet of the surface, the boring will be completed with well screen bedded in course sand. The top 5 feet of the boring will be cement/bentonite grout sealed to prevent surface runoff from flowing down the bore.

Pipe connected to the screen will be brought up above ground level 3 to 6 feet to make sure the pipe extends above any surface runoff water that might collect at the spill site due to a storm event. The top of the pipe will be capped with a wind driven turbine ventilator. When the wind blows the ventilator will draw a slight vacuum on the screened interval thus accelerating the removal of the spilled volatile organic compounds. Considering the small impacted area, two soil vapor extraction wells should be adequate to rapidly remediate the site.

Navajo proposes to periodically (semiannually or quarterly) sample the vent pipes to determine if VOC's are still present and in what concentration. It is believed that over the next 1 to 3 years this passive soil vapor extraction system along with natural volatilization and biodegradation will remediate the spill site.

APPENDIX A
SITE INVESTIGATION
FIELD SCREENING RESULTS

1. Excavation No. 1 - Location of greatest impact

Sample ID	Depth	Analyzer Reading
1	18 inches	991 ppm
1-A	36 inches	1000 ppm
1-B	54 inches	844 ppm
1-C	65 inches	520 ppm
1-D	70 inches	373 ppm
1-E	75 inches	386 ppm
1-F	96 inches (8 ft)	208 ppm
1-G	104 inches	207 ppm
1-H	120 inches (10 ft)	204 ppm
1-I	150 inches (12.5 ft)	209 ppm
1-J	162 inches (13.5 ft)	300 ppm

2. Excavation No. 2 - 30 ft North of Excavation No. 1

Sample ID	Depth	Analyzer Reading
2-A	54 inches (4.5 ft)	400 ppm
2-B	72 inches (6 ft)	300 ppm

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

April 09, 1996
Receiving Date: 04/05/96
Sample Type: Soil
Project No: NA
Project Location: Artesia, NM

Prep Date: 04/05/96
Analysis Date: 04/05/96
Sampling Date: 04/03/96
Sample Condition: Intact & Cool
Sample Received by: SH
Project Name: Navajo

TA#	Field Code	TRPHC (ug/kg)	MTBE (ug/kg)	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYL-BENZENE (ug/kg)	M,P,O XYLENE (ug/kg)	TOTAL BTEX (ug/kg)
T50608	1-A	5,960,000	<1,000	<1,000	9,940	3,530	66,700	80,170
T50609	2-A	336,000	<1,000	<1,000	<1,000	<1,000	2,060	2,060
T50610	1-J	2,260,000	<1,000	<1,000	4,360	1,490	24,900	30,750
T50611	Aerated Surface	12,300,000	<1,000	<1,000	20,200	5,490	106,000	131,690
QC	Quality Control	98,600	104	99	100	99	199	
Reporting Limit		10,000	50	50	50	50	50	
RPD		0	27	24	23	24	23	
% Extraction Accuracy		101	118	116	119	120	120	
% Instrument Accuracy		99	104	99	100	99	100	

METHODS: EPA SW 846-8020, 5030, 3550 HIGH LEVEL; EPA 418.1.
MTBE/BTEX SPIKE: 2,500 ug/kg MTBE/BTEX. MTBE/BTEX QC: 100 ug/L MTBE/BTEX.
TRPHC SPIKE: 250,000 ug/kg TRPHC. TRPHC QC: 100,000 ug/L TRPHC.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-9-96
Date

Appendix B

TELEPHONE
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