No Further Action Report SWMUs 7, 9, 10, 11, 12, 13

August 2001

Giant Refining Company Ciniza Refinery

Revision 0.0

Volume II

Submitted to:

New Mexico Environment Department Hazardous and Radioactive Materials Bureau 2905 Rodeo Park Road, Building E Santa Fe, New Mexico 87505

Prepared by:

Ciniza Refinery Route 3, Box 7 Gallup, New Mexico 87301



SWMU No. 7, Fire Training Area

The fire training area was identified as a solid waste management unit (SWMU) and designated as 2 SWMU No. 7 during a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) 3 conducted at the Giant Refining Company - Ciniza Refinery (Ciniza) in the early 1990s. This 4 investigation included soil sampling and analysis, which indicated the presence of hydrocarbon 5 contaminants above State of New Mexico corrective action levels. As a result of the investigation, 6 Applied Earth Services (AES) recommended in-situ bioremediation for this SWMU. Results and 7 recommendations were reported to the U.S. Environmental Protection Agency (EPA) in 1992. In 1994, 8 the EPA requested additional sampling at greater depth. Follow-up sampling and analysis demonstrated 9 that hydrocarbon contaminants were confined to near-surface soils adjacent to a fire-training tank. 10

SWMU No. 7 was recommended for corrective action in the Phase III RFI and a voluntary corrective action plan (VCAP) was submitted in March 1993. The VCAP recommends removing the existing steel tank, aerating the soils beneath the tank to a depth of 5 feet, amending soils with fertilizer and water to increase biological degradation, and monitoring the area quarterly. When oil and grease are at or below cleanup levels, closure will be initiated. The EPA approved the VCAP January 5, 1994. After removal of contaminated soil, the fire training area was capped in 1999 in conjunction with the closure of SWMU No. 11; in 2000 a concrete pad was added.

18 7.1 Site Description and Operational History

SWMU No. 7, Fire Training Area, (Figures 7-1 through 7-7) consists of the fire training area located 19 20 adjacent to the idle process equipment storage area, approximately 700 feet north of the tank farm. It is a 21 rectangular flat site measuring approximately 50 feet wide by 80 feet long and contains a firewater 22 header, a 4-foot-high by 16-foot-diameter tank, and an industrial pump on a cement pedestal. The fire 23 training area is used two to three times a year to train Ciniza fire crews. Refinery employees are trained in 24 the proper techniques for extinguishing fires that are created in the equipment using diesel fuel. 25 Photographs of the fire training area, taken during the 1998 site inspection performed by Practical 26 Environmental Services (PES), are provided in SWMU No.6 Summary Report. In 1999 the impacted soil 27 from beneath and surrounding the tanks and other equipment was removed and transported to a holding 28 area near SWMU No. 8, the Railroad Rack Lagoon.

29 7.2 Land Use

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The contaminated soil from fire training area has been removed using methods and materials consistent with the New Mexico Environment Department (NMED) requirements and regulations as set forth in 20.4.1 New Mexico Administrative Code 9.1 Section 502. The contaminated soil was replaced with clean
 fill dirt. The fire training area continues to be used for its stated purpose. The land will continue under
 the ownership of the Ciniza refinery.

4 7.3 Investigation Activities

5 Applied Earth Sciences (AES) investigated the fire training area during the early 1990s. Soil samples 6 from within the fire training area were collected and analyzed during the initial site investigation and 7 subsequent resampling at greater depth.

8 7.3.1 Investigation #1

During the initial site investigation in 1992, AES collected samples at four locations and three depths:
surface, 3 feet, and 4.5 feet below ground surface. Diesel fuel, analyzed as oil and grease, was detected in
10 of 12 samples. Surface samples collected adjacent to the fire-training tank indicated the highest levels
of detection at approximately 3 percent.

13 7.3.2 Investigation #2

In 1994, AES conducted a second round of sampling and analysis at two locations and depths of 7 and 15 11 feet below ground surface. Oil and grease and total petroleum hydrocarbon (TPH) were not detected in 16 any of the samples. Trace di-n-butyl phthalate, a diesel constituent, was detected in two samples.

17 The State of New Mexico corrective action level for diesel fuel in soil is 100 mg/kg, measured as TPH.

- 18 7.4 Site Conceptual Model
- 19 There is no impact on the environmental fate of the land.

20 7.5 Site Assessments

21 During the week of March 23, 1998, PES performed an on-site inspection. Observations are as follows:

- The fire training area remains in active service at the refinery.
- No soil staining or distressed vegetation was present at or in the vicinity of the fire training equipment.
- Local soil in the vicinity of the fire training area is bentonitic clays and silts. Similar soil
 strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.

PES did not perform any sampling or analysis during this site inspection. The inspection was limited only
 to visual observations.

Based on this assessment, PES determined SWMU No. 7 has been characterized in accordance with current applicable state and federal regulations and that removal of impacted soil is the recommended corrective action for this site.

6 7.6 NFA Proposal

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Ciniza is proposing that no further action is required for SWMU No. 7 based on the following criterion: A
release from the SWMU to the environment has occurred, but the SWMU has been characterized and
remediated in accordance with current applicable state regulations, which adequately addressed RCRA
corrective action. Documentation, such as a closure letter, is available. (NFA Criterion 4)

11 The following is the basis for this proposal:

• Although the fire training area remains in active service as a necessary component of the refinery's safety program, the fire training equipment is relocated to a concrete curbed pad that minimizes any future release.

- Contaminated soil has been removed from the site and replaced with clean fill dir
- Soil sampling and analysis has not detected spilled diesel fuel in surface soil adjacent to the firefighting demonstration tank.

• Firefighting demonstration equipment is no longer located on bare earth.

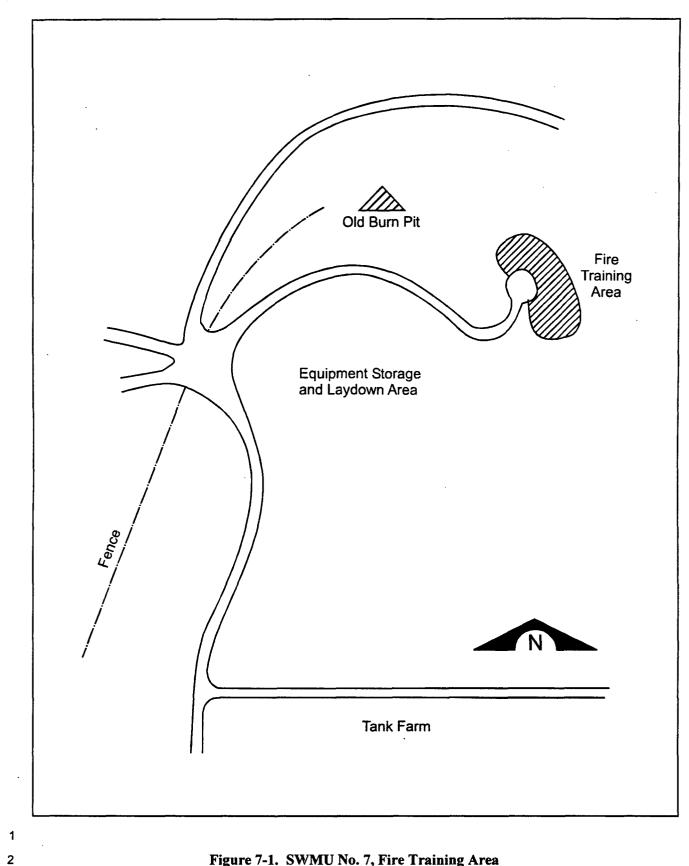


Figure 7-1. SWMU No. 7, Fire Training Area

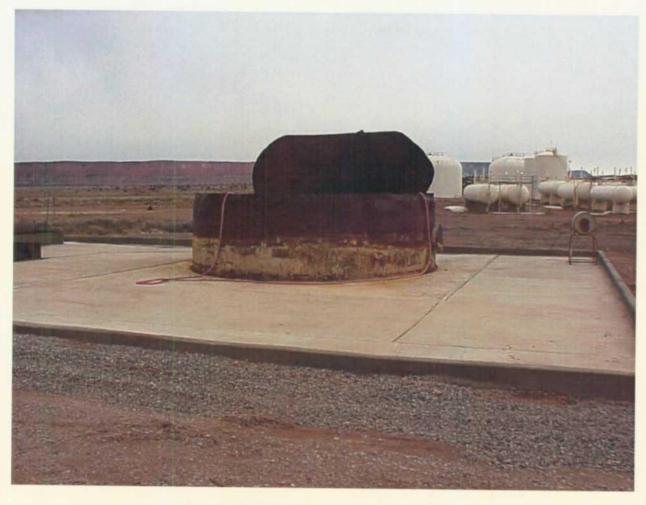


Figure 7-2. SWMU No. 7, Fire Training Area

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Ciniza Refinery NFA Report, Rev 0.0 August 2001



Figure 7-3. SWMU No. 7, Fire Training Area

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Figure 7-4. SWMU No. 7, Fire Training Area Sump

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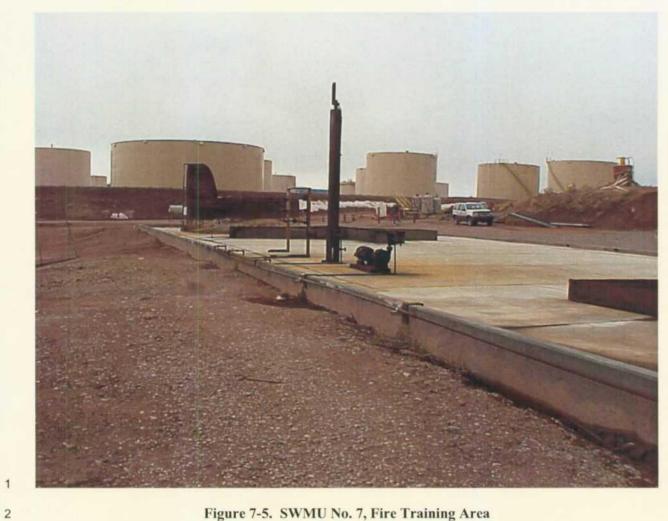


Figure 7-5. SWMU No. 7, Fire Training Area

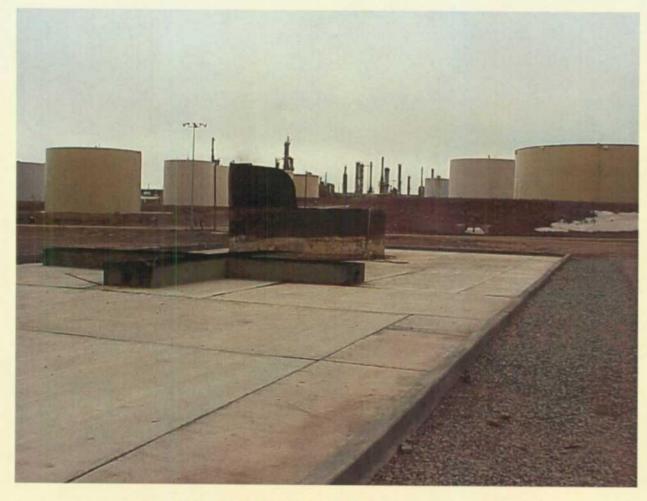


Figure 7-6. SWMU No. 7, Fire Training Area

1

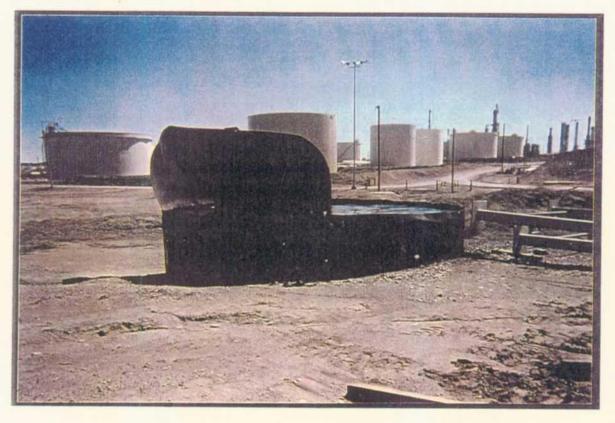


Figure 7-7. SWMU No. 7, Fire Training Area

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SWMU #7 Summary Report

Fire Training Area Ciniza Refinery McKinley County, New Mexico



Prepared for:

Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Prepared by:

Practical Environmental Services, Inc. 1444 Wazee Street, Suite 225 Denver, Colorado 80202

Job No. 98-205-03

April 23, 1998

1.0 EXECUTIVE SUMMARY

Practical Environmental Services, Inc. (PES) has been retained by Giant-Ciniza Refinery (Ciniza) to perform a visual inspection, data evaluation, and status assessment for the fire training area located at the Ciniza Refinery, in McKinley County, New Mexico.

The fire training area was identified as a Solid Waste Management Unit (SWMU), and designated as SWMU #7, during a RCRA Facility Investigation (RFI) conducted at the refinery in the early 1990's. This investigation included soil sampling and analysis, detected hydrocarbon contaminants, and recommended corrective action.

In 1994, the Environmental Protection Agency Region VI Office (EPA) requested additional sampling at greater depth. These results demonstrated that hydrocarbon contaminants were confined to near-surface soils adjacent to a tank.

This summary report for SWMU #7 has been prepared in conjunction with submittal of a Resource Conservation and Recovery Act (RCRA) Part B permit application covering post closure care of the Ciniza Refinery Land Treatment Unit. All investigative activities for SWMU #7 have been completed. This assessment is summarized as follows.

- ⇒ The fire training area remains in active service at the refinery and is used to train employees in safe firefighting techniques.
- ⇒ Soil sampling and analysis was conducted during an initial site investigation and subsequent re-investigation at greater depth. Diesel fuel was detected in surface soil at the site.
- ⇒ Contaminated soil should be removed from the site and replaced with clean fill dirt prior to closure.

2.0 BACKGROUND

During 1987, a RCRA Facility Assessment was conducted at the Ciniza Refinery. This assessment identified various "units of concern" and recommended further evaluation. A RCRA Facility Investigation was subsequently conducted and the fire training area was identified as SWMU #7.

Applied Earth Sciences (AES) investigated the fire training area during the early 1990s. Soil samples were collected and analyzed. Hydrocarbon contaminants were detected above State of New Mexico corrective action levels.

As a result of the investigation, AES recommended in-situ bioremediation for this SWMU. Results and recommendations were reported to the EPA in 1992. In 1994, the EPA requested additional sampling at greater depth. Follow-up sampling and analysis demonstrated that hydrocarbon contaminants were confined to near-surface soils adjacent to a firefighting training tank.

3.0 SITE LOCATION AND DESCRIPTION

SWMU #7 is located within the Ciniza Refinery's property boundary. This refinery is located on the north side of Interstate 40, approximately 17 miles east of Gallup, New Mexico. Within the refinery, SWMU #7 is located approximately 700 feet north of the tank farm. See Figure No. 1 for location details.

The fire training area is a rectangular flat site measuring approximately 50 feet wide by 80 feet long. Within this area, several firefighting demonstration apparatus are located; including a tank, pump, column, and piping manifold. Approximately twice a year, diesel fuel is used to create fires within this equipment and refinery employees train in proper techniques for extinguishing the fires.

4.0 SITE INSPECTION

During the week of March 23, 1998, an on-site inspection was performed. Photographs are included in the appendix to this report. Observations are noted as follows:

- The fire training area remains in active service at the refinery.
- At the time of the inspection, no soil staining or distressed vegetation was present at or in the vicinity of the fire training equipment.
- Local soil in the vicinity of the fire training area presents as bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.

5.0 DATA REVIEW

Soil samples from within the fire training area were collected and analyzed during the initial site investigation and subsequent re-sampling at greater depth.

In 1992, the initial site investigation collected samples at four locations and three depths; surface, 3 feet, and 4.5 feet below ground surface. Diesel fuel, analyzed as oil & grease, was detected in 10 of 12 samples. Surface samples collected adjacent to the tank indicated the highest levels of detection at approximately 3 percent.

In 1994, a second round of sampling and analysis was conducted at two locations and depths of 7 and 11 feet below ground surface. Oil & Grease and Total Petroleum Hydrocarbon (TPH) were not detected in any sample. Trace di-n-butyl phthalate, a diesel constituent, was detected in two samples.

The State of New Mexico corrective action level for diesel fuel in soil is 100 mg/kg; measured as TPH.

6.0 ASSESSMENT

Based on the site inspection and data review, the fire training area is assessed as follows.

- The fire training area remains in active service and is a necessary component of the refinery's safety program.
- Soil sampling and analysis has detected spilled diesel fuel in surface soil adjacent to the firefighting demonstration tank.
- Continuing releases of diesel fuel can be expected as long as firefighting demonstration equipment is located on bare earth. Relocation of this equipment to a concrete curbed pad will minimize future releases.
- Contaminated soil from beneath and surrounding the tank should be removed and replaced with clean fill dirt prior to site closure.
- 7.0 PROFESSIONAL ENGINEER'S CERTIFICATION

This summary report for SWMU #7 has been prepared under the direct supervision and control of a Registered Professional Engineer.

Client: Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

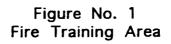
Job No.: 98-205-03

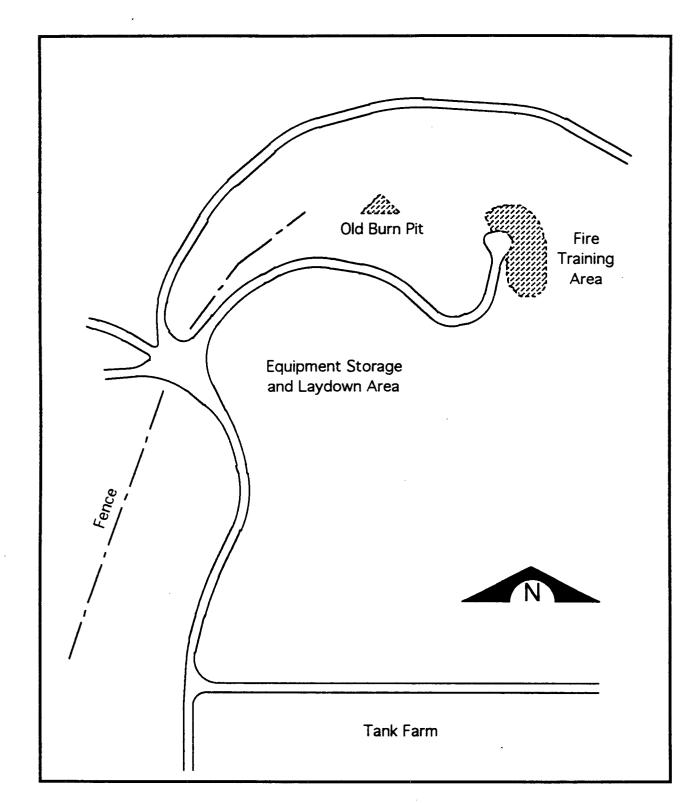
Date: April 23, 1998

Prepared and Certified by:

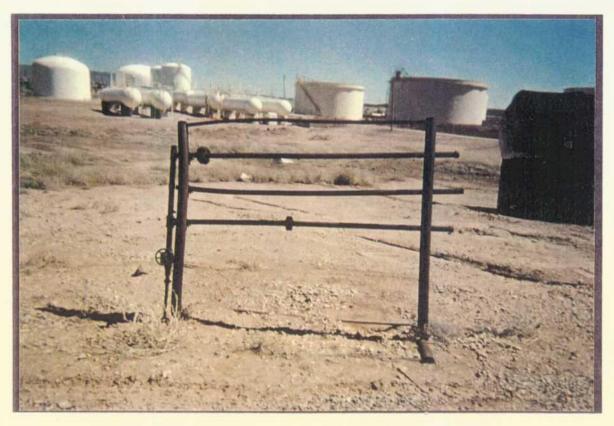


Thomas D. Atwood, P.E. Colorado Registration No. 22866





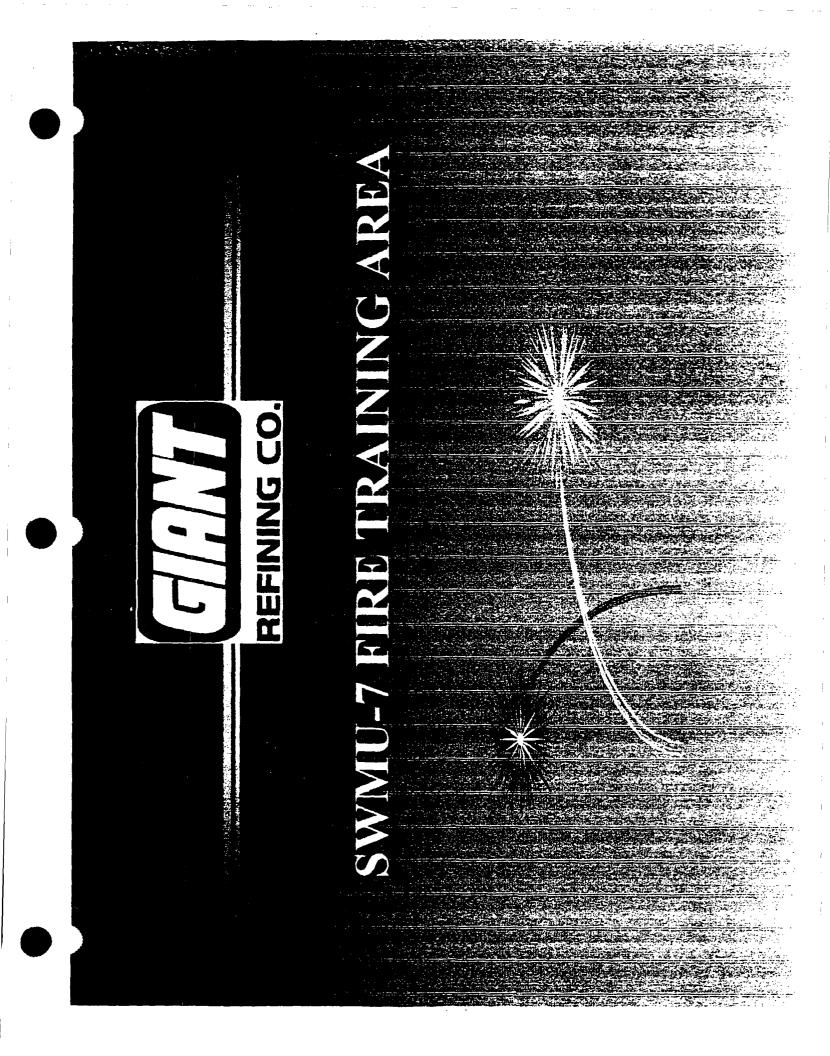
Site Inspection Photographs



Firefighting Demonstration Equipment - Piping Manifold



Firefighting Demonstration Equipment - Pump & Column



SWMU # 3 - EMPTY CONTAINER STORAGE AREA PARAMETERS - \$240 PRIORITY POLLUTANTS IZ SAMPLES

SWMU # 4- BURN PIT

PARAMETERS - PH THE SILINNER LIST ORGANICS BACK GROUND METALS

9 SAMPLES

SWMU #5- FOUR LAND FILLS PARAMETERS - 8240 PRIORITY POLLUTANTS BACKGROUND METALS PH

48 SAMPLES

SWMU #7 - FIRE TRAINING AREA PARAMETERS - TPH OIL N GREASE 12 SAMPLES

SWMU # 11 - SECONDARY OIL SKIMMER & ASSC. DITCH PARAMETERS - SKINNER LIST (CONSTITUENTS) 4 SAMPLES

S5 INDIVIDUAL SAMPLES

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UNITED S	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 6 1445 ROSS AVENUE DALLAS, TEXAS 75242-3733 MULTIMEDIA PERMITTIONG AND PLANNING DIVISION NEW MEXICO AND PEDERAL PACILITIES SECTION				
	PLEASE FRINT IN BLACK INK ONLY				
TO: Ed Horst, Environmental Manager - Clant Refining Company, Ciniza					
MACHINK NUMBER: Sec.722.0210 VERIFICATION NUMBER: Soc.722.0227					
FROM: James A. Harris, Jr., RCRA Facili	ty Manager/Geologist				
PHONE: (214) 665-8302	Mail Cadet SPD-N				
OFFICE: Now Maxica/Federal Facilities S	ectios	PAGES, INCLUDING COVER SHERT			
ATE: March 15, 1996		3			
	PLRASE NUMBER ALL PAGES				
INFORM	AATION FOR SENDING PACSIMILE MESSAGE	3			
EQUIPMENT:	FACSIMILE NUMBER:	VERIFICATION NUMBER:			
PANAFAX UF-766	(214) 665-6762	(214) 665-6768			
COMMENTS					
E4.					
Hare's what I have been using to track Glass, Ciniza	's corrective action progress. Plants review and lat	's discuss it next week. Have a good eye.			

Thanx,

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JARVES

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repared by: Jame A. Harris, Jr.\dWPM as at March 13, 1996	: Secondary Oil Skimmer (11)	Fire Training Area (4)	Landfill Areas (7)	Old Burn Pit (8)	Empty Container Storage Area (5)	The Drainage Ditch between APIs Evaporation Ponds and the Neutralization Tank Evaporation Ponds (14)	Contact Waste Water Collection System (CWWCS)	The Evaporation Ponds (2)	The Aeration Basin (1)
946	3	I	3	3	Phase III	2	H	3	Phase II
	Under VCA	Under VCA	a Voluntary Corrective Action (VCA) Plan to cap the "Landfill Areas" was submitted in March 1993.			soil and groundwater sampling every five years	Inspection every 5 years beginning 1996	-	soil and groundwater sampling every five years
	discolored soil is the natural color; there is no hydrocarbon staining or odors detected; reference to "black fill" sand is actually "back fill"		EPA approved the VCA Plan on January 5, 1994 but required that additional soil borings be completed prior to Glant proceeding with the capping activities		3	Survey Plat submitted; closure certification must be submitted prior to initiating Class III Permit Mod process		Survey and closure certification must be submitted prior to initiating Class III Permit Mod process	RFI PHII RPT APP 1/94 W/modifications; Survey Plat submitted; closure cartification must be submitted prior to initiating Class III Permit Mod process

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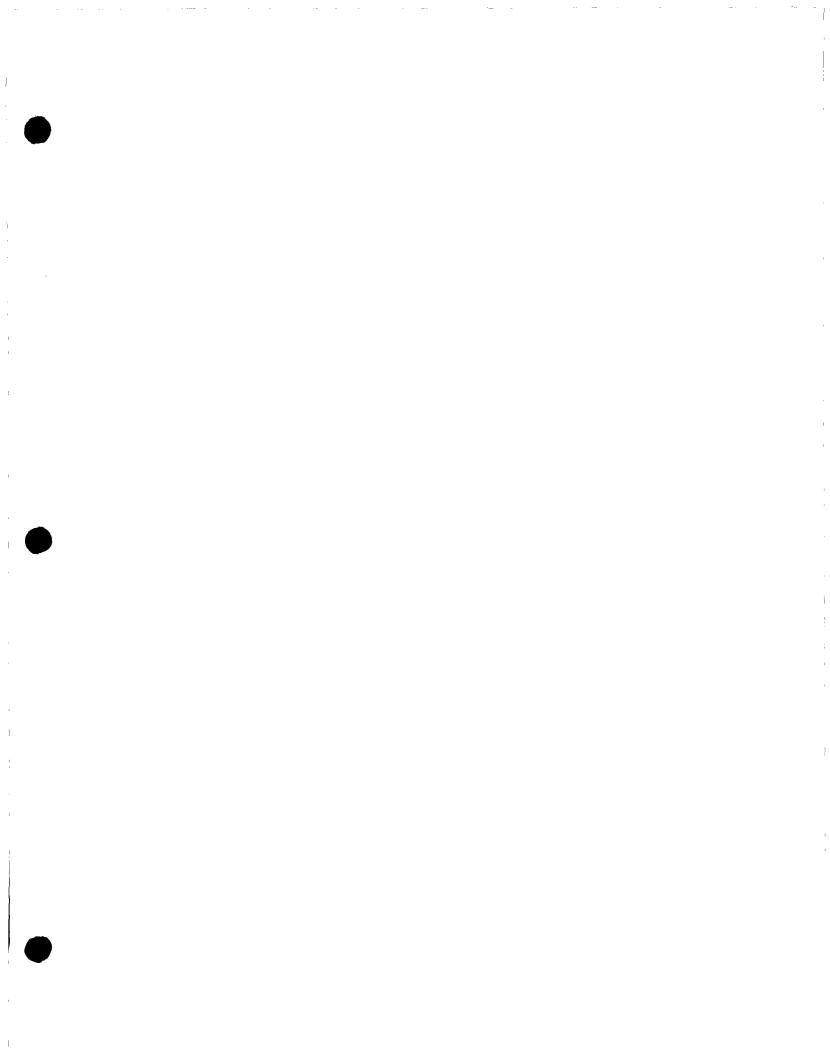
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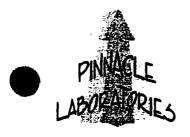
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GIANT REFINING COMPANY ROUTE 3 BOX 7 GALLUP, NM 87301

Project Name SWMU #7 Project Number (none)

Attention: STEVE MORRIS

On 6/7/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **non-aq** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

ENG

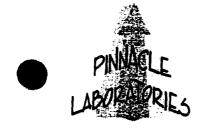
Kimberly D. McNeill Project Manager

MR: mt

Enclosure

MA

H. Mitchell Rubenstein, Ph. D. General Manager



CLIENT	: GIANT REFINING COMPANY	PINNACLE ID	: 906034
PROJECT #	: (none)	DATE RECEIVED	: 6/7/99
PROJECT NAME	: SWMU #7	REPORT DATE	: 6/30/99
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	SWMU-7-E-4FT-060399	NON-AQ	6/3/99
02	SWMU-7-S-4FT-060399	NON-AQ	6/3/99
03	SWMU-7-N-4FT-060399	NON-AQ	6/3/99
04	TRIP BLANK	AQUEOUS	4/29/99





TEST	: VOLATILE ORGANICS EPA METHOD 8260 (MODIFIED SKINNER LIST)				(INNER LIST)	
CLIENT	: GIANT REFINI	PINNACLE I.D. :			906034	
PROJECT #	: NONE		E	DATE RECEIVED):	6/7/99
PROJECT NAME	: SWMU #7					
SAMPLE			DATE	DATE	DATE	DIL.
ID #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
	SWMU-7-E-4FT	<u> </u>	C (2) (0)	C (4 4 /00	00/44/00	
906034-01	060399	SOIL	6/3/99	6/11/99	06/11/99	1
PARAMETER	DET. LIMIT	<u></u>	UNITS			
Chloromethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Acetone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
1,1-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Methylene Chloride	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,4-Dioxane	5.0	< 5.2	MG/KG	(DRY WEIGHT)		
1,1-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
trans-1,2-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
2-Butanone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
Carbon Disulfide	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chloroform	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,1-Trichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Benzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Trichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Toluene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dibromoethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Tetrachloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chlorobenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Ethylbenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
o-Xylene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
m&p Xylenes	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Styrene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,2,2-Tetrachloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	97
	(80 - 120)
Toluene-d8	106
	(81 - 117)
Bromofluorobenzene	100
	(74 - 121)
% Dry Weight	96%





TEST	: VOLATILE OR : GIANT REFINI		ETHOD 8260 (MODIFIED SKINNER LIST) PINNACLE I.D. :			
PROJECT #	: NONE			DATE RECEIVED		906034 6/7/99
PROJECT # PROJECT NAME	: SWMU #7		L			0///35
SAMPLE			DATE	DATE	DATE	DIL.
ID #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
	SWMU-7-S-4FT		OANN ELD		ANALIZED	TACTOR
906034-02	060399	SOIL	6/3/99	6/11/99	06/11/99	1
PARAMETER	DET. LIMIT	- <u></u>	UNITS			
Chloromethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Acetone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
1,1-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Methylene Chloride	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1.4-Dioxane	5.0	< 5.3	MG/KG	(DRY WEIGHT)		•
1.1-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
trans-1,2-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
2-Butanone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
Carbon Disulfide	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chloroform	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,1-Trichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Benzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Trichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Toluene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		. •
1,2-Dibromoethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Tetrachloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chlorobenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Ethylbenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
o-Xylene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
m&p Xylenes	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Styrene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,2,2-Tetrachloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	97
	(80 - 120)
Toluene-d8	100
	(81 - 117)
Bromofluorobenzene	94
	(74 - 121)
% Dry Weight	95%





TEST CLIENT	: VOLATILE OR : GIANT REFINI	IETHOD 8260 (MODIFIED SKINNER LIST) PINNACLE I.D. :			906034	
PROJECT #	: NONE		[DATE RECEIVED) :	6/7/99
PROJECT NAME	: SWMU #7					
SAMPLE			DATE	DATE	DATE	DIL.
ID #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
906034-03	SWMU-7-N-4FT 060399	SOIL	6/3/99	6/11/99	06/11/99	1 .
PARAMETER	DET. LIMIT		UNITS			·
Chloromethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Acetone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
1,1-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Methylene Chloride	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,4-Dioxane	5.0	< 5.4	MG/KG	(DRY WEIGHT)		
1,1-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
trans-1,2-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
2-Butanone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
Carbon Disulfide	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chloroform	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,1-Trichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Benzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Trichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Toluene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dibromoethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Tetrachloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chlorobenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Ethylbenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
o-Xylene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
m&p Xylenes	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Styrene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,2,2-Tetrachloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	102
	(80 - 120)
Toluene-d8	103
	(81-117)
Bromofluorobenzene	98
	(74 - 121)
% Dry Weight	92%





TEST CLIENT PROJECT # PROJECT NAME	: VOLATILE OR : GIANT REFINI : NONE : SWMU #7			0 (MODIFIED SK PINNACLE I.D DATE RECEIVED	.:	906034 6/7/99
SAMPLE			DATE	DATE	DATE	DIL.
<u>ID #</u>	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
906034-04		AQUEOUS	4/29/99	N/A	06/11/99	11
PARAMETER	DET. LIMIT		UNITS			
Chloromethane	1.00	< 1.00	ug/L			
Acetone	0.5	< 10.0	ug/L			
1,1-Dichloroethene	1.00	< 1.00	ug/L		- *	
Methylene Chloride	1.00	< 1.00	ug/L			
1,4-Dioxane	100	< 100	ug/L			
1,1-Dichloroethane	1.00	< 1.00	ug/L			
trans-1,2-Dichloroethene	1.00	< 1.00	ug/L			
2-Butanone	0.5	< 10.0	ug/L			
Carbon Disulfide	1.00	< 1.00	ug/L			
Chloroform	1.00	< 1.00	ug/L			
1,2-Dichloroethane	1.00	< 1.00	ug/L			
1,1,1-Trichloroethane	1.00	< 1.00	ug/L			
Benzene	1.00	< 1.00	ug/L			
Trichloroethene	1.00	< 1.00	ug/L			
Toluene	1.00	< 1.00	ug/L			
1,2-Dibromoethane	1.00	< 1.00	ug/L			
Tetrachloroethene	1.00	< 1.00	ug/L			
Chlorobenzene	1.00	< 1.00	ug/L			
Ethylbenzene	1.00	< 1.00	ug/L			
o-Xylene	1.00	< 1.00	ug/L			
m&p Xylenes	1.00	< 1.00	ug/L			
Styrene	1.00	< 1.00	ug/L			
1,1.2,2-Tetrachloroethane	1.00	< 1.00	ug/L			

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	104
	(80 - 120)
Toluene-d8	102
	(88 - 110)
Bromofluorobenzene	96
	(86 - 115)





GC/MS RESULTS

TEST CLIENT PROJECT # PROJECT NAME		GANICS EPA N ING COMPANY	IETHOD 82	60 (MODIFIED SK PINNACLE I.D	,	906034
SAMPLE				DATE	DATE	DIL.
ID #	BATCH	MATRIX		EXTRACTED	ANALYZED	FACTOR
EXTRACTION BLANK	061199	SOIL		6/11/99	06/11/99	11
PARAMETER	DET. LIMIT		UNITS			
Chloromethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Acetone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
1,1-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Methylene Chloride	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,4-Dioxane	0.05	< 5.0	MG/KG	(DRY WEIGHT)		
1,1-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
trans-1,2-Dichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
2-Butanone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
Carbon Disulfide	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chloroform	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,1-Trichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Benzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Trichloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Toluene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dibromoethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Tetrachloroethene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chlorobenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Ethylbenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
o-Xylene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
m&p Xylenes	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Styrene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,1,2,2-Tetrachloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	78*
	(80 - 120)
Toluene-d8	80*
	(81 - 117)
Bromofluorobenzene	75
	(74 - 121)

*SURROGATES SLIGHTLY LOW, SEE OOC FORM.

Environmental Services Laboratory, Inc. Es

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

June 28, 1999

Kim McNeill Pinnacle Laboratories 2709-D Pan American Fwy NE

Albuquerque, NM 87107

TEL: 505-344-3777

FAX (505) 344-4413

RE: 906034/GRC/SWMU #7

Order No.: 9906062

Dear Kim McNeill,

Environmental Services Laboratory received 3 samples on 06/09/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests: PERCENT MOISTURE (D2216) SKINNER LIST-SEMI VOL MASS SPEC (SW8270B)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

inhela

Kimberly Hill Project Manager

Keith Hunter

Technical Review



Date: 28-Jun-99

CLIENT:Pinnacle LaboratoriesLab Order:9906062Project:906034/GRC/SWMU #7Lab ID:9906062-01A

Client Sample ID: SWMU-7-E-4FT-060399 Tag Number: Collection Date: 06/03/99

Matrix: SOIL

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
SKINNER LIST-SEMI VOL MASS SPEC					Analyst: keh
1.2-Dichlorobenzene	ND	0.192	mg/Kg-dry	1	06/16/99
1.3-Dichlorobenzene	ND	0.192	mg/Kg-dry	1	06/16/99
1,4-Dichlorobenzene	ND	0.192	mg/Kg-dry	1	06/16/99
1-Methylnaphthalene	ND	0.192	mg/Kg-dry	1	06/16/99
2,4,6-Trichlorophenol	ND	0.192	mg/Kg-dry	1	06/16/99
2,4-Dimethylphenol	ND	0.192	mg/Kg-dry	1	06/16/99
2,4-Dinitrophenol	ND	0.384	mg/Kg-dry	1	06/16/99
2-Chiorophenol	ND	0.192	mg/Kg-dry	1	06/16/99
2-Methylnaphthalene	ND	0.192	mg/Kg-dry	1	06/16/99
2-Methylphenol	ND	0.192	mg/Kg-dry	1	06/16/99
3&4-Methylphenol	ND	0.192	mg/Kg-dry	1	06/16/99
3-Methylcholanthrene	ND	0.192	mg/Kg-dry	1 –	06/16/99
4-Nitrophenol	ND	0.384	mg/Kg-dry	1	06/16/99
6-Methyl Chrysene	ND	0.192	mg/Kg-dry	1	06/16/99
7,12-Dimethylbenz(a)anthracene	ND	0.192	mg/Kg-dry	1	06/16/99
Anthracene	ND	0.192	mg/Kg-dry	1	06/16/99
Benz(a)anthracene	ND	0.192	mg/Kg-dry	1	06/16/99
Benzo(a)pyrene	ND	0.192	mg/Kg-dry	1	06/16/99
Benzo(b)&(j)fluoranthene	ND	0.192	mg/Kg-dry	1	06/16/99
Benzo(k)fluoranthene	ND	0.192	mg/Kg-dry	1	06/16/99
Benzyl alcohol	ND	0.384	mg/Kg-dry	1	06/16/99
Bis(2-ethylhexyl)phthalate	ND	0.192	mg/Kg-dry	1	06/16/99
Butyl benzyl phthalate	ND	0.192	mg/Kg-dry	1	06/16/99
Chrysene	ND	0.192	mg/Kg-dry	1	06/16/99
Di-n-butyl phthalate	ND	0.192	mg/Kg-dry	1	06/16/99
Di-n-octyl phthalate	ND	0.192	mg/Kg-dry	1	06/16/99
Dibenz(a,h)acridine	ND	0.192	mg/Kg-dry	1	06/16/99
Dibenz(a,h)anthracene	ND	0.192	mg/Kg-dry	1	06/16/99
Dibenz(a,j)acridine	ND	0.192	mg/Kg-dry	1	06/16/99
Diethyl phthalate	ND	0.192	mg/Kg-dry	1	06/16/99
Dimethyl phthalate	ND	0.192	mg/Kg-dry	1	06/16/99
Fluoranthene	ND	0.192	mg/Kg-dry	1	06/16/99
Indene	ND	0.192	mg/Kg-dry	1	06/16/99
Indeno(1,2,3-cd)pyrene	ND	0.192	mg/Kg-dry	1	06/16/99
Naphthalene	ND	0.192	mg/Kg-dry	1	06/16/99
Phenanthrene	ND	0.192	mg/Kg-dry	1	06/16/99
Phenol	ND	0.192	mg/Kg-dry	1	06/16/99
Pyrene	ND	0.192	mg/Kg-dry	1	06/16/99
Pyridine	ND	0.192	mg/Kg-dry	1	06/16/99
Quinoline	ND	0.192	mg/Kg-dry	1	06/16/99

Qualifiers:

ND - Not Detected at the Reporting Limit

- J Analyte detected below quantitation limits
- B Analyte detected in the associated Method Blank* Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range





CLIENT:	Pinnacle Laboratories
Lab Order:	9906062
Project:	906034/GRC/SWMU #7
Lab ID:	9906062-01A

Date: 28-Jun-99

Client Sample ID: SWMU-7-E-4FT-060399 Tag Number: Collection Date: 06/03/99 Matrix: SOIL

Analyses	Result	Limit (Jual Units	DF	Date Analyzed
Thiophenol	ND	0.192	mg/Kg-dry	1	06/16/99
Surr: 2,4,6-Tribromophenol	74.6	19-122	%REC	1	06/16/99
Surr: 2-Fluorobiphenyl	73.7	30-115	%REC	1	06/16/99
Surr: 2-Fluorophenol	71.1	25-121	%REC	1	06/16/99
Surr: 4-Terphenyl-d14	82.2	18-137	%REC	1	06/16/99
Surr: Nitrobenzene-d5	72.7	23-120	%REC	1	06/16/99
Surr: Phenol-d5	73.9	24-113	%REC	1	06/16/99
PERCENT MOISTURE	A	STM			Analyst: kfi
% Moisture	13	0.	wt%	1	06/15/99

Qualifiers:

- ND Not Detected at the Reporting Limit
- J Analyte detected below quantitation limits
- B Analyte detected in the associated Method Blank
- * Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

- R RPD outside accepted recovery limits
- E Value above quantitation range



CLIENT:Pinnacle LaboratoriesLab Order:9906062Project:906034/GRC/SWMU #7Lab ID:9906062-02A

Date: 28-Jun-99

Client Sample ID: SWMU-7-S-4FT-060399 Tag Number: Collection Date: 06/03/99 Matrix: SOIL

Analyses	Result	Limit	Qual U	nits	DF	Date Analyzed
SKINNER LIST-SEMI VOL MASS SPEC			<u> </u>			Analyst: kel
1,2-Dichlorobenzene	ND	0.196	m	g/Kg-dry	1	06/16/99
1,3-Dichlorobenzene	ND	0.196	m	g/Kg-dry	1	06/16/99
1,4-Dichlorobenzene	ND	0.196	m	g/Kg-dry	1	06/16/99
1-Methylnaphthalene	ND	0.196	m	g/Kg-dry	1	06/16/99
2,4,6-Trichlorophenol	ND	0.196	m	g/Kg-dry	1	06/16/99
2,4-Dimethylphenol	ND	0.196	m	g/Kg-dry	1	06/16/99
2,4-Dinitrophenol	ND	0.393	m	g/Kg-dry	1	06/16/99
2-Chlorophenol	ND	0.196	m	g/Kg-dry	1	06/16/99
2-Methyinaphthalene	ND	0.196	m	g/Kg-dry	1	06/16/99
2-Methylphenol	ND	0.196	m	g/Kg-dry	1	06/16/99
3&4-Methylphenol	ND	0.196	m	g/Kg-dry	1	06/16/99
3-Methylcholanthrene	ND	0.196	m	g/Kg-dry	1	06/16/99
4-Nitrophenol	ND	0.393	m	g/Kg-dry	1	06/16/99
6-Methyl Chrysene	ND	0.196	m	g/Kg-dry	1	06/16/99
7,12-Dimethylbenz(a)anthracene	ND	0.196	m	g/Kg-dry	1	06/16/99
Anthracene	ND	0.196	m	g/Kg-dry	1	06/16/99
Benz(a)anthracene	ND	0.196	mį	g/Kg-dry	1	06/16/99
Benzo(a)pyrene	ND	0.196	mį	g/Kg-dry	1	06/16/99
Benzo(b)&(j)fluoranthene	ND	0.196	m	g/Kg-dry	1	06/16/99
Benzo(k)fluoranthene	ND	0.196	mį	g/Kg-dry	1	06/16/99
Benzyl alcohol	ND	0.393	m	g/Kg-dry	1	06/16/99
Bis(2-ethylhexyl)phthalate	ND	0.196	m	g/Kg-dry	1	06/16/99
Butyl benzyl phthalate	ND	0.196	mį	g/Kg-dry	1	06/16/99
Chrysene	ND	0.196	m	g/Kg-dry	1	06/16/99
Di-n-butyl phthalate	ND	0.196	m	g/Kg-dry	1	06/16/99
Di-n-octyl phthalate	ND	0.196	mį	g/Kg-dry	1	06/16/99
Dibenz(a,h)acridine	ND	0.196	m	g/Kg-dry	1	06/16/99
Dibenz(a,h)anthracene	ND	0.196	m	g/Kg-dry	1	06/16/99
Dibenz(a,j)acridine	ND	0.196	m	g/Kg-dry	1	06/16/99
Diethyl phthalate	ND	0.196	i m	g/Kg-dry	1	06/16/99
Dimethyl phthalate	ND	0.196	m	g/Kg-dry	1	06/16/99
Fluoranthene	ND	0.196	m	g/Kg-dry	1	06/16/99
Indene	ND	0.196	m	g/Kg-dry	1	06/16/99
Indeno(1,2,3-cd)pyrene	ND	0.196	m	g/Kg-dry	1	06/16/99
Naphthalene	ND	0.196	ក	g/Kg-dry	1	06/16/99
Phenanthrene	ND	0.196	m	g/Kg-dry	1	06/16/99
Phenol	ND	0.196	m	g/Kg-dry	1	06/16/99
Pyrene	ND	0.196	m	g/Kg-dry	1	06/16/99
Pyridine	ND	0.196	m	g/Kg-dry	1	06/16/99
Quinoline	ND	0.196	m	g/Kg-dry	1	06/16/99

Qualifiers:

ND - Not Detected at the Reporting Limit

- J Analyte detected below quantitation limits
- B Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

E - Value above quantitation range

- antitation limits R RPD outside accepted recovery limits
- Analyte detected in the associated include Diank
- * Value exceeds Maximum Contaminant Level



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CLIENT:	Pinnacle Laboratories
Lab Order:	9906062
Project:	906034/GRC/SWMU #7
Lab ID:	9906062-02A

Date: 28-Jun-99

Client Sample ID: SWMU-7-S-4FT-060399 Tag Number: Collection Date: 06/03/99 Matrix: SOIL

Analyses	Result	Limit	Qual U	nits	DF	Date Analyzed
Thiophenol	ND	0.196	m	g/Kg-dry	1	06/16/99
Surr: 2,4,6-Tribromophenol	66.1	19-122	%	REC	1	06/16/99
Surr: 2-Fluorobiphenyl	61.5	30-115	%	REC	1	06/16/99
Surr: 2-Fluorophenol	61.6	25-121	%	REC	1	06/16/99
Surr: 4-Terphenyl-d14	72.9	18-137	%	REC	1	06/16/99
Surr: Nitrobenzene-d5	64.7	23-120	%	REC	1	06/16/99
Surr: Phenol-d5	63.2	24-113	%	REC	1	06/16/99
PERCENT MOISTURE	A	STM				Analyst: kfl
% Moisture	15	0.	wt	%	1	05/15/99



Qualifiers:

- ND Not Detected at the Reporting Limit
 - J Analyte detected below quantitation limits
 - B Analyte detected in the associated Method Blank
 - * Value exceeds Maximum Contaminant Level
- S Spike Recovery outside accepted recovery limits
- R RPD outside accepted recovery limits
- E Value above quantitation range



Pinnacle Laboratories
9906062
906034/GRC/SWMU #7
9906062-03A

Date: 28-Jun-99

Client Sample ID: SWMU-7-N-4FT-060399 Tag Number: Collection Date: 06/03/99 Matrix: SOIL

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
SKINNER LIST-SEMI VOL MASS SPEC					Analyst: keh
1,2-Dichlorobenzene	ND	0.201	mg/Kg-dry	1	06/16/99
1,3-Dichlorobenzene	ND	0.201	mg/Kg-dry	1	06/16/99
1,4-Dichlorobenzene	ND	0.201	mg/Kg-dry	1	06/16/99
1-Methyinaphthalene	ND	0.201	mg/Kg-dry	1	06/16/99
2,4,6-Trichlorophenol	ND	0.201	mg/Kg-dry	1	06/16/99
2,4-Dimethylphenol	ND	0.201	mg/Kg-dry	1	06/16/99
2,4-Dinitrophenol	ND	0.402	mg/Kg-dry	1	06/16/99
2-Chlorophenol	ND	0.201	mg/Kg-dry	1	06/16/99
2-Methyinaphthaiene	ND	0.201	mg/Kg-dry	1	06/16/99
2-Methylphenol	ND	0.201	mg/Kg-dry	1	06/16/99
3&4-Methylphenol	ND	0.201	mg/Kg-dry	1	06/16/99
3-Methylcholanthrene	ND	0.201	mg/Kg-dry	1	06/16/99
4-Nitrophenol	ND	0.402	mg/Kg-dry	1	06/16/99
6-Methyl Chrysene	ND	0.201	mg/Kg-dry	1	06/16/99
7,12-Dimethylbenz(a)anthracene	ND	0.201	mg/Kg-dry	1	06/16/99
Anthracene	ND	0.201	mg/Kg-dry	1	06/16/99
Benz(a)anthracene	ND	0.201	mg/Kg-dry	1	06/16/99
Benzo(a)pyrene	ND	0.201	mg/Kg-dry	1	06/16/99
Benzo(b)&(j)fluoranthene	ND	0.201	mg/Kg-dry	1	06/16/99
Benzo(k)fluoranthene	ND	0.201	mg/Kg-dry	1	06/16/99
Benzyi alcohol	ND	0.402	mg/Kg-dry	1	06/16/99
Bis(2-ethylhexyl)phihalate	ND	0.201	mg/Kg-dry	1	06/16/99
Butyl benzyl phthalate	ND	0.201	mg/Kg-dry	1	06/16/99
Chrysene	ND	0.201	mg/Kg-dry	1	06/16/99
Di-n-butyl phthalate	ND	0.201	mg/Kg-dry	1	06/16/99
Di-n-octyl phthalate	ND	0.201	mg/Kg-dry	1	06/16/99
Dibenz(a,h)acridine	ND	0.201	mg/Kg-dry	1	06/16/99
Dibenz(a,h)anthracene	ND	0.201	mg/Kg-dry	1	06/16/99
Dibenz(a,j)acridine	ND	0.201	mg/Kg-dry	1	06/16/99
Diethyl phthalate	ND	0.201	mg/Kg-dry	1	06/16/99
Dimethyl phthalate	ND	0.201	mg/Kg-dry	1	06/16/99
Fluoranthene	ND	0.201	mg/Kg-dry	1	06/16/99
Indene	ND	0.201	mg/Kg-dry	1	06/16/99
Indeno(1,2,3-cd)pyrene	ND	0.201	mg/Kg-dry	1	06/16/99
Naphthalene	ND	0.201	mg/Kg-dry	1	06/16/99
Phenanthrene	ND	0.201	mg/Kg-dry	1	06/16/99
Phenol	ND	0.201	mg/Kg-dry	1	06/16/99
Pyrene	ND	0.201	mg/Kg-dry	1	06/16/99
Pyridine	ND	0.201	mg/Kg-dry	1	06/16/99
Quinoline	ND	0.201	mg/Kg-dry	1	06/16/99

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

J - Analyte detected below quantitation limits

- B Analyte detected in the associated Method Blank
- * Value exceeds Maximum Contaminant Level

E - Value above quantitation range



CLIENT:	Pinnacle Laboratories	Client Sample ID: SWMU-7-N-4FT-060399
Lab Order:	9906062	Tag Number:
Project:	906034/GRC/SWMU #7	Collection Date: 06/03/99
Lab ID:	9906062-03A	Matrix: SOIL

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
Thiophenol	ND	0.201	mg/Kg-dry	1	06/16/99
Surr: 2,4,6-Tribromophenol	71.5	19-122	%REC	1	06/16/99
Surr: 2-Fluorobiphenyl	66.3	30-115	%REC	1	06/16/99
Surr: 2-Fluorophenol	65.5	25-121	%REC	1	06/16/99
Surr: 4-Terphenyl-d14	72.9	18-137	%REC	1	06/16/99
Surr: Nitrobenzene-d5	68.1	23-120	%REC	1	06/16/99
Surr. Phenol-d5	68.5	24-113	%REC	1	06/16/99
PERCENT MOISTURE	A	STM			Analyst: kfl
% Moisture	17	0.	wt%	1	06/15/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

Date: 28-Jun-99

R - RPD outside accepted recovery limits

E - Value above quantitation range

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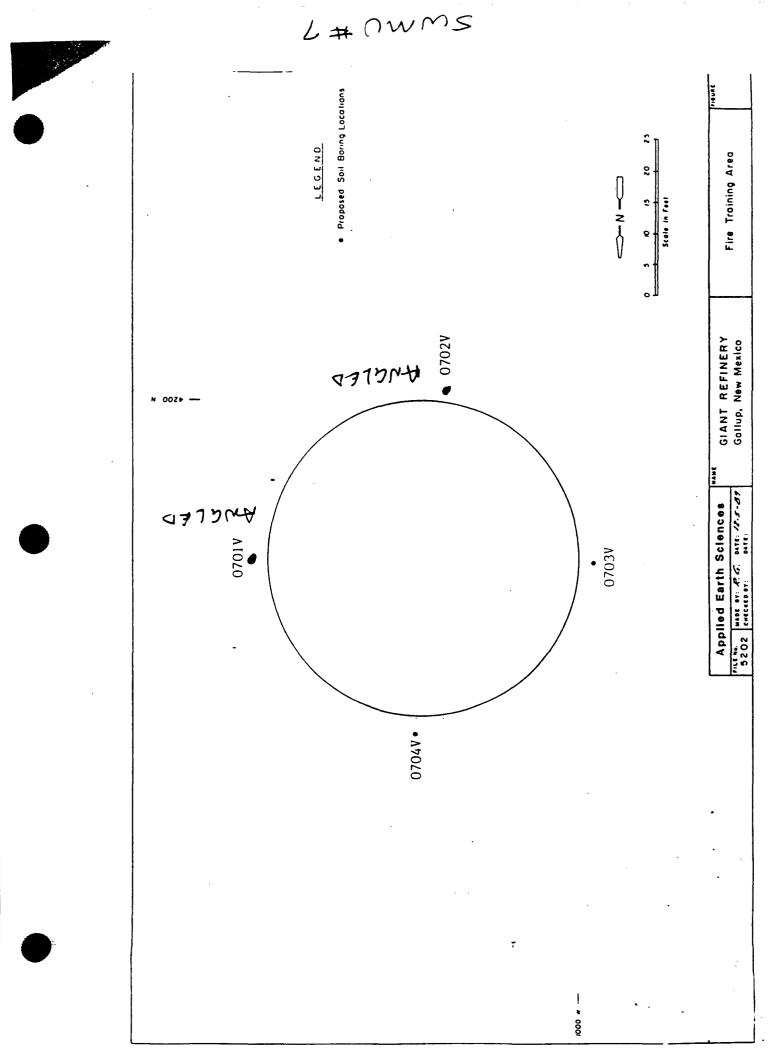
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Route 3, Box 7 Gallup, New Mexico 87301

December 16, 1994

Nancy Morlock Hazardous Waste Management Division U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-3733

Re: Quarterly Progress Report

Dear Ms. Morlock:

Pursuant to the requirements of the HSWA permit, condition C.4., Page 11 and the May 31, 1990 RFI Workplan Approval, Giant Refining Company-Ciniza (Giant) submits the Quarterly Progress Report for the fourth quarter of 1994.

Giant has performed additional drilling at two locations around Tank 569. Sample point RFI 0639 was drilled to a depth of fifty five feet and sample point RFI 0640 was drilled to a depth of forty feet. BTEX (method 8020) analysis indicated that sample point RFI 0640 was drilled deep enough to yield two clean samples, while sample point RFI 0639, although clean at the 40, 45 and 50 foot intervals showed BTEX at the fifty five foot sample interval.

During grouting operations, the displaced water had some hydrocarbon in it, indicating the need for additional characterization activities.

Giant believes that additional characterization work at Tank 569 is necessary and is preparing a sampling program to characterize the extent of contamination and to develop remediation options. The extent of additional drilling and sampling has not been fully determined at this time. Giant will develop the program and complete the drilling during the first quarter of 1995.

A pneumatic rig for sampling was to be employed to sample Tank 451, but the drilling contractor was unable to make the rig operable. Giant has been assured that the pneumatic rig will be ready in early 1995 and sampling will occur at the earliest date possible. A report on that sampling and analysis will be provided to your office by March 31, 1995.

Giant plans to implement the corrective action plans for SWMU #5 "The Landfill Areas"; SWMU #7 "The Fire Training Area"; and to continue with the corrective action plan for SWMU #8 "The Railroad Rack Lagoon" during the first quarter of 1995. If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely John 🖌. okes Refinery Manager

JJS:tls

cc: Kim Bullerdick, Corporate Counsel Giant Industries Arizona, Inc. David Pavlich, HSE Manager Giant Refining Co.

4.0 SUMMARY AND DISCUSSION OF SWMUs

This section summarizes the methods used to investigate each of the SWMUs and presents a summary of the field observations and analytical results. Recommendations are also made for future corrective actions.

4.1 SWMU No. 4 - Old Burn Pit

SWMU No. 4 consists of the old burn pit located just north and slightly west of the tank farm (Figure 4). The old burn pit was used to burn acid-soluble oils (ASO) which are a high molecular weight, asphalt-type cross polymerized hydrocarbon. The pit has been inactive since the early 1980s.

4.1.1 <u>Methods</u>

Three soil borings were drilled within the perimeter of the old burn pit using a CME drilling rig with a $2\frac{1}{2}$ " hollow-stem carbon steel auger to a depth of 10.0 feet. Samples were collected at the 6.0 and 10.0 foot intervals. A description of the soil types encountered during drilling was recorded on the lithologic log (Appendix C). Attempts were made to take field headspace measurements with the photo ionization detector (PID), but, part way through the sampling schedule, the PID pump ceased functioning.

The soil samples were collected in clean a stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to Westech Laboratories in El Paso, Texas under chain of custody (COC). Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All auger flights, split spoons, and sampling equipment were decontaminated by steam cleaning and/or washing as outlined in section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List); semi-volatile organic compounds (SVOCs) using EPA Method 8270 (Skinner

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List); and Total Metals. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.1.2 <u>Results</u>

Only one VOC (Methyl Ethyl Ketone [MEK]) and no SVOCs were observed in the analytical data. MEK was observed in RFI 0406V6.0 at a concentration of 1.2 mg/kg.

Chromium and nickel were observed in concentrations that exceeded background levels for soil at the Ciniza refinery area. Chromium exceedances were observed in 4 of 7 samples, ranging from 23 to 49% above background levels. Nickel exceedances were observed in 3 of 7 samples, ranging from 35 to 53% above background levels. Cadmium, lead, mercury, arsenic, barium, beryllium, and vanadium concentrations were within background levels in all of the samples examined.

4.1.3 <u>Recommendations</u>

Soil analyzed from the old burn pit contained only one elevated concentration of VOCs and some elevated levels of nickel and chromium. The VOC, methyl ethyl ketone, was detected at 1.2 mg/kg.

Remediation of this site should be limited to tilling the soil to a depth of 4.5 feet to aerate the deeper soil to promote natural attenuation. The metals can be isolated from human contact and surface receptors by applying a cap of native soil. This would also prevent infiltration of surface water and thereby limit downward migration of constituents.

A corrective action plan will be prepared for SWMU No. 4 and submitted for EPA approval.

4.2 SWMU No. 5 - Landfill Areas

SWMU No. 5 consists of landfill areas midway between the tank farm and the air strip (Figure 6). The landfills were used to dispose of non-regulated, non-hazardous materials from the refinery. The landfills have been inactive since the early 1980s.

4.2.1 <u>Methods</u>

Seven soil borings were drilled, as extensions of previous RFI borings, with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger to a depth of 20 feet (Figure 7). Samples were collected at 11.0, 16.0, and 20.0 feet. A description of the soil types encountered during drilling was recorded on the lithologic log (Appendix C). Field headspace measurements of volatile organic concentrations in each soil sample were made with a PID meter and recorded on the data management forms.

The soil samples were collected in a clean stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed in a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All auger flights, split spoons, and sampling equipment were decontaminated by steam cleaning and/or washing as outlined in Section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: VOC using EPA Method 8240/8260 (Skinner List); SVOCs using EPA Method 8270 (Skinner List); and Total Metals. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.2.2 <u>Results</u>

VOCs were not detected in any of the soil samples collected. Field headspace measurements of volatile organic compounds made with a PID were all non-detect.

One SVOC was detected in three samples from three bore holes. Di-n-Butyl phthalate was detected in RFI 0515V20.0 at 13 mg/kg; in RFI 0516V16.0 at 7.5 mg/kg; and in RFI 0516V20.0 at 13.0 mg/kg.

Barium, chromium, lead, and nickel were detected concentrations exceeding background levels in the refinery area. Chromium was detected in 12 of 22 samples in concentrations from 7 to 120% above background levels. Barium was detected in 2 of 22 samples in concentrations from 25 to 31% above background levels. Lead was detected in 3 of 22 samples in concentrations from 2 to 15% above background levels; and nickel was detected in 12 of 22 samples in concentrations of 33 to 34% above background levels.

4.2.3 <u>Recommendations</u>

Elevated concentrations of chromium, barium, lead, and nickel were detected in the landfill area. Capping with a native soil cap, sloped to allow drainage away from the SWMU, will isolate the metals from surface receptors and will limit infiltration of surface water and downward migration of contaminants. Giant proposes to proceed with the corrective action plan submitted in February, 1993 to USEPA Region VI.

4.3 SWMU No. 6 - Tank Farm

SWMU No. 6 consists of seven hydrocarbon storage tanks, (ranging in size from 1,000 to 24,800 barrels) that have contained leaded gasoline (that is, gasoline blended with the compound tetraethyl lead). The tank farm is located immediately north of the operating units (Figure 2).

4.3.1 <u>Methods</u>

Seven borings were made, as extension of previous RFI borings, with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger. Samples were collected at 16.0 feet in all borings except RFI 0642V20.0 which was collected at 20.0 feet per USEPA request. Additional depths were sampled as necessary. A description of the soil types encountered during drilling was recorded on the lithologic logs (Appendix C). Field headspace measurement of volatile organic concentrations in each soil sample was attempted with a PID, but the meter was found to be defective.

The soil samples were collected in a clean stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Section 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All auger flights, split spoons, and sampling equipment were decontaminated by steam cleaning and/or washing as outlined by Section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: 8020 BTEX with the exception of samples RFI 0610V16.0 and RFI 0641V19.0 which were accidentally marked on the COC for VOCs by 8240/8260 Skinner List. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.3.2 <u>Results</u>

Elevated levels of VOCs were detected in most samples. Two tanks in particular showed high concentrations of BTEX, with results for total BTEX of 601,000 ug/kg in sample RFI 0639V16.0 (Tank 569) and 318,600 ug/kg in sample RFI 0640V16.0 (Tank 570). Concentrations in both of these borings showed marked reductions from the 16.0 foot to the 20.0 foot levels: 82% and 41% respectively. Other samples ranged from 52 ug/kg to 190,300 ug/kg for total BTEX. It is important to note that the highest benzene concentration in any sample was 4,600 ug/kg. It is also important to note that none of the deeper samples exceeded the New Mexico Environment Improvement Board water guality control regulatory action limits, which are:

Benzene	-	10,000	ug/kg
BTEX		500,000	ug/kg

In the event that obvious contamination is observed in a boring, standard practice is to continue drilling until two "clean" samples are obtained. mentioned, As previously the PID meter malfunctioned part way through the sampling program and, due to the fact that the Ciniza refinery is so isolated, a replacement PID meter could not be Sampling and drilling found in a timely manner. personnel were thus forced to rely on their olfactory senses in determining whether or not the samples collected appeared to be "clean".

4.3.3 <u>Recommendations</u>

Although the deepest samples contained BTEX in concentrations lower than WQCC standards, Giant has contracted to drill additional corings at Tank 569 and 570 to more adequately characterize BTEX concentrations. This drilling will occur on October 24, 1994.

Giant was unable to drill a coring at tank 451 due to limited operating space. A hand auger was used, but sampling personnel were unable to penetrate a gravel interval at approximately 14.0 feet. A portable pneumatic sampling spoon will be used on October 24 or 25 to obtain the samples at RFI 0635V16.0 (Tank 451). Results of both additional sampling activities will be submitted by December 1, 1994.

Elevated BTEX levels at the leaded tanks will need to be addressed. Giant will submit a corrective action plan to EPA to address those problems.

4.4 <u>SWMU No. 7 - Fire Training Area</u>

SWMU No. 7 consists of an open top tank, approximately 1,000 bbl, cut to one-third of its original height. This tank has been used once or twice per year for fire training for the Ciniza fire fighting team.

4.4.1 <u>Methods</u>

Two borings were made, at two points that had been previously sampled, at an angle under the tank. Samples were collected at 7.0 and 11.0 feet in both borings. A description of the soil types encountered during drilling was recorded on the lithologic logs (Appendix C). Field headspace measurement of volatile organic concentrations in each soil sample was attempted, but the PID meter was found to be defective.

The soil samples were collected in a clean stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All auger flights, split spoons, and sampling equipment were decontaminated by steam cleaning and/or washing as outlined by Section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List); SVOCs using EPA Method 8270 (Skinner List); Total Petroleum Hydrocarbon and Oil & Grease. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.4.2 <u>Results</u>

No VOCs were detected in SWMU No. 7. An SVOC (di-n-butyl phthalate) was detected in two samples (RFI 0705All.OD and RFI 0706A7.0). No concentrations of Total Petroleum Hydrocarbon or Oil & Grease were detected in this SWMU.

4.4.3 <u>Recommendations</u>

Additional sampling has demonstrated that Oil & Grease and TPH contamination is limited to a total depth of approximately 4.5 feet. Tilling and additions of nutrients will reduce the Oil & Grease concentrations. Upon approval by EPA, Giant will implement the corrective action plan submitted in February, 1993.

4.5 <u>SWMU No. 10 - Sludge Pits</u>

SWMU No. 10 consists of two connected pits that received API separator sludge (K051) and slop oil emulsion solids (K049) in the past. Contents of the pits were vacuumed out in 1980 and clean, dry soil was used to backfill the pits. The sludge pits were sampled in 1990 and again in 1991. A corrective action plan was submitted in 1993 and Giant has been given the authorization to proceed with bioremediation activities, with requirements (see EPA letter of January 7, 1994, in the Correspondence Section).

4.5.1 <u>Methods</u>

Eight borings were made to a depth of 25.0 feet, two being required by EPA to fully characterize the extent of potentially hazardous constituents, and the other six to satisfy requirements of closure of SWMU #10. All borings were made with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger. A visual description of the soil types encountered while drilling was recorded in the lithologic log (Appendix C). Field headspace measurement of volatile organic concentrations in each soil sample were made with a PID meter and • •

these data were recorded on the data management forms.

The soil samples were collected into a stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All augers, split spoons, and sampling equipment were decontaminated prior to each use by steam cleaning and/or washing as outlined in Section 5.0 of the Generic Sampling Plan.

Westech Laboratory analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List); SVOCs using EPA Method 8270 (Skinner List); and Total Metals. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.5.2 <u>Results</u>

No VOCs were detected in SWMU No. 10. An SVOC detected (di-n-butyl phthalate) was four in samples: RFI 1018V19.0 at 13 mg/kg; RFI 1019V25.0 at 11 mg/kg; RFI 1021V19.0 at 11 mg/kg; and RFI 1021V25.0 at 11 mg/kg. Giant believes these results may be due to outside contamination. chromium, lead, nickel Barium, and showed significant statistical exceedances above background soil samples from the refinery area. Barium exceedances were observed in 10 of 17 samples, ranging from 2 to 182 % above background. Chromium exceedances were observed in 13 of 17 samples, ranging from 2 to 95%. Lead was observed in 11 of 17 samples, ranging from 2 to 28%. Nickel was observed in 17 of 17 samples, ranging from 9 to 67% above background. The detection of metals showed even distribution throughout the SWMU.

4.5.3 <u>Recommendations</u>

Due to the absence of hazardous hydrocarbon constituents at the deeper levels, Giant proposes to implement the corrective action plan submitted to EPA in February, 1993.

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4.6 SWMU No. 11 - Secondary Skimmer

SWMU No. 11 consists of the area where the old secondary skimmer was situated, in a drainage ditch south of evaporation Lagoon #4. The secondary skimmer has not been used since the late 1970s and was removed in 1991 to expedite sampling.

4.6.1 <u>Methods</u>

Two borings were made , to a depth of 10.0 feet, within the area occupied by the secondary skimmer with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger. A visual description of the soil types encountered while drilling was recorded in the lithologic logs (Appendix C). Field headspace measurement of volatile organic concentrations were made with a PID meter and recorded on the data management forms.

The soil samples were collected in a stainless steel pan and were then place in laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All augers, split spoons, and sampling equipment were decontaminated prior to each used by steam cleaning and/or washing as outlined by Section 5.0 to the Generic Sampling Plan.

Westech Laboratory analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List) and SVOCs using EPA Method 8270 (Skinner List). Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.6.2 <u>Results</u>

Two VOCs (ethylbenzene and xylenes) were detected in two borings: RFI 1104V6.0 and RFI 1104V10.0. No SVOCs were detected.

4.6.3 <u>Recommendations</u>

The extremely low levels of volatile organic compounds present no threat to human health or the environment. Giant believes that natural attenuation will remove the remaining trace VOCs. ј. Ц. Ј

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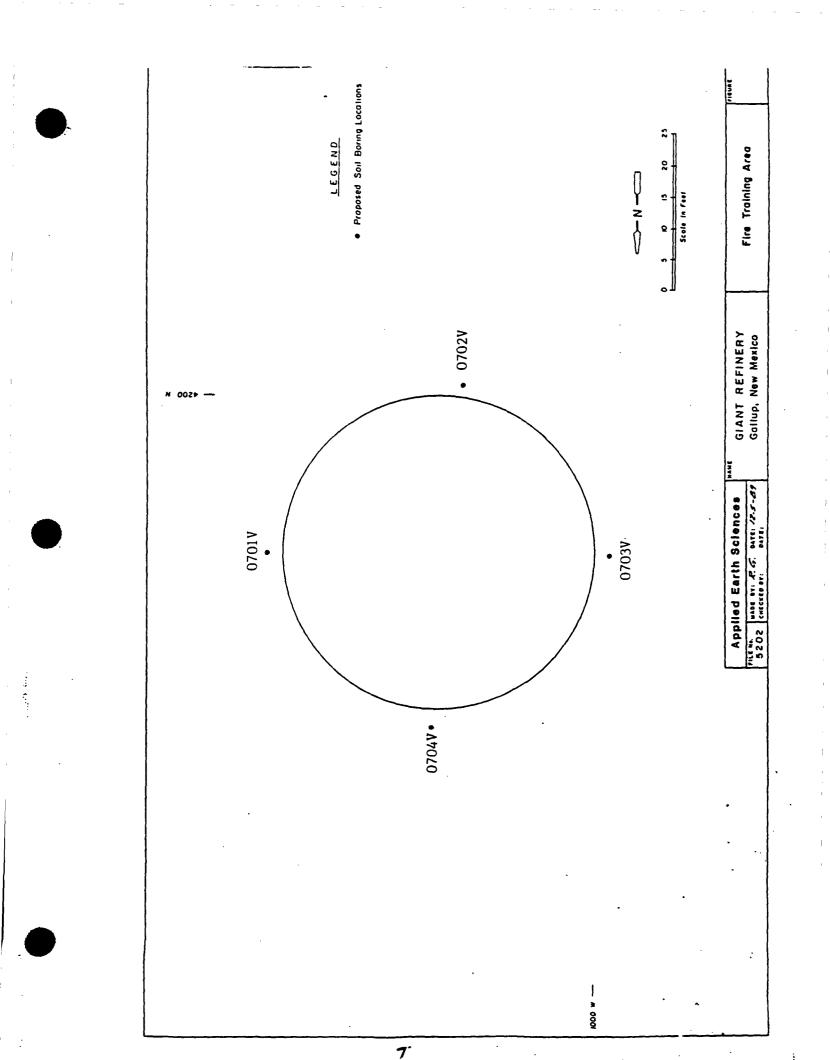
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RFI COMPLIANCE DATA GIANT REFINING COMPANY - CINIZA

ANALYTICAL DATA

REPORTING LEVELS

8240/8260 SKINNER LIST	mg/Kg
8270 SKINNER LIST	mg/Kg
TOTAL METALS	mg/Kg
8020 BTEX	ug/Kg
OIL & GREASE	mg/Kg
TOTAL PETROLEUM HYDROCARBONS	mg/Kg



INTEROFFICE MEMORANDUM

DATE: June 28, 1994

TO: David Pavlich

FROM: Lynn Shelton JJS

SUBJECT: Required RFI Sampling

In its January 7, 1994 letter, EPA required additional sampling and conditions of the RCRA Facility Investigation.

Although some of the requirements are considered redundant and are therefore subject to challenge, certain additional sampling requirements are acceptable and should be completed in a timely manner regardless of the protest of other, less productive sampling.

A list of the additional sampling sites, depths, and estimated costs are presented below.

I. SWUM #4 Old Burn Pit

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II. SWMU #5 Landfill Areas

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<u>Borings</u>	<u>Depths</u>	Sampling	<u>Analysis</u>
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	20.0'		

III. SWMU #6 Tank Farm

		Co	osts
<u>Borings</u>	<u>Depths</u>	Sampling	<u>Analysis</u>
8	16.0', 20.0'	\$2,531	\$1,000

IV. SWMU #7

Fire Training Area

		Co	osts
<u>Borings</u>	<u>Depths</u>	Sampling	<u>Analysis</u>
2	7.0', 11.0'	\$348	\$400

V. SWMU #10 Sludge Pits

			00313
<u>Borings</u>	<u>Depths</u>	Sampling	<u>Analysis</u>
18	19.0', 25.0'	\$7,119	\$18,450

Costs

VI. SWMU #11 Secondary Oil Skimmer

	-		Costs	
<u>Borings</u>	<u>Depths</u>	<u>Sampling</u>		<u>Analysis</u>
2	6.0', 10.0'	\$316		\$3,180

Total costs for this initial sampling project are estimated to be \$65,218.

It is my recommendation that Giant complete an RFE and implement the sampling and analysis by July 15, 1994.

TLS:sp

INTEROFFICE MEMORANDUM



DATE: February 3, 1994

TO: David Pavlich Kim Bullerdick

FROM: Lynn Shelton 748

SUBJECT: RCRA Facility Investigation - Additional Requirements

I. Introduction

Giant Refining Company - Ciniza (Giant) performed a RCRA Facility Investigation (RFI) in three phases (I, II, and III) over three years (1990, 1991, and 1992).

Using the analytical results of those three sampling events, Giant submitted four corrective action plans and eight "No Further Action" proposals to Region VI, United States Environmental Protection Agency (EPA).

Correspondence from the EPA (1-7-94) indicated approval of the corrective action plans (with additional requirements) for three Solid Waste Management Units (SWMUs), for RFI reports Phase I, II, and III and assigns a deadline for submittals of additional data.

The additional sampling and reporting requirements, some of which are redundant and unnecessary, are the focus of this correspondence. In the following pages, the scope and cost of the additional sampling requirements will be presented.

Some explanation of a potential problem is in order. The SWMU identification numbering sequence is inconsistent. In discussing the draft letters with Rich Mayer, of Region VI EPA, the discrepancy in reference to the SWMU numbers was mentioned. Mr. Mayer responded that the correct SWMU numbers were taken from the HSWA Permit (Section C, Corrective Actions for Continuing Releases, 5.(a)(1)). Giant had used the numbering sequence from the approved RFI Workplan (revised May 17, 1990). As shown in Table 1, there are discrepancies in all three sequences. Giant should propose to use the numbering sequence identified in the revised RFI Workplan to avoid confusion with the numbering sequence of SWMUs and sample numbers already reported.

Table 2 presents an overview of the status of the SWMUs.

TABLE 1

SWMU IDENTIFICATION

.

RFI WORKPLAN	hswa	epa	LETTER	SWMU
1	1		1	Aeration Basin
2	2		2	Evaporation Ponds
3	5		5	Empty Container Storage
4	8		8	Burn Pit
5	7		7	Four Landfills
6	3		6	Tank Farm
7	4		4 :	Fire Training Area
8	6		8	Railroad Rack Lagoon
9	10 & 13		-	Inactive Land Treatment
10	9		9	Two Sludge Pits
11	11	I	1 :	Secondary Oil Skimmer
12	14	1	.3 1	Wastewater Collection
13	14	1	.3 1	Drainage Ditch

II. Discussion

A discussion of additional requirements, by SWMU, follows. Included, as Figures 1 to 12, are drawings of the SWMUs with individual sample points.

<u>SWMU 11</u> - Aeration Lagoon

EPA approved Giant's proposal for "No Further Action". Although Giant demonstrated that no significant migration of hazardous constituents had taken place, EPA requires biennial sampling that duplicates the original RFI sampling. This is redundant and expensive. Giant should propose either a five year sampling rotation or a phased-in plan (of six sample locations, sample two biennially until all samples are taken, then start again). These sampling plans will diminish the costs considerably and still provide documentation that migration has not occurred.

EPA also requires a survey plat of the SWMU. Giant agrees that this is a reasonable requirement.

<u>SWMU #2</u> - Evaporation Ponds

EPA has also approved Giant's proposal for "No Further Action" of this SWMU. EPA requires that Giant sample the seven groundwater wells (MW-4, OW-1, OW-2, OW-5, OW-7, OW-9 and OW-10) biennially for the same constituents as monitored for in the RFI sampling event. Giant may wish to propose a five year sampling rotation.

<u>SWMU #3</u> - Empty Container Storage Area

EPA approved Giant's proposal for "No Further Action" for the SWMU, requiring only that Giant provide a survey plat.

SWMU #4 - Old Burn Pit

EPA does not approve Giant's proposal for "No Further Action". Three borings at six and ten feet will be required to characterize constituent migration in this SWMU.

<u>SWMU #5</u> - Landfill Areas

EPA requires that additional borings, at eleven, sixteen and twenty feet to fully characterize contamination.

<u>SWMU #6</u> ~ Tank Farm

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. EPA requires seven additional borings to sixteen feet and one additional boring to twenty feet to fully characterize contamination. When Giant performed supplemental sampling of this SWMU in 1991, it was anticipated that further sampling would be required.

<u>SWMU 17</u> - Fire Training

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. Two additional angle borings to seven and eleven vertical feet are required. Additional sampling was anticipated when this SWMU was sampled in 1992, although I question why we now have to analyze for the Skinner List constituents. Samples from this SWMU were originally analyzed for TPH and oil & grease only.

<u>SWMU #8</u> - Railroad Rack Lagoon

EPA has approved Giant's corrective action plan for this SWMU, with additional requirements. After piping modifications at the railroad loading rack are complete and the railroad rack lagoon no longer receives waste, sampling is required within the footprint of the lagoon (five borings) and around the periphery of the lagoon (six borings). Sampling is also required in the overflow ditch (three borings to seven feet) and the fan out area (four borings to seven feet). Some sampling will be required during remediation of the lagoon to document completion of the corrective action plan.

A survey plat of the SWMU, after remediation, must be submitted to the EPA.

<u>SWMU #9</u> - Inactive Land Treatment Area

Although Giant had provided data and proposed no further action, this SWMU was not addressed in the correspondence with the EPA. It needs to be determined if EPA accepts our proposal or has additional requirements.

SWMU #10 - Sludge Pits

EPA is requiring additional sampling to 25' in this SWMU (seven borings) to fully characterize any contamination. Monitoring will be required during remediation to document completion of the corrective action plan. It is reasonable to expect that EPA will require a survey plat of this SWMU after closure.

SWMU #11 - Secondary Oil Skimmer

EPA does not approve Giant's proposal for "No Further Action" and is requiring additional sampling to ten feet (two borings). This is a reasonable request.

<u>SWMU #12</u> - Contact Wastewater System

Although onerous, the requirement to inspect the wastewater system every five years is acceptable in that we were not sure if we could get any kind of "Buy In" from EPA. Costs of monitoring this SWMU are therefore significantly less than anticipated.

SWMU #13 - Drainage Ditch

Although EPA approves Giant's proposal of "No Further Action", additional requirements have been added. Complete resampling is required biennially. This is redundant and expensive. Even though this SWMU continues to be exposed to wastewater, Giant does not believe there is a significant possibility of migration. Giant should propose a five year sampling schedule or a "Phased-In" rotation of sampling.

A survey plat will be required for this SWMU.

III. Estimation of Expenses

Not normally a consideration of the regulatory community, expense is an indicator to industry of the scope and complexity of regulatory requirements. In providing a cost estimate, we are able to judge the economic impact for our company and determine the extent to which we are willing to contest the requirements issued to us.

The following tables (Tables 3, 4, and 5) illustrate the estimated costs per SWMU (for 1994 and biennially).

TABLE 2

STATUS - INDIVIDUAL SWMU

Caps:

- * Railrack Lagoon
- * Sludge Pits
- Fire Training Area
- * Landfills

No Further Action:

- ****** Aeration Basin
- ****** Evaporation Ponds
- ** Drainage Ditch Tank Farm
- ** Empty Container Storage Old Burn Pit Secondary Oil Skimmer
- Secondary Oil Skimmer *** Inactive Land Treatment

* Accepted by EPA with Additional Requirements

** "No Further Action" Approved by USEPA

*** Not Addressed in Correspondence

Table 3

1994 Analytical Costs

SWMU #	SAMPLES <u>REQUIRED</u>	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
4	6	8240 8270 Metals pH	1,800 2,970 2,250 60
5	21	8240 8270 Metals	6,300 10,395 4,830
6	8	BTEX	1,000
7	4	TPH Oil & Grease	200 200
8	50	8240 8270	15,000 24,750
10	18	8240 8270 Metals	5,400 8,910 4,140
11	4	8240 8270	1,200 1,980
13	12	8240 8270	3,600 5,940

Total Analytical Cost 1994 Only

<u>\$119,245</u>

TABLE 4

BIENNIAL ANALYTICAL COST

SWMU #	SAMPLES <u>Required</u>	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
13	12	8240 . 8270	8,600 5,940

Total Biennial Analytical Cost <u>\$46,310</u>

TABLE 5

TOTAL COST OF 1994 SAMPLING (ESTIMATE)

SWMU #	ANALYTICAL COST	LABOR ¹	COST
1	\$ 30,750	\$12,600	\$ 43,350
2	6,020	1,100	7,120
4	7,080 3,000		10,080
5	21,525	14,000	35,525
6	1,000	13,200	14,200
7	400	2,200	2,600
8	39,750	21,400	61,160
10	18,450	22,500	40,950
11	3,180	2,000	5,180
13	9,540	2,600	12,140
	\$119,245	\$94 ,600	<u>\$213,845</u>

* Including Drilling Rig

IV. Conclusions

The additional requirements to fully characterize SWMUs #4, 5, 6, 7, 8, 10 and 11 are reasonable. Although expensive, full characterization of potential pollution is the thrust of an RFI project and is Giant's objective.

The biennial sampling requirements for SWMUs #1, 2, and 13 are, in effect, a repeat of the original RFI project every two years. This is redundant, expensive and, in my opinion, unwarranted. In completing the original RFI work, it was demonstrated that SWMUs #1, 2, and 13 pose no threat to human health or the environment. Additional sampling is probably justified, because these SWMUs continue to handle wastewater, but on a smaller scale. I recommend that we propose to do additional sampling every five years on one-third of the sample points, or something of that magnitude. This should be enough sampling to document that there is no contamination.

It is important that we act now to minimize sampling requirements in that we can reasonably assume that as other SWMUs are characterized, additional long term sampling requirements for those SWMUs will be requested. This could be an expensive task that provides minimal protection to the environment.

The actual sampling process should be fairly straight forward. Sampling protocol will be identical to past projects and can be accomplished by refinery personnel. The sampling process needs to be modified to using a drilling rig to take core samples in place of backhoe and hand auger. This change is due to the increased depths of samples, the sheer number of samples to be collected, analyzed and reported during 1994, and the requirement to use more appropriate soil boring logs. Using a drilling contractor will provide the necessary speed of sampling and the lithologic observations necessary to complete this project in a timely and efficient manner.

It is in the best interest of Giant that we develop the proper response to these new requirements. I recommend that we carefully analyze our options in this matter and schedule a meeting with the RCRA staff at EPA to discuss this issue.

June 28, 1994

5. FL.S

Rich Mayer U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: Quarterly Progress Report

Dear Mr. Mayer:

Pursuant to requirements of the HSWA Permit, Condition C.4., Page 11 and the May 31, 1990 RFI Workplan approval, Giant Refining Company - Ciniza (Giant) submits the <u>Quarterly Progress Report</u> for the second quarter of 1994.

Giant has completed piping modifications to the "Railroad Rack Lagoon" (SWMU #8) system and is presently evacuating the remaining water from the lagoon and disposing of it in the process wastewater system. As soon as it is feasible, Giant will sample the SWMU as required and begin bioremediation activities.

Giant is soliciting proposals for the survey requirement of SWMUs #1, 3, 8, 9 and 13.

Giant is also developing a scope and estimate of expense to further characterize SWMUs #4, 5, 6, 7, 10, and 11 and expects to complete that sampling during the third quarter of 1994.

If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false

GIRINGCO

Route 3, Box 7 Gallup, New Mexico

87301 505 722-3833 information, including the possibility of fine and imprisonment for knowing violations."

Sincerely; John Stokes

Refinery Manager

JJS/TLS:sp

cc: Kim Bullerdick, Corporate Counsel Giant Industries Arizona, Inc.

David Pavlich, Health/Safety and Environmental Manger Giant Refining Company INTEROFFICE MEMORANDUM

F/!/.

DATE: February 3, 1994

TO: David Pavlich Kim Bullerdick

FROM: Lynn Shelton 748

SUBJECT: RCRA Facility Investigation - Additional Requirements

I. Introduction

Giant Refining Company - Ciniza (Giant) performed a RCRA Facility Investigation (RFI) in three phases (I, II, and III) over three years (1990, 1991, and 1992).

Using the analytical results of those three sampling events, Giant submitted four corrective action plans and eight "No Further Action" proposals to Region VI, United States Environmental Protection Agency (EPA).

Correspondence from the EPA (1-7-94) indicated approval of the corrective action plans (with additional requirements) for three Solid Waste Management Units (SWMUs), for RFI reports Phase I, II, and III and assigns a deadline for submittals of additional data.

The additional sampling and reporting requirements, some of which are redundant and unnecessary, are the focus of this correspondence. In the following pages, the scope and cost of the additional sampling requirements will be presented.

Some explanation of a potential problem is in order. The SWMU identification numbering sequence is inconsistent. In discussing the draft letters with Rich Mayer, of Region VI EPA, the discrepancy in reference to the SWMU numbers was mentioned. Mr. Mayer responded that the correct SWMU numbers were taken from the HSWA Permit (Section C, Corrective Actions for Continuing Releases, 5.(a)(1)). Giant had used the numbering sequence from the approved RFI Workplan (revised May 17, 1990). As shown in Table 1, there are discrepancies in all three sequences. Giant should propose to use the numbering sequence identified in the revised RFI Workplan to avoid confusion with the numbering sequence of SWMUs and sample numbers already reported.

Table 2 presents an overview of the status of the SWMUs.

TABLE 1

2

SWMU IDENTIFICATION

RFI WORKPLAN	hswa	EPA	LETTER	SWMU
1	1		1	Aeration Basin
2	2		2	Evaporation Ponds
3	5		5	Empty Container Storage
4	8		8	Burn Pit
5	7		7	Four Landfills
6	3		6	Tank Farm
7	4		4	Pire Training Area
8	6		8	Railroad Rack Lagoon
9	10 & 13		-	Inactive Land Treatment
10	9		9	Two Sludge Pits
11	11	1	1	Secondary Oil Skimmer
12	14	1	.3	Wastewater Collection
13	14	1	3	Drainage Ditch

TABLE 2

STATUS - INDIVIDUAL SWMU

Caps:

- * Railrack Lagoon
- * Sludge Pits
 - Fire Training Area
- * Landfills

No Further Action:

- ****** Aeration Basin
- ****** Evaporation Ponds
- ** Drainage Ditch
- Tank Farm ** Empty Container Storage Old Burn Pit
- Secondary Oil Skimmer *** Inactive Land Treatment

* Accepted by EPA with Additional Requirements
 ** "No Further Action" Approved by USEPA
 *** Not Addressed in Correspondence

II. Discussion

A discussion of additional requirements, by SWMU, follows. Included, as Figures 1 to 12, are drawings of the SWMUs with individual sample points.

<u>SWMU #1</u> - Aeration Lagoon

EPA approved Giant's proposal for "No Further Action". Although Giant demonstrated that no significant migration of hazardous constituents had taken place, EPA requires biennial sampling that duplicates the original RFI sampling. This is redundant and expensive. Giant should propose either a five year sampling rotation or a phased-in plan (of six sample locations, sample two biennially until all samples are taken, then start again). These sampling plans will diminish the costs considerably and still provide documentation that migration has not occurred.

EPA also requires a survey plat of the SWMU. Giant agrees that this is a reasonable requirement.

<u>SWMU #2</u> - Evaporation Ponds

EPA has also approved Giant's proposal for "No Further Action" of this SWMU. EPA requires that Giant sample the seven groundwater wells (MW-4, OW-1, OW-2, OW-5, OW-7, OW-9 and OW-10) biennially for the same constituents as monitored for in the RFI sampling event. Giant may wish to propose a five year sampling rotation.

<u>SWMU #3</u> - Empty Container Storage Area

EPA approved Giant's proposal for "No Further Action" for the SWMU, requiring only that Giant provide a survey plat.

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EPA does not approve Giant's proposal for "No Further Action". Three borings at six and ten feet will be required to characterize constituent migration in this SWMU.

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EPA requires that additional borings, at eleven, sixteen and twenty feet to fully characterize contamination.

<u>SWMÚ #6</u> - Tank Farm

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. EPA requires seven additional borings to sixteen feet and one additional boring to twenty feet to fully characterize contamination. When Giant performed supplemental sampling of this SWMU in 1991, it was anticipated that further sampling would be required.

<u>SWMU #7</u> - Fire Training

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<u>SWMU #8</u> - Railroad Rack Lagoon

EPA has approved Giant's corrective action plan for this SWMU, with additional requirements. After piping modifications at the railroad loading rack are complete and the railroad rack lagoon no longer receives waste, sampling is required within the footprint of the lagoon (five borings) and around the periphery of the lagoon (six borings). Sampling is also required in the overflow ditch (three borings to seven feet) and the fan out area (four borings to seven feet). Some sampling will be required during remediation of the lagoon to document completion of the corrective action plan.

A survey plat of the SWMU, after remediation, must be submitted to the EPA.

<u>SWMU #9</u> - Inactive Land Treatment Area

Although Giant had provided data and proposed no further action, this SWMU was not addressed in the correspondence with the EPA. It needs to be determined if EPA accepts our proposal or has additional requirements.

SWMU #10 - Sludge Pits

EPA is requiring additional sampling to 25' in this SWMU (seven borings) to fully characterize any contamination. Monitoring will be required during remediation to document completion of the corrective action plan. It is reasonable to expect that EPA will require a survey plat of this SWMU after closure.

SWMU #11 - Secondary Oil Skimmer

EPA does not approve Giant's proposal for "No Further Action" and is requiring additional sampling to ten feet (two borings). This is a reasonable request.

<u>SWMU #12</u> - Contact Wastewater System

Although onerous, the requirement to inspect the wastewater system every five years is acceptable in that we were not sure if we could get any kind of "Buy In" from EPA. Costs of monitoring this SWMU are therefore significantly less than anticipated.

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A survey plat will be required for this SWMU.

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Not normally a consideration of the regulatory community, expense is an indicator to industry of the scope and complexity of regulatory requirements. In providing a cost estimate, we are able to judge the economic impact for our company and determine the extent to which we are willing to contest the requirements issued to us.

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Table 3

7

1	9	94	Anal	lyti	ical	l Costs
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Total Analytical Cost 1994 Only

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TABLE 4

.

BIENNIAL ANALYTICAL COST

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Total Biennial Analytical Cost \$46,310

TABLE 5

TOTAL COST OF 1994 SAMPLING (ESTIMATE)

SWMU #	ANALYTICAL COST	LABOR t	COST
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11	3,180	2,000	5,180
13	9,540	2,600	12,140
	<u>\$119,245</u>	\$94,600	<u>\$213,845</u>

* Including Drilling Rig

IV. Conclusions

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The additional requirements to fully characterize SWMUs #4, 5, 6, 7, 8, 10 and 11 are reasonable. Although expensive, full characterization of potential pollution is the thrust of an RFI project and is Giant's objective.

The biennial sampling requirements for SWMUS #1, 2, and 13 are, in effect, a repeat of the original RFI project every two years. This is redundant, expensive and, in my opinion, unwarranted. In completing the original RFI work, it was demonstrated that SWMUS #1, 2, and 13 pose no threat to human health or the environment. Additional sampling is probably justified, because these SWMUs continue to handle wastewater, but on a smaller scale. I recommend that we propose to do additional sampling every five years on one-third of the sample points, or something of that magnitude. This should be enough sampling to document that there is no contamination.

It is important that we act now to minimize sampling requirements in that we can reasonably assume that as other SWMUs are characterized, additional long term sampling requirements for those SWMUs will be requested. This could be an expensive task that provides minimal protection to the environment.

The actual sampling process should be fairly straight forward. Sampling protocol will be identical to past projects and can be accomplished by refinery personnel. The sampling process needs to be modified to using a drilling rig to take core samples in place of backhoe and hand auger. This change is due to the increased depths of samples, the sheer number of samples to be collected, analyzed and reported during 1994, and the requirement to use more appropriate soil boring logs. Using a drilling contractor will provide the necessary speed of sampling and the lithologic observations necessary to complete this project in a timely and efficient manner.

It is in the best interest of Giant that we develop the proper response to these new requirements. I recommend that we carefully analyze our options in this matter and schedule a meeting with the RCRA staff at EPA to discuss this issue.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 . 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

JAN 7 1994

6	EGEIVE	
	JAN 1 2 1994	
	GIANT REFINING CO. CINIZA REFINERY	

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RCRA Facility Investigation (RFI) Phase III Report and RE: Voluntary Corrective Action Plan Giant Refining Co. NMD000333211

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) hereby approves your RCRA Facility Investigation Phase III Report dated November 3, 1992, with the enclosed modifications. The EPA is requiring that additional soil sampling be completed at several sites, including the Landfill Areas, the Old Burn Pit, the Secondary Skimmer, and the Fire Training Area. A supplementary report detailing the results of these sampling activities shall be submitted to the EPA by December 31, 1994.

Additionally, the EPA is approving the voluntary Corrective Action Plan for the Landfill Areas, submitted in March, 1993.

If you have any further questions or need additional information, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

Allyn M. Davis, Director Hazardous Waste Management Division (6H)

Enclosure

cc: Kathleen Sisneros, NMED

APPROVAL WITH MODIFICATIONS GIANT REFINING COMPANY . RCRA FACILITY INVESTIGATION PHASE III REPORT AND THE CORRECTIVE ACTION PLAN FOR THE LANDFILL AREAS

The Environmental Protection Agency (EPA) has completed a technical review of your RCRA Facility Investigation (RFI) Phase III Report, dated October, 1992, and your voluntary Corrective Action Plan for the Landfill Area, dated February, 1993. The subject reports are hereby approved with the following comments and modifications.

GENERAL COMMENTS

SWMU 5. The Empty Container Storage Area

The EPA hereby approves the finding of No Further Action (NFA) for Solid Waste Management Unit (SWMU) number three (3), the Empty Container Storage Area. However, this approval is contingent upon the completion of a survey plat for the unit. The survey plat shall be completed in accordance with the procedures outlined in 40 CFR 264.116. Giant shall submit a copy of the survey plat to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for the Empty Container Storage Area.

SWMU 8, The Old Burn Pit

Due to the presence of elevated levels of volatile and semivolatile contaminants in soil samples from this unit, the EPA is unable to approve Giant's finding of No Further Action. All three (3) soil samples taken at the 4.5 foot interval (the deepest interval sampled) contained elevated levels of heavy molecular weight semivolatiles. Additionally, one of the three (3) samples at the 4.5 foot interval also contained elevated BTEX levels. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU_11, The Secondary Oil Skimmer

Due to the presence of elevated levels of volatile and semivolatile contaminants in soil samples from this unit, the EPA is unable to approve Giant's finding of No Further Action. One of the two (2) samples taken at the 3.0 foot interval (the deepest interval sampled) contained volatile and semivolatile contaminants. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 4, The Fire Training Area

Due to the presence of elevated levels of oil and grease in soil samples from this unit, the EPA is unable to approve Giant's finding of No Further Action. Two (2) of the four (4) samples

Approval with Modifications, 1/5/93 Giant's RFI Phase III & CAP Reports taken at the 4.5 foot interval (the deepest interval sampled) contained oil and grease above 2,000 ppm. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 7, The Landfill Areas

Because soil borings completed in this unit indicate the presence of waste and metal contamination at depths up to 9.5 feet, the EPA is requiring that additional soil borings be completed at greater depths. These additional soil borings will be installed in order to:

- 1) Verify that saturated zones found in three (3) of the 12 deepest soil boring intervals are isolated and are not connected to the groundwater;
- 2) Ensure that the vertical extent of waste emplacement has been defined;
- 3) Confirm that the vertical extent of metal contamination has been delineated.

Following the completion of the additional soil borings in the Landfill Areas, Giant may proceed with the capping of the landfills as per their voluntary Corrective Action Plan.

MODIFICATIONS

Note:

e: All referenced sampling points correspond to the previous RFI sampling points completed in May, 1992. Soil boring logs included in future report submittals shall follow the attached example.

SWMU #8, The Old Burn Pit

Giant shall complete soil borings as close as possible to sample points one (1), two (2) and three (3). Sampling intervals shall be at six (6) and (10) feet and must extend vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. Sampling procedures and analytical requirements are identical to those required in the previous RFI. The results of this sampling event shall be submitted to the EPA by December 31, 1994.

SWMU #11, The Secondary Oil Skimmer

Giant shall complete two (2) soil borings within the area occupied by the former Skimmer. All borings must be sampled at the 5-6 foot and 9-10 foot interval. Sampling shall extend vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to delineate contamination. Sampling procedures and analytical requirements are identical to those required in the previous RFI. The results of this sampling event shall be due to EPA by December 31, 1994.

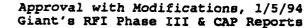
Approval with Modifications, 1/5/94 Giant's RFI Phase III & CAP Reports

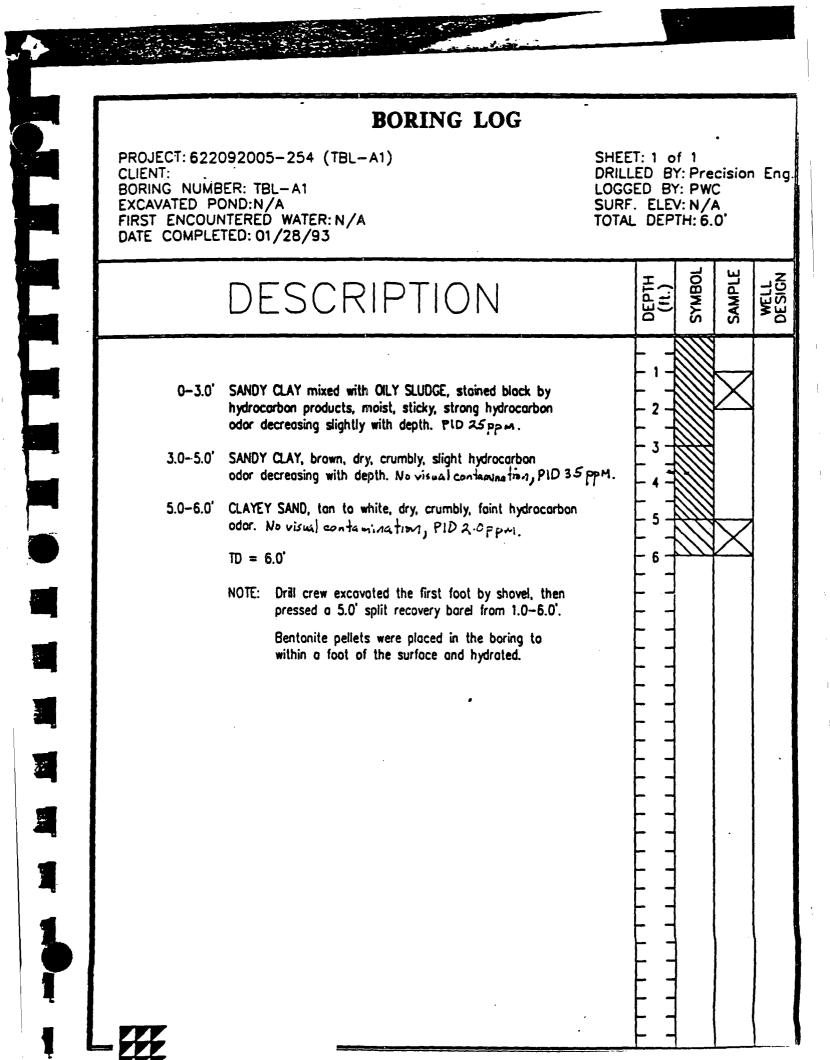
SWMU #4. The Fire Training Area

Giant shall complete <u>angled</u> soil borings as close as possible to sample points one (1) and two (2). Sampling intervals shall be at 7 and 11 feet. Sampling must extend vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to delineate contamination. Sampling procedures shall be identical to those required in the previous RFI. Analytical constituents shall include the Skinner constituents. The results of this sampling event shall be submitted to the EPA by December 31, 1994.

SWMU #7, The Landfill Areas

Giant shall take soil borings as close as possible to sample points two (2) through seven (7), and nine (9). Sampling intervals shall be at 11 feet, 16 feet and 20 feet. Sampling must extend vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to delineate contamination. Sampling procedures shall be identical to those required in the previous RFI. Giant shall analyze all samples for metals. If volatile or semivolatile contamination is encountered when sampling, then those constituents shall be analyzed also. The results of this sampling event shall be due to EPA by December 31, 1994.





DEC-22-1993 13:51

P.002/005

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RCRA Facility Investigation (RFI) Phase III Report and RE: Voluntary Corrective Action Plan - Giant Refining Co. -NMD000333211

Dear Mr. Stokes:

We hereby approve your Phase III RFI Report dated November 3, 1992, with the enclosed modifications. The voluntary Corrective Action Plan (CAP) for the Landfill Areas (submitted in March of 1993) is also approved.

The Phase III Supplementary Report (additional soil sampling for the Landfill Areas, the Old Burn Pit, the Secondary Skimmer and the Fire Training Area) is due to the Environmental Protection Agency (EPA) by December 31, 1994. If you have any further questions pertaining to the above mentioned items, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

Allyn M. Davis, Director Hazardous Waste Management Division

Enclosure

cc: Kathleen Sisneros, NMED

6h-pn:RM:7442:12/3/93:promo disk:A:rfiIIIG:file NMD.....211

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APPROVAL OF THE RFI PHASE III REPORT, WITH MODIFICATIONS, AND APPROVAL OF THE VOLUNTARY CORRECTIVE ACTION PLAN (CAP) FOR THE LANDFILL AREAS FOR GIANT REFINING COMPANY

Below are EPA's general comments and modifications pertaining to Giant's RFI Report and the voluntary CAP for the Landfill Areas. Under general comments, there is a discussion describing the RFI status of each SWMU and the remaining RFI process/requirements for each SWMU. The modifications consist of SWMU specific monitoring or investigations required by EPA.

General Comment: EPA agrees with the finding of no further action for the SWMU #3, the Empty Container Storage Area. Even though EPA is tentatively agreeing with the no further action determination, EPA will require one administrative control for the Empty Container Storage Area. The administrative control shall consist of: a survey plat of the SWMU, according to the procedures required in 40 CFR 264.116. Once Giant has sent documentation to EPA verifying completion of the administrative control, Giant may submit a Class III permit modification to terminate the RFI/CMS process for the Empty Container Storage Area.

On SWMU #4, the Old Burn Pit, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, all 3 samples taken at the 4.5 foot interval (the deepest interval sampled) contained elevated levels of heavy molecular weight semivolatiles. One of the three samples at the 4.5 foot interval also contained elevated BTEX levels. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #11, the Secondary Oil Skimmer, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, one of the two samples taken at the 3 foot interval (the deepest interval sampled) contained volatiles and semivolatiles. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #7; the Fire Training Area, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, 2 of the 4 samples taken at the 4.5 foot interval (the deepest interval sampled) contained oil and grease above 2000 ppm (detection limit is <10 ppm). Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #5, the Landfill Areas, EPA believes that additional deeper borings are needed to: 1) verify that saturated zones found in 3 of the 12 deepest soil boring intervals are isolated and are not connected to the groundwater; 2) ensure that the vertical delineation of waste emplacement has been identified (soil boring logs indicate waste at the 8-9'zone, the deepest samples were taken at 9.5'); and, 3) ensure that the vertical extent of metal contamination has been identified (some of 9.5' samples had elevated metal levels. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

After Giant has completed the additional sampling requirements for the Landfill Areas, they then may proceed with the capping of the landfills under the voluntary Corrective Action Plan.

Modifications

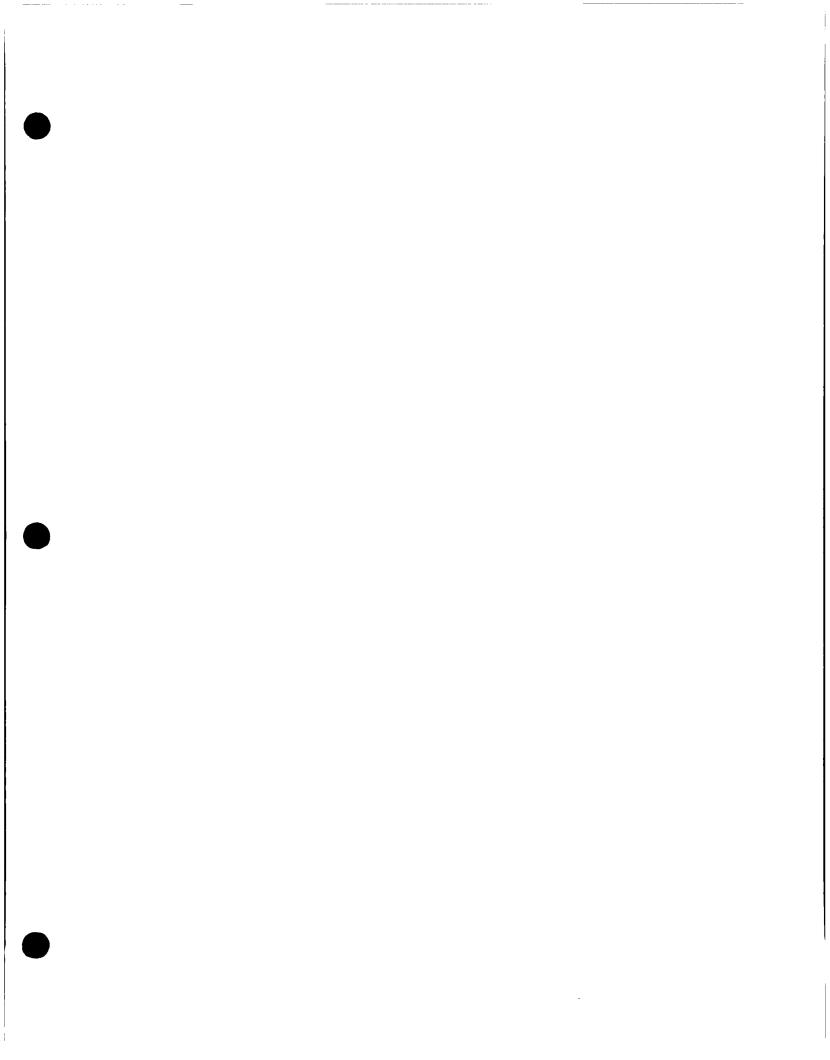
SWMU #4, the Old Burn Pit: Giant shall take soil borings as close as possible to the following sample points (numbers are from previous RFI sampling points, done May of 1992): number's 1, 2, and 3. Sampling intervals shall be at 6 and 10 feet. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by December 31, 1994.

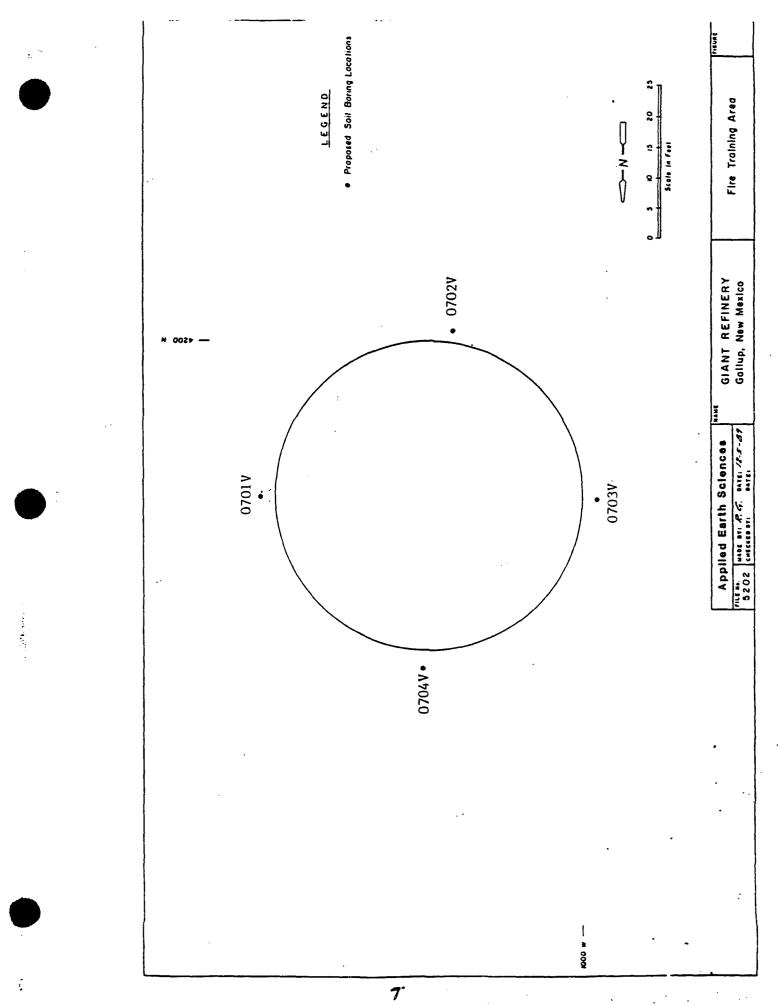
SWMU #11, the Secondary Oil Skimmer: Giant shall take 2 soil borings within the area occupied by the former Skimmer. All borings must be sampled at the 5-6 foot and 9-10 foot interval. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. The results of this sampling event shall be due to EPA by December 31, 1994.

SWMU #7, the Fire Training Area: Giant shall take soil borings as close as possible to sample points number 1 and 2 (numbers are from previous RFI sampling points, done in May of 1992). Sampling intervals shall be at 7' and at 11'. Sampling procedures shall be identical to those required in the previous RFI, except, that all soil borings shall be angled. Constituents to be analyzed shall include the Skinner constituents. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by December 31, 1994.

SWMU #5, the Landfill Areas: Giant shall take soil borings as close as possible to the following sample points (numbers are from previous RFI sampling points, done in May of 1992): number's 2, 3, 4, 5, 6, 7, and 9. Sampling intervals shall be at 11', 16' and 20'. Sampling procedures shall be identical to those required in the previous RFI. Giant shall analyzed the samples for metals. If volatile or semivolatile contamination is encountered when sampling, then those constituents shall be analyzed also. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by December 31, 1994.

Soil Boring Logs: EPA has included an example of a soil boring log which they would like Giant to use in all future borings.





PHASE III, RFI 1992 GIANT REFINING CINIZA

SOLID WASTE MANAGEMENT UNIT #7- "Fire Training Area"

Oil & Grease

SAMPLE POINT SAMPLE DEPTH (feet)		01 VO.O'	01 V3.0'	01 V4.5'	02 V0.0'	02 V3.0'	02 V4.5'	02 D4.5'
PARAMETER	UNITS	RESULT						
Oil & Grease	ng/kg	1700	150	<10	<10	2700	2300	2000

Oil & Grease

SAMPLE POINT SAMPLE DEPTH (feet)		03 V0.0'	03 V3.0'	03 V4.5'	04 V0.0'	04 V3.0'	04 V4.S'
PARAMETER	UNITS	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Oil & Grease	mg/kg	27000	44	<10	29000	8000	2800

PHASE III, RFI 1992 GIANT REFINING CINIZA

SOLID WASTE MANAGEMENT UNIT #7- "Fire Training Area"

Total Petroleum Fuel Hydrocarbons

SAMPLE POINT SAMPLE DEPTH (feet)		01 V0.0'	01 V3.0'	01 V4.5'	02 V0.0'	02 V3.0'	02 V4.5'	02 D4.5′
PARAMETER	UNITS	RESULT						
TPH	∎g/kg	75	<10	<10	<10	<10	<10	<10

Total Petroleum Fuel Hydrocarbons

SAMPLE POINT SAMPLE DEPTH (feet)		03 V0.0'	03 V3.0'	03 V4.5'	04 V0.0'	04 V3.0'	04 V4.5′
PARAMETER	UNITS	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
TPH	mg/kg	<10	<10	<10	<10	<10	<10

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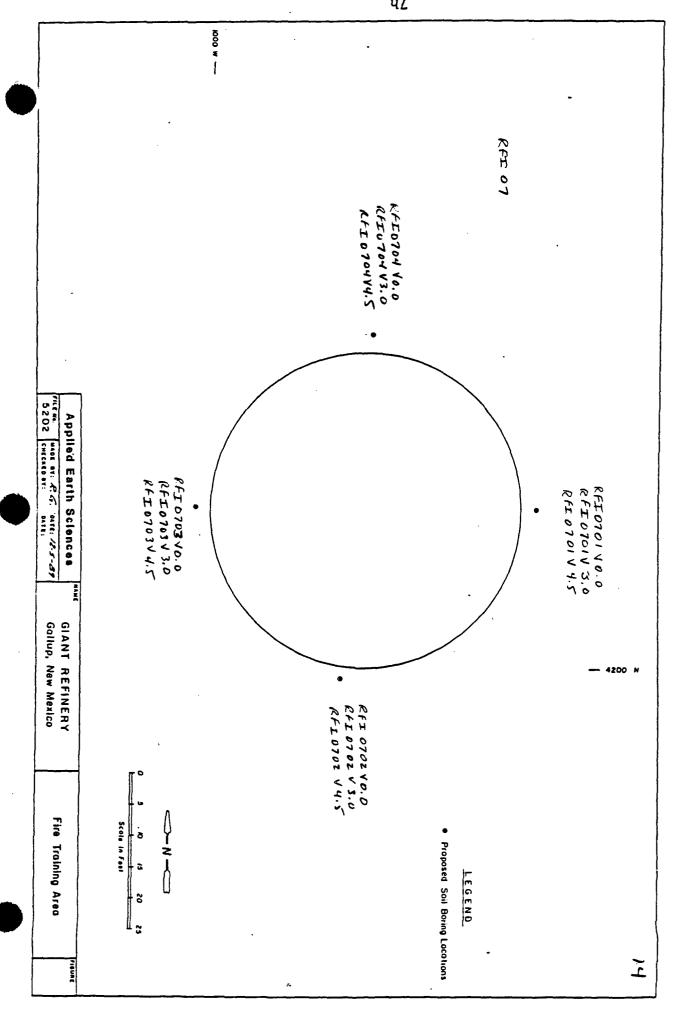
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Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

August 11, 1992

Barbara Driscoll U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: Quarterly Progress Report

Dear Mr. Driscoll:

Giant Refining Company - Ciniza (GRC) is submitting this quarterly progress report as required by the May 31, 1990 RFI Workplan approval letter and HSWA Permit Condition C.4., Page 11.

GRC finished soil sampling of SWMU's #3, 4, 5, 7, and 11 on May 15, 1992. All samples were sent to Westech Laboratories for analysis. Hard copy of analytical results has been received and tabulated and is currently having statistical analysis done by Mr. Mark Wilson of the University of New Mexico.

The inspection of the remaining process wastewater system (that part not inspected in 1990) is being organized. Please refer to the attached drawings for lines that may be inspected. The lines were identified using the drawings included in the approved RFI Workplan and by using a corrected drawing from а hydroblasting project completed in 1988. Only lines marked in blue may be inspected and will represent what GRC believes will reasonably demonstrate the integrity of the process wastewater system. Some lines may not be inspected due to safety or process considerations.

This inspection is tentatively scheduled to take place in late August, 1992.

If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely, John Stokes

John Stokes Refinery Manager Ciniza Refinery

JJS/TLS:sp

cc: Kim Bullerdick - Corporate Counsel Giant Industries Arizona, Inc. RFI WORKPLAN

PHASE III 1992

<u>May 4, 1992</u>

Training 8:00 - 4:15 Load Equipment SWMU Site Tour

<u>May 5, 1992</u>

SWMU #4 Burn Pit 9 Samples

<u>May 6, 1992</u>

SWMU #3 Empty Container Storage 12 Samples

May 7, 1992

SWMU #7	Fire Training Area	12 Samples
SWMU #11	Secondary Oil Skimmer	4 Samples

<u>May 8, 1992</u>

SWMU #5	Land Fill Area	48 Samples
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May 11, 1992

Continue SWNU #5 48 Samples

<u>May 12, 1992</u>

Continue SWN	U #5	48 S	amples
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<u>May 13, 1992</u>

Begin set-up for sewer line inspection Expect one week to complete



Route 3. Box 7 Gallup, New Mexico 87301

505 722-3833

June 9, 1992

Barbara Rutten Marketing Director Westech Laboratories 3737 East Broadway Road Phoenix, Arizona 85040

Re: RFI Phase III Background Metals

Dear Barbara:

With our submittals of soils for analysis, Giant requested analysis of only four of the listed metals for SWMU's #4 and #5 pending approval from the U.S. EPA Region VI.

Giant has received permission to analyze for an abbreviated list of background metals to include:

Arsenic Barium Beryllium Cadmium Chromium Lead Nickel Vanadium

* Mercury

* Indicates metals already analyzed

Giant requests that Westech Laboratories analyze the soil samples you are holding in cold storage (SWMU #4 and #5) for the balance of the metals on this abbreviated list.

Specific sample numbers to be analyzed are:

RFI0401V0.0	RFI0503D9.5	RFI0590V0.0
RFI0401V3.0	RF10504V0.0	RFI0509V3.0
RFI0401V4.5	RF10504V3.0	RFI0509V7.0
RFI0402V0.0	RFI0504V7.0	RFI0509V9.5
RFI0402V3.0	RFI0504V9.5	RFI0510VO.O
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RFI0403V4.5	RFI0505V9.5	RFI0511VO.0
RFIÓ501VO.O	RFI0506V0.0	RFI0511V3.0
RFI0501V3.0	RFI0506V3.0	RFI0511V7.0
RFI0501V7.0	RF10506V7.0	RFI0511V9.5
RFI0501V9.5	RF10506V9.5	RFI0512V0.0
RFI0501D9.5	RF10507V0.0	RF10512V3.0
RFI0502V0.0	RFI0507V3.0	RFI0512V7.0
RFI0502V3.0	RFI0507V7.0	RFI0512V9.5
RFI0502V7.0	RFI0507V9.5	RFI0512D9.5
RFI0502V9.5	RFI0507D9.5	
RFI0503V0.0	RF10508V0.0	
RFI0503V3.0	RF10508V3.0	
RFI0503V7.0	RFI0508V7.0	
RFI0503V9.5	RFI0508V9.5	
	RFI0508D9.5	

If you require additional information about this analysis, please contact mat at (505) 722-0227.

Sincerely,

Lyn Shelto

Lynn Shelton Environmental Assistant Ciniza Refinery

TLS:sp

Sample Location:	Sample Date: 5-7-92
Sample Type:	
Team Leader: L. SHELTON	•
Sample Personnel: M. BARNEY, T. (ZOLERS
ء 	
Sampling Method: <u>AUGER</u>	
Sample No. <u>RFIO 70/VO</u> . OSample Time/Description:	<u>10:30,4m</u> <u>MOIST SOIL</u> <u>PID - 11</u>
Sample No. <u>PFI0701V</u> 3.CSample Time/Description:	
Sample No. <i>@<u>FI0101V4</u>.5</i> Sample Time/Description:	14:00 Am MOIST SOIL PID-, Z
Sample No Sample Time/Description:	:
Sample No Sample Time/Description:	
Surface Terrain: <u>SLIGHT SLOPE</u> (19 MINUTE PLANT (. ROWTH	RAVEL & SOIL SURFACE
Weather Conditions: <u>MOSTLY SUNNY</u> , @ 1-5 mp H.	15°F, LIGHT EWIN
General Field Observations:	
Boring Lithology: <u>0-1' - MIXED CLA</u> DARK, MOSTZY CLAY, 27"-9.0' GRAY CLAY MIX	AY ISANS IC, RAVEL, 1-27" - RED CLAY 4-5 - REST

Sample Type: <u>SOIL</u> Team Leader: <u>L. SHELTON</u> Sample Personnel: <u>M. DARNEY</u> , <u>T. ROGE</u> Sampling Method: <u>A UGER</u> Sample No. <u>RECOTOR VO.O</u> Sample Time/Description: <u>//</u>	
Sample Personnel: <u>M. BARNEY, T. Rock</u>	
Sampling Method:	
	R.5
Sample No. 1650702 Vo. 0 Sample Time/Description: _//	
	PID4
Sample No. <u>RFI0702V3.</u> 0 Sample Time/Description: _//	20AM MOIST SOIL PID - 1.4
Sample No.R <u>FI0702v4</u> SSample Time/Description: <u>//</u>	130 Am MOIST CLAY PID-3
Sample No <u>2FL0707D4,5</u> Sample Time/Description: <u>//</u>	:30 AM MOISTELAY
Sample No Sample Time/Description:	
Surface Terrain: <u>SLOPE</u> , SOIL & GRAVE	LSURFACE
Weather Conditions: <u>SEE IST PAGE</u>	WIND SWITCHING FROM ETDW
General Field Observations: <u>OLD SMOKE</u> FIRE TRAINING, 5-5-97, START AND COVERED AREA WITH SMOK DO NOT BELIEVE IT AFFECTED SAM	EP SMOKING AGAIN E FOR ~ 3 MINUTES.
Boring Lithology: <u>A-1.5'</u> DARK CLAY M GRAVEL, 1.5 to 3.0' VERIGATED CLAYS,	1/25-170 SAND AND SIME 2.0-5' REDIGRAY CLA

Sample Location: <u>SWMU #7</u> Sample Date: <u>5.7-92</u>
Sample Type: <u>SOIL</u>
Team Leader: HELTON
Sample Personnel:
· · · · · · · · · · · · · · · · · · ·
Sampling Method:AVGER
Sample No. <u><i>REF0703Vo.</i> OSample Time/Description: 1/.40 AM MOIST SOIL</u> <u>PID4</u>
Sample No. <u>RFL0703V3.</u> 0 Sample Time/Description: <u>//:50 AM MOIST SOIL</u> <u>PID - Ø</u>
Sample No. <u>RFI0703V4.5</u> Sample Time/Description: <u>//¹/557Am</u> <u>MOIST SOIL</u> <u>PID-P</u>
Sample No Sample Time/Description:
Sample No Sample Time/Description:
Surface Terrain: <u>SLIGHT SLOPE</u> , SOIL + GRAVEL SURFACE
Weather Conditions: PARTLY SUNNY, SSW WIND @ 3-5 MpH. 60°F,
·
General Field Observations:
· · · · · · · · · · · · · · · · · · ·
Boring Lithology: 0-21" DARK DISCOLORED SOIL WITH SOME GRAVEL, 21" TO S' RED IGEAY CLAY.

Sample Location:#7	Sample Date: <u>5-7-92</u>
Sample Type: <u>Soil</u>	
Team Leader: L. SHELTON	
Sample Personnel: M. BARNEY, T. ROGERS	5
•	
Sampling Method:AVGER	
Sample No. <u>RFT0704 VO.</u> o Sample Time/Description: <u>12,5</u>	PID 1.4
Sample No.RFI0704V3.0Sample Time/Description: _/;0_	5 Pm MOISTSOIL
Sample No. <u>RFF0704V4</u> .5Sample Time/Description: _/ [*] Ze	PID CY
	<u> </u>
Sample No. <u>LFI0 104E4</u> Sample Time/Description: <u>/; 2</u>	5 FM W.4 TER
Sample No Sample Time/Description:	
Surface Terrain: <u>SLOPE</u> Soil & CRAVEL	SURFACE
Weather Conditions: <u>CLOUNY</u> 55°F, W	ISW @ 5 MPH
General Field Observations:	
	*
· · · · · · · · · · · · · · · · · · ·	
Boring Lithology: <u>D-1' DISCOLORED SOIL </u> <u>1-1" TO ZZ' SLIGHRY DISCOLORED SOI</u> <u>CLAY WISOME WHITE SPECKING AT</u> <u>OF DARKER SOIL Q. 4.0' LEVEL.</u>	SAND W/GRAVEL, 4:22" TO S' RED 4'-5', 2" LAYER



THIS COPY OF MY LETTER TO KAREN LISTS THE SPECIFIC ANALYSIS 13Y SWMU.

January 15, 1992

Karen Lofquist Westech Laboratories 3737 East Broadway R Phoenix, Arizona 8

Dear Karen:

In anticipation of the May, 1992 RCRA Facility Investigation (RFI) at Giant's Ciniza Refinery, I am requesting a cost proposal for the following analytical work:

SWMU #3 8240 Priority Pollutants

12 Samples 1 Duplicate 1 Trip Blank

SWMU #4 pH Skinner List Organics Background Metals

SWMU #5 pH 8240 Priority Pollutants Background Metals

SWMU #7 Total Petroleum Hydrocarbon (TPH) Oil and Grease

SWMU #11 Skinner List Organics

- 9 Samples
- l Duplicate
- l Trip Blank
- I Equipment Wash
- 48 Samples
- 3 Duplicates
- 2 Trip Blanks
- 2 Equipment Washes
- 12 Samples 1 Duplicate 1 Trip Blank

4 Samples

1 Duplicate

1 Equipment Wash

Giant will require ice chests, bottles, labels and seals, chain of custody and a copy of your quality assurance/quality control documentation.

Please submit your proposals to my office no later than February 29, 1992. If you have any questions, please contact me at (505) 722-0227.

Sincerely,

Lynn Shelton

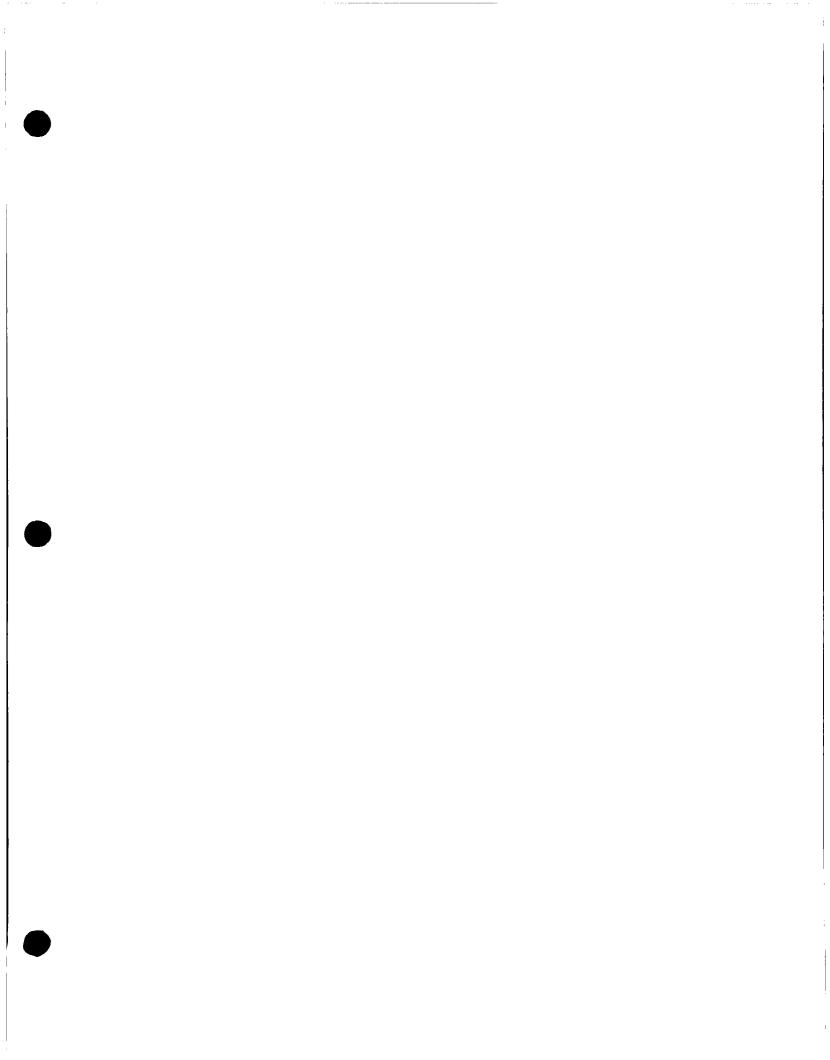
Lynn Shelton Environmental Assistant Ciniza Refinery

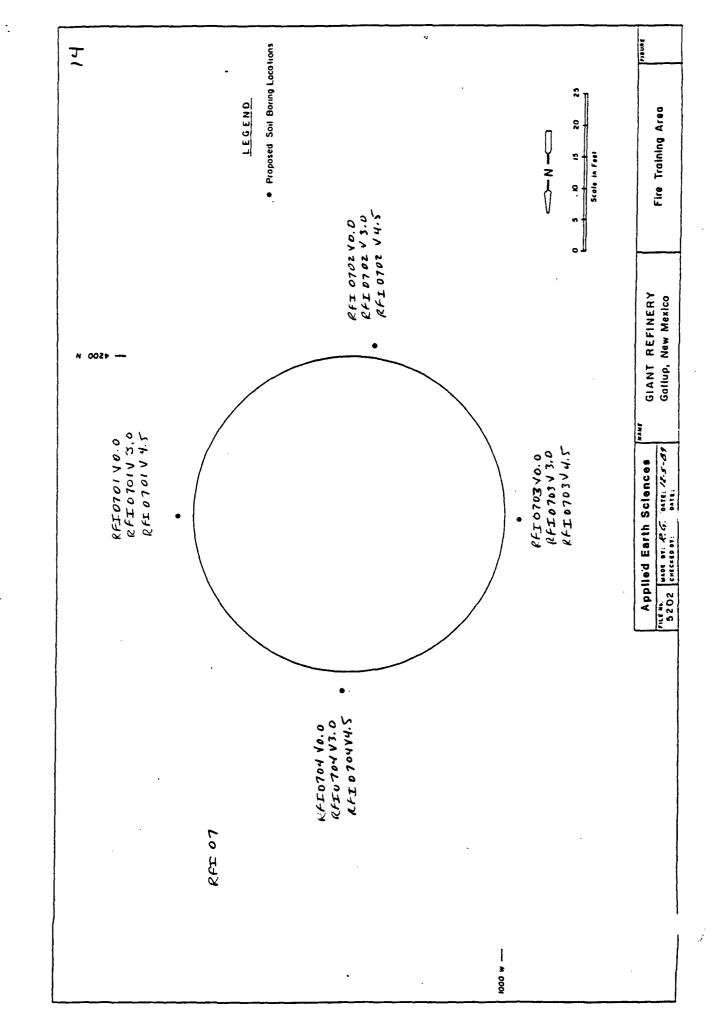
TLS:sp

KAREN-

I'VE ATTACHED LISTS OF SPECIFIC CONSTITUENTS FOR THE SKINNER LIST, PRIORITY POLLUTANTS, AND BACK GROUND METALS.

TAANKS-Lym





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pt. 14, 1989

APPLIED EARTH SCIENCES

UNIT AREA CHARACTERISTICS

TYPE OF UNIT: Fire Training Area

LOCATION OF UNIT: Figure 1, No. 42

DESIGN FEATURES:

Steel cylinder with an open top and steel bottom.

OPERATING PRACTICES (PAST AND PRESENT):

Fuel was placed inside the cylinder, ignited and used to train fire fighters. During the training some of the fuel may leak out of the cylinders onto the adjacent soil. Training is conducted twice a year.

PERIOD OF OPERATION:

1962 to Present

AGE OF UNIT:

> 27 years

GENERAL PHYSICAL CONDITIONS:

Good condition

METHOD USED TO CLOSE THE UNIT:

N/A

APPLIED EARTH SCIENCES

WASTE CHARACTERIZATION

TYPE OF UNIT: Fire Training Area

LOCATION OF UNIT: Figure 1, No. 42

TYPE OF WASTE PLACED IN UNIT:

Water and oil

APPROXIMATE QUANTITY MANAGED:

Residual after burning.

PHYSICAL AND CHEMICAL CHARACTERISTICS

Oil

MIGRATION AND DISPERSAL CHARACTERISTICS:

Potential for soil contamination exists near the tank.

APPLIED EARTH SCIENCES

RELEASE VERIFICATION

SWMU: Fire Training Area

LOCATION: Figure 1, No. 42

A hydrocarbon sheen was visible on the surface of the water in the tank. Soil around the tank was discolored. There is no record of a release in the Giant Industries files.

SWMU No. 9, Drainage Ditch Near the Inactive Land Farm

The inactive land treatment area and the drainage ditch were identified as solid waste management units 2 (SWMUs) and designated as SWMU No. 9 and SWMU No. 14, respectively, during a Resource 3 Conservation and Recovery Act (RCRA) facility investigation (RFI) conducted at the Giant Refining 4 Company - Ciniza Refinery (Ciniza) in the early 1990s. Later, these SWMUs were combined to become 5 SWMU No. 9, Drainage Ditch Near the Inactive Land Farm. The RFI included soil sampling and 6 analysis, which indicated the presence of trace organics and trace metals. Ciniza determined that no 7 significant impact had occurred and recommended no further action (NFA) for SWMU No. 9 and 8 submitted a survey plat to the U.S. Environmental Protection Agency (EPA) in July 1995. EPA approved 9 the NFA recommendation but required repeat sampling beginning in 1995. 10

11 9.1 Site Description and Operational History

SWMU No. 9, Drainage Ditch Near the Inactive Land Farm, (Figures 9-1, 9-2, 9-3) consists of an inactive 12 treatment area and associated drainage ditch and is located approximately 200 feet north of the tank farm 13 and 300 feet west of the railcar loading spur. The inactive land treatment farm is a rectangular flat site 14 measuring approximately 80 feet wide by 130 feet long. The associated drainage ditch is a man-made 15 shallow channel cut into the earth along the western boundary of the inactive land treatment farm. The 16 ditch is approximately 3 feet wide by 2 feet deep by 150 feet long. Photographs of the drainage ditch near 17 the inactive land farm, taken during the 1998 site inspection performed by Practical Environmental 18 Services, Inc. (PES), are provided in SWMU No. 9 Summary Report. 19

The inactive land treatment farm and associated drainage ditch were placed in service in 1958. Land treatment area operations were discontinued in the early 1980s. Oily wastes were formerly biodegraded on this site.

23 9.2 Land Use

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The inactive land farm and associated drainage ditch are no longer being used. The area is vacant of operations and is naturally revegetating. The area, which has not been designated for a new purpose, will remain under the ownership of Ciniza.

27 9.3 Investigation Activities

Applied Earth Sciences (AES) investigated the inactive land treatment area and associated drainage ditch during the early 1990s. Soil samples were collected and analyzed. Trace volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals were detected in several of the samples. During the initial site investigation in 1990, AES collected samples from seven locations and four depths:
surface, 3, 5, and 7 feet below ground surface. Four of these locations were within the inactive land
treatment area and three were along the drainage ditch.

4 Trace VOCs (ethanol) were detected in six subsurface samples and trace SVOCs in one surface sample.
5 The highest detection of VOC was 24 mg/kg and the highest detection of SVOC was 26 mg/kg. The
6 remaining 21 samples indicated no detection of either VOCs or SVOCs.

State of New Mexico corrective action levels for total hydrocarbons and benzene, toluene, ethylbenzene,
and xylenes (BTEX) in soil are 100 mg/kg and 50 mg/kg, respectively. All samples were below these
action levels.

Trace metals were detected in all of the samples. The concentration levels were within the range ofambient background concentration.

- 12 9.4 Site Conceptual Model
- 13 There is no impact on the environmental fate of the land.

14 9.5 Site Assessments

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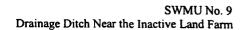
15 During the week of March 23, 1998, PES performed an on-site inspection. Observations are as follows:

- The inactive land treatment area and associated drainage ditch were observed vacant and inactive. No sign of soil staining or residual waste was evident in either location.
 - Native shrubs and grasses were observed growing throughout the general vicinity and thickly within the drainage ditch. No signs of distress were evident.
- Local soil in the vicinity of these SWMUs is bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.

PES did not perform any sampling or analysis during this site inspection. The inspection was limited onlyto visual observations.

Based on this site assessment, PES determined that the inactive land treatment area and associated drainage ditch remain inactive and vacant. There is no indication of current waste treatment operations, soil staining, or residual waste material in the area. The site is naturally revegetating; no distressed vegetation was evident.





1 9.6 NFA Proposal

Ciniza is proposing that no further action is required for SWMU No. 9 based on the following criterion:
SWMU No. 9 has been characterized in accordance with current applicable state regulations, and the
available data indicate that no significant environmental impact or migration has occurred. (NFA
Criterion 5)

6 The inactive land treatment area and associated drainage ditch are inactive, vacant, and naturally 7 revegetating. The inactive land treatment area and associated drainage ditch are located in a geologic 8 setting in which the underlying bentonitic soil has a very low hydraulic conductivity, which effectively 9 serves as an aquiclude. Trace detection of VOC (ethanol) is below action levels. Also, ethanol is readily 10 biodegradable and will naturally attenuate. Trace detection of SVOC is also below action levels. This 11 detection is from a single surface sample and may represent an anomalous data point. The low level of 12 detection for these contaminants is indicative of no significant impact.

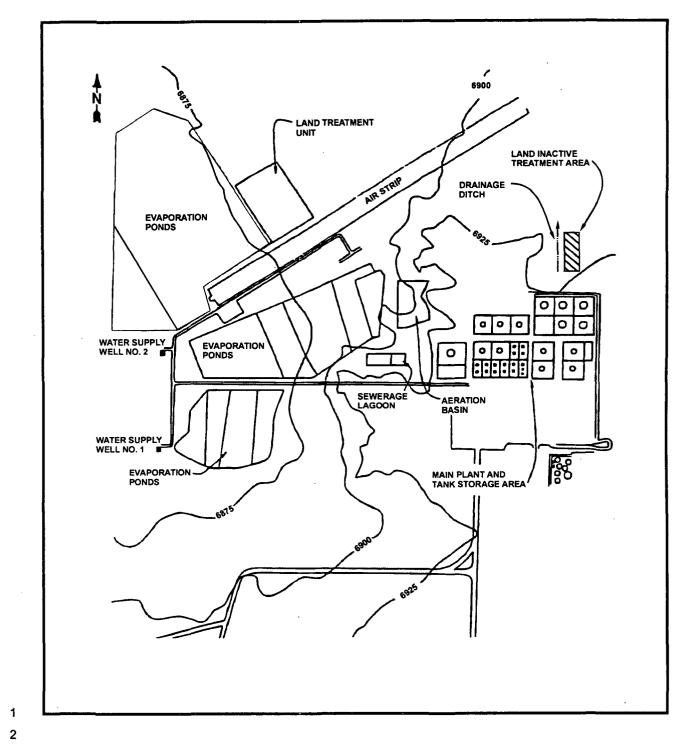


Figure 9-1. SWMU No. 9, Inactive Land Treatment Area and Draining Ditch Site

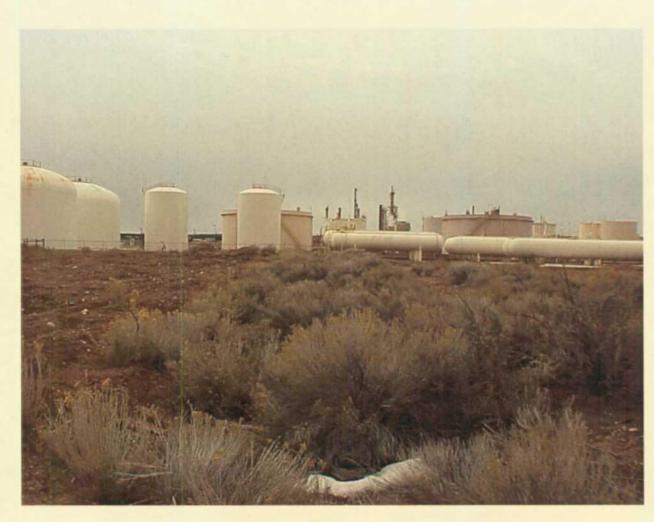
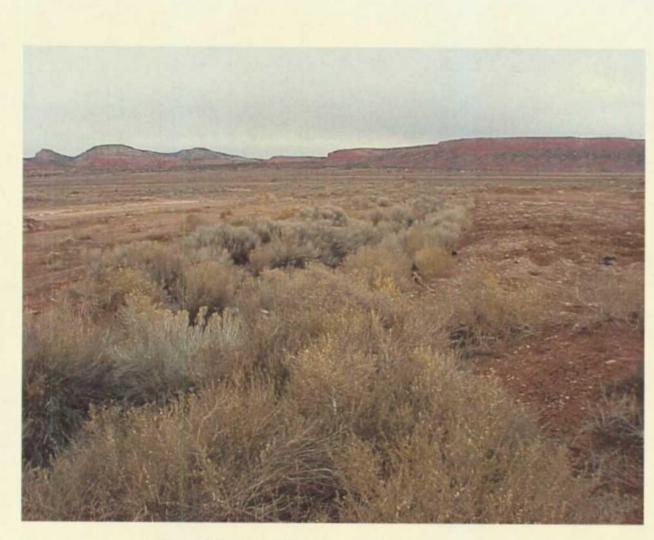
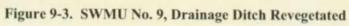


Figure 9-2. SWMU No. 9, Drainage Ditch Revegetated

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Ciniza Refinery NFA Report, Rev 0.0 August 2001





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SWMUs # 9 & #14 Summary Report

Inactive Land Treatment Area & Drainage Ditch Ciniza Refinery McKinley County, New Mexico



Prepared for:

Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Prepared by:

Practical Environmental Services, Inc. 1444 Wazee Street, Suite 225 Denver, Colorado 80202

Job No. 98-205-03

April 23, 1998

1.0 EXECUTIVE SUMMARY

Practical Environmental Services, Inc. (PES) has been retained by Giant-Ciniza Refinery (Ciniza) to perform a visual inspection, data evaluation, and status assessment for the inactive land treatment area and associated drainage ditch located within the Ciniza Refinery, in McKinley County, New Mexico.

The inactive land treatment area and drainage ditch sites were identified as a Solid Waste Management Units (SWMU), and designated as SWMU #9 and #14 respectively, during a RCRA Facility Investigation conducted at the refinery in the early 1990's. This investigation included soil sampling and analysis, determined that no significant impact had occurred, and recommended no further action (NFA).

Findings and recommendations were reported to the Environmental Protection Agency Region VI Office (EPA) in 1991 and 1992.

This summary report for SWMUs #9 and #14 has been prepared in conjunction with submittal of a Resource Conservation and Recovery Act (RCRA) Part B permit application covering post closure care of the Ciniza Refinery Land Treatment Unit. All investigative activities for SWMUs #9 and #14 have been completed. This assessment is summarized as follows.

- ⇒ The inactive land treatment area and associated drainage ditch remain inactive and vacant. No indication of current waste treatment was evident. No soil staining or residual waste material was observed.
- \Rightarrow The site is naturally revegetating. No distressed vegetation was evident.
- ⇒ Local soil underlying the site predominantly consists of bentonitic clays and silts having a very low hydraulic conductivity.
- ⇒ Soil sampling and analysis was conducted during an initial site investigation. Trace organic contaminants were detected below corrective action levels. The site was recommended for NFA.
- ⇒ SWMUs #9 and #14 have been characterized in accordance with current applicable state and federal regulations, and the available data indicate that no significant environmental impact or migration has occurred.

2.0 BACKGROUND

During 1987, a RCRA Facility Assessment was conducted at the Ciniza Refinery. This assessment identified various "solid waste management units" and recommended further evaluation. A RCRA Facility Investigation (RFI) was subsequently conducted and the inactive land treatment area and associated drainage ditch were identified as SWMU #9 and SWMU #14, respectively.

Applied Earth Sciences (AES) investigated the inactive land treatment area and drainage ditch sites during the early 1990s. Soil samples were collected and analyzed. Trace organic contaminants were detected in a few samples. Trace metals were detected in all samples; all of which indicated levels within the range of ambient background concentration.

As a result of the investigation, AES recommended no further action for these SWMUs. Results and recommendations were reported to the EPA in 1991 and 1992.

3.0 SITE LOCATION AND DESCRIPTION

SWMUs #9 and #14 are located within the Ciniza Refinery's property boundary. This refinery is located on the north side of Interstate 40, approximately 17 miles east of Gallup, New Mexico. Within the refinery, SWMUs #9 and #14 are contiguous and located approximately 200 feet north of the tank farm and 300 feet west of the railcar loading spur. See Figure No. 1 for location details.

The inactive land treatment area is a rectangular flat site measuring approximately 80 feet wide by 130 feet long. Oily wastes were formerly biodegraded on this site.

The associated drainage ditch is a man-made shallow channel cut into the earth along the western boundary of the inactive land treatment area. The ditch is approximately 3 feet wide by 2 feet deep by 150 feet long.

The inactive land treatment area and associated drainage ditch were placed in service in 1958. Land treatment area operations were discontinued in the early 1980's.

4.0 SITE INSPECTION

During the week of March 23, 1998, an on-site inspection was performed. Observations are noted as follows:

- The inactive land treatment area and associated drainage ditch were observed vacant and inactive. No sign of soil staining or residual waste was evident in either location.
- Native shrubs and grasses were observed growing throughout the general vicinity and thickly within the drainage ditch. No signs of distress were evident.
- Local soil in the vicinity of these SWMUs presented as bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.



5.0 DATA REVIEW

Soil samples from within the inactive land treatment area and along the associated drainage ditch were collected and analyzed during the initial site investigation.

In 1990, the initial site investigation collected samples from seven locations and four depths; surface, 3, 5, and 7 feet below ground surface. Four of these locations were within the inactive land treatment area and three were along the drainage ditch.

Analysis detected trace VOC (ethanol) in six samples and trace SVOC in one sample. The highest detection of VOC was 24 mg/kg and the highest detection of SVOC was 26 mg/kg. The VOC was detected in several subsurface samples and the SVOC was detected in a single surface sample. The remaining 21 samples indicated no detection of either VOCs or SVOCs.

State of New Mexico corrective action levels for total hydrocarbons and BTEX in soil is 100 mg/kg and 50 mg/kg, respectively. All samples were below these action levels.

Trace metals were detected in all samples; all of which indicated levels within the range of ambient background concentration.

6.0 ASSESSMENT

Based on the site inspection and data review, the inactive land treatment area and drainage ditch site is assessed as follows.

- The inactive land treatment area and associated drainage ditch are inactive, vacant, and naturally revegetating.
- The inactive land treatment area and associated drainage ditch are located in a geologic setting in which the underlying bentonitic soil has a very low hydraulic conductivity which effectively serves as an aquiclude.
- Trace detection of VOC (ethanol) is below action levels. Also, ethanol is readily biodegradable and will naturally attenuate. Trace detection of SVOC is also below action levels. This detection is from a single surface sample and may represent an anomalous data point. The low level of detection for these contaminants is indicative of no significant impact.
- The no further action finding that was recommended by AES is appropriate for this site.

7.0 PROFESSIONAL ENGINEER'S CERTIFICATION

This summary report for SWMUs #9 and #14 has been prepared under the direct supervision and control of a Registered Professional Engineer.

Client: Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Job No.: 98-205-03

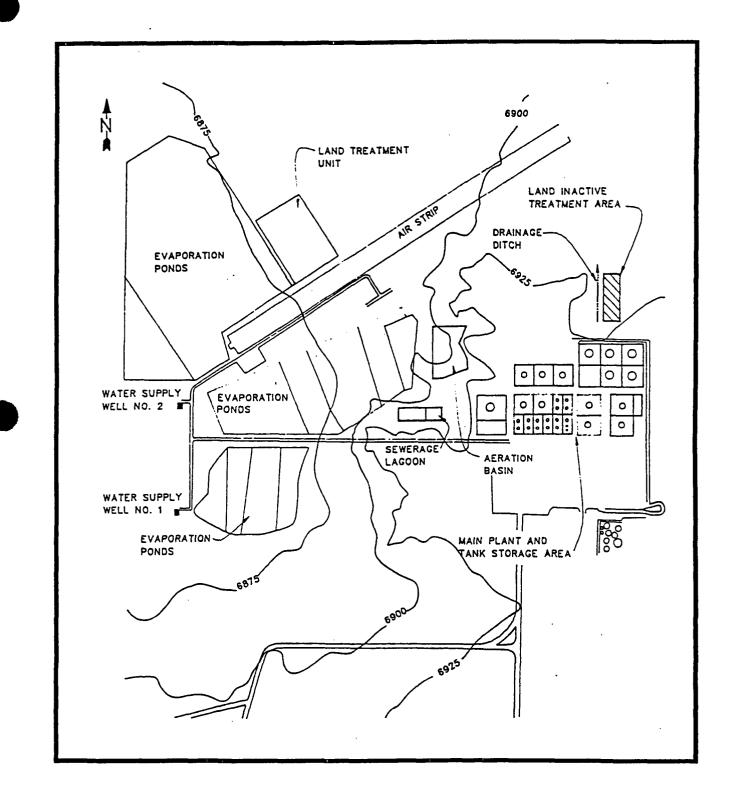
Date: April 23, 1998

Prepared and Certified by:

SWMU #9 Summary Report

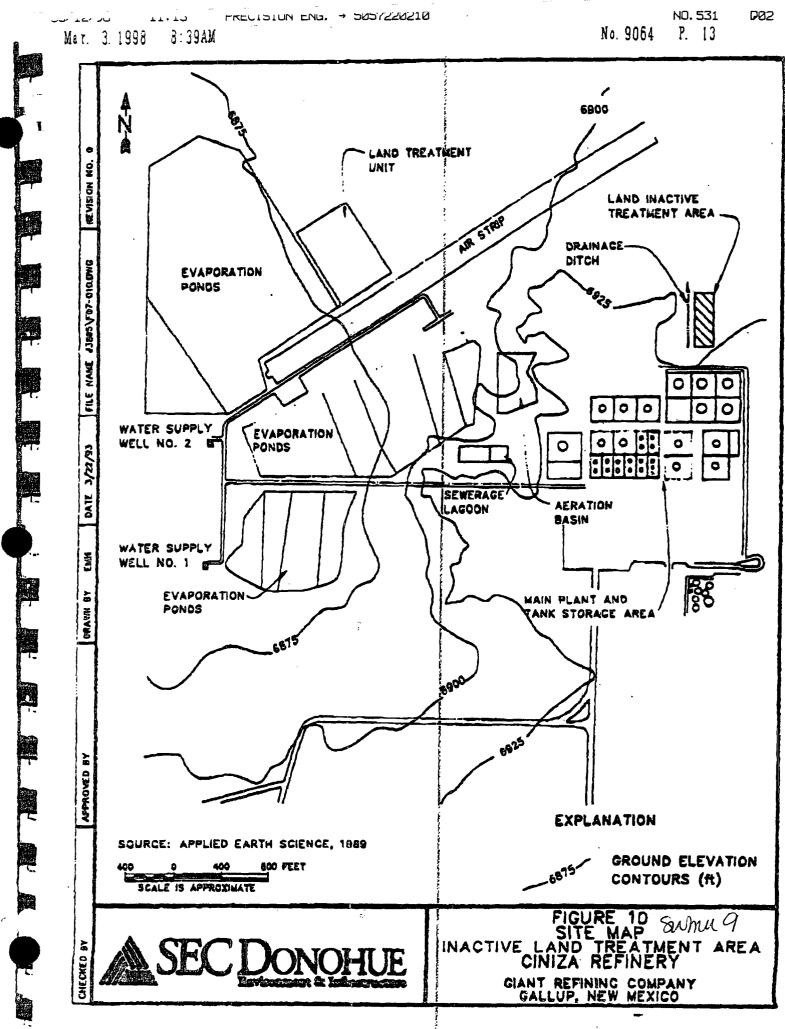
Thomas D. Atwood, P.E. Colorado Registration No. 22866

Figure No. 1 Inactive Land Treatment Area & Drainage Ditch-Site



SWMU #9 Summary Report

Page 5



PF109 -	Inactive	Land Tr	eatment	Area an	d Drainag
07 V0.0	07 V2 0	07 \\5.0	07 V7.0	·	01 E5.0
1010		1010		-	2010
s Result	Result	Result	Result	Units	Result
	·				
ə ND	ND	ND	ND	23/L	ND
; 1.4	0.55	0.51	0.58	2 ===/L	ND
3 447	234	208	240	ms/L	HD
9.5	9 0.97	0.56	5 1.0	ns/L	ND
: ND	ND	ND	ND	29/L	ND
3 102	6.5	16.2	7.5	29/L	MD:
1.2	2.9	1.5	2.5	as/L	ND
: 10.5	5.5	4.1	5.1	た/に	MD:
; 14.0	9.1	7,2	7.5	as/L	ND
ND ND	ND	ND	ND	as/L	ND
5.0	7.7	4.7	5.8	as/L	ND
853	1030	775	1390	ms/L	ЪD GK
; ND	ND	ND:	HD	a9/L	łD
: 14.5	13.1	10.3	12.7	3:3/L	ND
157	11.3	23.8	13.4	59/L	ND
	07 V0.0 s Result s MD 1.4 1.4 1.4 1.4 1.4 1.4 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	07 07 V0.0 V2.0 Result Result MD MD 1.4 0.66 M7 234 0.59 0.97 MD MD 102 9.6 1.2 2.9 10.5 5.5 14.0 9.1 MD MD 5.0 7.7 S53 1030 MD MD 14.6 13.1	07 07 07 V0.0 V3.0 V5.0 Result Result Result 9 MD ND MD 1.4 0.66 0.61 9 MD ND ND 9 0.59 0.97 0.66 9 MD ND ND 102 9.6 16.2 9 1.2 2.9 1.5 10.5 5.5 4.1 14.0 9.1 7.2 9 MD ND ND 6 5.0 7.7 4.7 953 1030 775 ND ND ND 9 MD ND 9 14.6 13.1 10.3	07 07 07 07 07 V0.0 V2.0 V5.0 V7.0 s Result Result Result Result s MD MD MD MD s 1.4 0.56 0.61 0.58 s 0.59 0.97 0.46 1.0 s 1.2 2.9 1.5 2.5 10.5 5.5 4.1 5.1 s 1.2 2.9 1.5 2.5 10.5 5.5 4.1 5.1 s 5.0 7.7 4.7 5.8 MD ND ND ND 1390 s 553 1020 775 1390 ND ND ND ND ND	V0.0 V2.0 V5.0 V7.0 Result Result Result Result Units ND ND

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Svimu 9 Joactini LTH Diains

RF109 - Inactive Land Treatment Area and Drainase Ditch

Samrle roint number Depth of samrle		07 90.0	07 V3.0	07 V5.0	07 \/7.0		01 E5.0
Parameter	Units	Result	Result	Result	Result	Units	Result
Method 8270 (con't)							
Ethyl methanesulfonate	us/ks	ND	ND	ND	ND	us/L	ND
Fluoranthene	U9/29	ND	ND	ND	D	us/L	ND
Fluorenc	us/ks	ND	ND	ND	ND	U9/L	ND
Hexachlorobenzene	us/ks	ND	ND	NÐ	ND	us/L	ND
Hexachlorobutadiene	u9/k9	ND	ND	ND	ND	us/L	ND
Hexachlorocyclorentadiene	ua/ka	NÐ	ND	MD	ND	∵u9/L	MD
Hexachloroethane	u9/k9	ND	ND	NÐ	ND	u9/L	ND
Indeno(1,2,3-cd)pyrene	uo/ka	ND	ND	ND	ND	עש/ב	ND
Isophorone	u9/k9	ND	ND	ND	ND	09/L	ND
3-Methylcholanthrene	us/ko	ND	ND	ND	ND	uo/L	ND
Methyl methanesulfonate	us/ks	ND	ND	ND	Ю	us/L	ND
2-Methylnaphthalene	us/k3	ND	ND	ND	ND	ug/L	ND
Narhthalene	us/ks	ND	ND	ND	ND	uo/L	ND
1-Naphthylamine	us/ks	ND	ND	ND	œ4	u9/L	ND
2-Naphthylamine	u9/k9	ND	ND	ND	ND	u9/L	ND
2-Nitroaniline	us/ks	ND	DM	ND	ND	us/L	NÜ
3-Nitroaniline	us/ka	ND	ND	ND	ND	u9/L	ND
4-Nitroaniline	us/kg	D	ND	ND	ND	49/L	ND
Hitrobenzene	uo/ks	ND	ND	ND	ND	us/L	ND
2-Nitrophenel	us/ks	ND	ND	ND	D	us/L	ND
1-Nitrophenol	us/ko	ND	ND	ND	ND	us/L	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	· us/L	MD
H-Nitrosodimethylamine	us/ka	ND	ND	ND	ND	ug/L	ND
N-Nitrosodinhenvlamine	us/ks	ND	ND	פא	ND	us/L	ND
N-Nitroso-di-n-rropylamine	us/ks	ND	ND	ND	ND	us/L	ND
N-Nitrosopiperidine	u9/k9	ND	ND	ND	ND	us/L	ND
Pentachlorobenzene	us/ko	ND	ND.	ND	ND	ue/L	ND
	u9/k9	ND	ND		ND	us/L	ND
Pentachloronitrobenzena	us/ks	ND	ND	ND	ND	us/L	ND
Pentachlorophenol					100 100	u9/L	ND
Phenacetin	us/ks	D ND	RD ND	ᄢ	HD HD		ND
Phenanthrene	us/ks	ND	ND	ND		09/L	ND
Phenol	us/ka	ND	D	ND	ND	us/L	
2-Picoline	us/ks	ND	ND ND	ND	ND	19/L	ND
Pronazide	us/ks	ND	ND	ND	ND	u9/L	ND
Pyrenc	u9/k9	ND	ND	NE	ND N	u9/L	ND
1,2,4,5-Tetrachloro-benzene	ua/ka	ND	ND	ND	ND	::s/L	ND
2,3,4,6-Tetrachlorophenol	us/ks	ND	ND	ND	ND	us/L	ND
1.2.4-Trichlorobenzene	u9/k9	ND	MD	ND	ND	us/L	ND
2.4.5-Trichlorophenol	us/ka	ND	ND	ND	ND	us/L	ND
2.4.5-Trichlorophenol	uo/ke	ND	ND	ND	ND	us/L	ND
Benzidinc	us/k s	ND	ND	ND	ND	03/L	ND
Benzoic acid	uo/ka	ND	ND	ND	DM	U3/L	ND
1-Chloronaphthalene	us/ks	ND	ND	ND	ND	us/L	ND
1.2-Diphenylhydrazine	u 3/k9	ND	ND	ND	ND	us/L	CH CH

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RF109 - 1	Inactive	Land	Treatment	Area	and	Drainage	Ditch	
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		KF1V7 -	INCLIVE		Serment		a pidings	
Sample point number Depth of sample		07 V0.0	07 • V3.0	07 V5.0	07 V7.0		01 E5.0	
Parameter	Units	Result	Result	Result	Result	Units	Result	
Method 8270								
Acenapthene	us/ko	ND	ND	ND	ND	us/L	ND	
Acenaphthylene	us/ks	ND	ND	ND	ND	us/L	ND	
Acctorhenone	ug/kg	ND	ND	ND	ND	u9/L	ND	
1-Aminobiphenyl	ug/kg	ND	ND	ND	ND	u9/L	ND	
Aniline	us/ka	ND	ND	ND	ND	us/L	NI	
Anthracene	us/ks	ND	ND	ND	ND	us/L	ND	
Benzo(a)anthracene	ua/ko	ND	ND	ND	ND	u9/L	ND	
Benzo(b)fluoranthens	us/ks	ND	ND (ND	ND	us/L	DH	
Senzo(k)fluoranthene	us/ka	ND	ND	ND	ND	us/L	ND	
Benzo(3,h,i)pervlene	us/ks	ND	ND	ND	ND	ua/F	ND	
Benzo(a)pyrene	ua/ka	ND	ND	ND	ND	บ9/L	ND ND	
Benzyl alcohol	us/ks	ND	ND	ND	ND	us/L	CN CN	
bis(2-Chloroethoxy)-methane	us/kc	ND	ND	ND	ND	u9/L	HD	
bis(2-Chloroethyl) ether	uo/ko	ND	ND	CM T	ND	us/L	ND	
bis(2-Chlcroisopropyl)-ether	us/ks	ND .	ND	NÐ	ND	u9/L	Ь	
bis(2-Ethrlhexrl) phthalate	ug/kg	ND	ND	ND	ND	us/L	ND	
4-Bromophenyl phenyl ether	us/ks	ND	ND	ND	ND	us/L	ND ND	
Butyl benzyl phthalate	u9/k9	ND	CN CN	ND	ND	us/L	ND	
A-Chloroaniline	u9/k9	ND	ND	ND	ND ND	us/L	ND	
4-Chloro-3-methylphenol	us/ks	ND	ND	ND	ND	uo/L	ND	
2-Chloromarhthalene	us/ka	ND ND	ND ND	ND ND	ND ND	us/L	ND ND	
2-Chlorophenol 4-Chlorophenyl phonyl other	u9/k9 u9/k9	nd 'ND	nd ND	nd Nd	nd ND	u9/L u9/L	ND	
o-Cresol	uo/ka	ND	ND CH	ND	ND	13/L	ND DA	
n & r-Cresol(s)	us/kg	ND	ND	ND	ND	us/L	ND	
Chrysene	u3/k9	ND	- ND	ND	ND	- uo/L	ND	
Dibenz(a,h)anthracenc	us/ks	ND	ND	ND	ND	us/L	ND	
Di-n-butyl phthalate	us/ks	ND	ND	ND	ND	us/L	ND	
1,2-Dichlorobenzene	uc/kg	ND	ND	ND	ND	us/L	ND	
1.3-Dichlorobenzene	us/ks	ND	ND	ND	MD	us/L	ND	
1,4-Dichlorobenzene	us/ks	ND	ND	ND	ND	us/L	ND	
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	us/L	ND	
2.4-Dichlorophenol	ug/kg	ND	ND	ND	ND	us/L	ND	
2,5-Bichlorophenol	us/ks	HD.	ND	ND	ND	us/L	ND	
Disthyl phthalate	us/ks	ND	ND	ND	ND	u9/L	ND	
p-Dimethylaminoazobenzene	us/ks	DN	ND	ND	ND	us/L	ND	
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	u9/L	ND	
anthracene	u3/k3	NÐ	ND	NÐ	ND	us/L	ND	
a, a-Dimethylrhenethyl-amine	us/ka	ND	NÐ	ND	ND	us/L	ND	
2,4-Dimethylphenol	uo/ke	ND	ND	ND	ND	u9/L	ND	
Dimethyl phthalate	us/ko	ND	ND	ND	ND	us/L	ND	
1,3-Dinitrobenzene	uo/ka	ND	ND	ND	ND	us/L	<u>م</u>	
1.6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	us/L	ND	
2,4-Dinitrophenol	ug/kg	ND	ND	ND	MD	u9/L	ND	
2,4-Dinitrotoluene	us/ks	ND	ND	ND	ND	u9/L	ND	
2,5-Dinitrotoluene	ug/kg	ND	ND	ND	ND	us/L	ND	
Di-n-octyl shthalate	us/kc	ND	ND	NU	ND	us/L	ND	
Diphenylamine	us/ks	ND	ND	ND	ND	us/L	ND	

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07 07 07 07 01 Sample point number V3.0 V5.0 V7.0 E5.0 VO.0 Dorth of sample Result Result Result Result Result Units Units Parameter Method 8240 Ð u9/L NÐ ND Ю NÐ ua/ka Chieromethane ND 腔 ND NÐ us/L ND ua/ka Bromomethane MD ND ND ND ::9/L ND Vinyl chloride uo/ko D ND MD us/L ND ND uo/ke Chloroethane NΠ ND u9/L ND MD Methylene chloride uo/ka ND MD 19/L MD. ND ND. ND ug/kg 1.1-Dichloroothene ND MD ND ND. 1/eu ND ug/ks 1.1-Dichloroethanc MD MD ND ND 1:0% ND 1,2-Dichloroethene (cis/trans) up/ks Ś ND MD ND ND 1/20 ug/ks Chloroform ND ND ND u3/L ND. ND uo/ka 1.2-Dichloroethane ND ND us/L ND ND HØ 1,1,1-Trichloroethanc vo/ka ND ND ЮM us/L ND Carbon tetrachloride up/kg ND ND uc/L MD u9/k9 MD ND ND Bromedichloromethane НD ND D uo/L M NÐ us/ks 1.2-Dichlororrorane ND ND 1/eu MD ND ND uo/ka trans-1.3-Bichloroprorenc ND ND 09/L ND ND ND Trichloroethene us/ks ND ND ND NÐ HŪ 1/2U Dibromechloromethane us/ks ND ND MD ปร/L ND NÐ 1,1,2-Trichloroethene ug/kg ND MD. ND Ю ND v9/L Benzenc ua/ka Ю ND ND ND ND uo/L cis-1.3-Dichlororrorene נצ/פט ND HD ND Ð 2-Chloroethyl vinyl ethcr MD u3/L u9/k9 ND ND ND 09/L ND ND Bromoform us/ks ND B NÐ ND 09/L HD 1,1,2,2-Tetrachiorcethane uo/ka ND: ND ND ND ND us/L Tetrachloroethene u9/k9 ND ΗD NÐ u9/L ND ND Tolucne ug/kg ND ND ND ug/L MD ND Chlorobonzene uo/ka ND MD MD Ethylbcnzene HD ND. 1/60 us/ks ND MD ND us/L 12 ND Acctone ug/kg ND ND ND ND us/L ND Acrolein us/ko ND M ND us/L ND ND Acrylonitrile ug/kg NÐ ND ND ND ND: ug/L Carbon disulfide us/ka Dibromomethane uo/ka MD ND ND. ND 49/L ΝŪ trans-1,4-Dichloro-2-butene ID. ND ND ND 49/L ND uo/ko HD ND ND u9/L ND ND Dichlorodifluoromethane ua\ka ND trans-1,2-Dichloroethene ND ND ND 1/eu ND us/ks ND ND NÐ us/L ND Ethano] ND uo/ka ND ND ND us/L ND Indomethane MD vs/ks ND ND. ND ND ug/L 2-Butanone (MEK) us/ko ND MD. ND MD ug/L MD 4-Methy)-2-rentanone (MIFK) u9/k3 ND Styrene ND ND ND ND UD/L MD ug/kg ND ND ND ND ND ug/L Trichlorofluoromethane us/ks ND ND ND ND us/L 1,2,3-Trichloropropane ug/kg םא MD M NB MD ug/L ND Vinyl acetate us/ks Ethyl methacrylate us/ks MD MD MD MD us/L MD 舠 迥 ND ЫŪ Xylenes (total) u9/k3 ND MD ND ND us/L 2-Hexanone u9/kg ND

RF109 - Inactive Land Treatment Area and Brainage Bitch

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample roint number Denth of sample		05 70,0	05 93.0	06 D3.0	05 15.0	06 V7.0	
Parapeter	Units	Result	Result	Result	Result	Result	

Total Motals

Antimony	c 9/k3	ND	ND:	ND	ND	ND
Arsonic	as/ks	1.7	1.2	ND	ΝD	0.53
Barium	sa/ka	200	243	225	241	319
Boryllium	ms/ks	0.79	1.1	1.1	0.27	0.97
Cadmium	tts/ka	НD	HD	ND	EM UM	ND
Chromium	5 0/k3	7.8	٤.3	5.3	5.1	4.1
Cebalt	23/k3	2.3	2.5	2.6	1.9	1.7
Corper	mg/kg	14.3	5.4	5.4	4.5	9. ò
Lead	m3/k9	22.1	9.2	9.1	7.5	3.1
Mercury	1 9/kg	ND	MD	ND	ND	ND
Nickel	\$\$/ <u>k</u> 9	11.4	7.0	7.2	5.3	5.0
Potassium	zs/ks	989	1110	1120	<u>997</u>	333
Selonium	eo/ka	ND	KD.	ND	ND	ND
Vanadium	as/ks	14.5	14.5	14.2	12.5	13.0
2inc	2 9/ks	22.8	10.5	10.4	8.4	7.8

RFI09 - Inactive Land Treatment Area and Drainase Ditch

Sample point number		06	05	06	06	05
Depth of sample		V0.0	V3.0	03.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270 (con't)						
Ethyl methanesulfonate	ua/ka	ND	ND	ND	ND	ND
Fluoranthene	us/ks	ND	ND	ND	ND	HD.
Fluorene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobenzene	us/ka	ND	ND	ND	ND	ND
Hexachlorobutadiene	uo/ko	ND	ND	NÐ	ND	ND
Hexachlorocyclopentadiene	us/ks	ND	MD	ND	ND	ND
Hexachlorocthane	ua/ka	DU	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	us/ka	ND	ND	ND	ND	HD
Isopherone	u9/k9	ND	ND	ND	ND	ND
3-Methylcholanthrene	uo/ke	ND	ND	NÐ	ND	ND
Methyl methanesulfonate	us/ks	ND	ND	ND	ND	ND
2-Methylnarhthalene	u9/ks	ND	ND	ND	מא	ND
Naphthalene	us/ks	NÐ	ND	ND	ND	ND
1-Narhthrlamine	ua/ka	ND	ND	ND	ND	ND
2-Narhthylamine	us/ks	ND	ND	ND	ND	NÐ
2-Nitroaniline	uo/ka	ND	ND	ND	DM	<u>ek</u>
3-Nitroaniline	us/ks	ND	ND	ND	ND	ND
9-Nitroaniline	us/ko	ND	Ъ	ND	ND	ND
Nitrobenzene	us/ks	ND	ND	ND	ND	ND
2-Nitrophenol	us/ks	ND	סא	MD	ND	מא
4-Nitrorhenol	us/ks	ND	ND	Df	ND	ND
N-Nitroso-di-n-butylamine	u3/k9	D	ND	ND	ND	ND
N-Nitrosodimethylamine	ua/ka	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	us/ks	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	u9/k9	M	ND	τÐ	ND	ND
N-Nitrosopiperidine	uo/ke	ND	MD	ND	ND	ДK
Pentachlorobenzene	uc/ka	ND	ND	ND	ND	Ш
Pentachloronitrobenzene	us/ko	ND	DM	ND	ND	нD
Pentachlororhenol	us/ka	ND	ND	ND	ND	ND
Phenacetin	us/ks	MD	ND	ND	ND	HD
Phenanthrene	u9/k9	ND	ND	ND	ND	ND
Phenol	33/k3	ND	ND	ND	ND	ND
2-Picoline	us/ks	NT	КD	ND	ND	ND
Pronamide	ua/ka	ND	ND	D	ND	ND
Pyrene	u9/k9	20000	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	uo/ka	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	us/ks	B A	ND	ND	ND	ND
1,2,4-Trichlorobenzene	us/ks	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	us/ks	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	us/ks	ND	ND	ND	ND	ND
Benzidinc	u9/k9	ND	DИ	MD	ND	ND
Benzoic acid	us/ks	ND	ND	ND	ND	ND
1-Chloronarhthalene	us/ka	ND	ND	ND	NÐ	ND
1,2-Diphenylhydrazine	uo/ko	ND	ND	ND	ND	ND

PFI09 - Inactive Land Treatment Area and Drainase Ditch

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Samrle roint number Depth of samrle		05 1/0.0	05 V3.0	06 D 3.0	06 V5.0	06 77.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270						
Acenapthene	ua/ka	MD)	ND	ND	ND	ND
Aconaphthy)ene	us/te	HD	ND	ND	ND	ND
Acetophenone	us/ks	ND	ND	ND	ND	ND
4-Aminobipheny)	us/ks	NB	ND	ND	ND	20
Aniline	19/ks	ND	HD	NB	ND	ND
Anthracene	us /ks	ND	ND	מא	ND	· ND
Benzo(a)anthracene	39/ k9	迎	NP	ND	NÐ	ND
Benzo(b)fluoranthene	us/to	ND	NŪ	ND	ND	ND
Benzo(k)fluoranthene	us/ko	ND	ND	ND	NU	ND
Benzo(2.h.i)perviene	us/ks	ND	ND	ND	DM	מא
Henzolalayrenc	u9/ka	HD	j≰] ND	ND ND	ND	ND
Benzyl alcohol	us/ks	ND	nd Nd	ND	ND	ND
bis(2-Chlorocthoxy)-methane	us/ks	ND ND	ND	ND ND	ND	ND ND
bis(2-Chlorocinn1) ether	ug/kg	ND:	ND	ND	ND **	HO!
biz(2-Ch?mazzopropy1)-ether biz(2-Ethy14exy9) rhthalatz	uo/kr us/ka	ND	ND	ND	ND	NT.
-Bromoshomil shenyl ether	ug/kg	ND	סא	NP	ND	NÐ
Butrl benzek shthalat	us/ks	שא	ND	Ð	EN	ND
4-Chlorozzailine	u9/k9	ND	ND.	ΝD	ND	HD
4-Chlore-3-methylchenol	us/ks	ND	ΛD	10	ND	ND
2-Chloromaphthalisne	us/ks	ND	D.	M	ND	ND
2-Chlorophenol	uo/ka	ND	fid	מא	ND	ND
1-Chlorophenyl phenyl ether	us/kc	ND	弦	ND	HC	ND
o-Cresol	us/ks	NI	ND	ND DA	ND	D
m & p-Cresol(s)	us/ko	ND	ND	ND	ND	ND
Chrysene	10/ks	25000	ND	DN.	ND	ND
Dibenz(a,h)anthracene	u9/ks	ND	ND	ND	ND	ND ·
Di-n-butyl phthalate	UEIKS	ND	HD	ND	ND	ND ND
1.2-Dichlorobenzene	us/kg	ND	ND	ND ND	ND ND	ND ND
1,3-Dichlorobenzene	U9/k9	ND	ND	ND	ND	
1,4-Bichlorobenzene	us/ko	ND	ND	ND	ND	ND
3.3-Dichlorobenzene	uo/ka	ND MD	ND MD	ND ND	ND ND	nd Hd
2.4-Bichlorophenol	uo/ka	ND	ND MD	ND	ND	ND CM
2,6-Bichlorophenol	uo/ke	nd Nd	nd ND	RD ND	ND	ND
Dicthyl phthalate	u9/k9 u9/k9	ND	ND	ND	ND DA	ND
r-Dimethylaminoazobenzenc 7,12-Dimethylbenz(a)~	u9/k9 u9/k9	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND
		AND ND	ND ···	ND	ND	ND
a,a-Dimethylphenethyl-amine 2,4-Bimethylphenol	us/ka Us/ka	ND.	ND	ND	ND	ND
Dimethyl phthalatc	u9/k9	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	us/ko us/ko	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	us/ko us/ko	ND	ND	ND	ND	ND
2,4-Dinitrophenol	us/ks	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ua/ka ua/ka	ND	NU	ND	ND	NO
2,5-Dinitrotoluene	u9789 U9789	ND	ND	ND	NO	ND
Bi-n-octyl phthalate	us/ks	ND	ND	ND	ND	ND
Diphenylamine	us/ks	ND	ND	ND	ND	ND

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RFI09 - Inactive Land Treatment Area and Drainage Ditch

Method 8240	Sample point number Dérth of sample		06 70.0	06 V3.0	06 B.0	05 V5.0	06 17.0
Chlorozethanc up/ks ND	Parameter	Units	Result	Result	Result	Result	Result
Binometication Binometication Binometication Binometication Binometication Viny) chloride up/kp ND ND ND ND ND Methylen chloride up/kp ND ND ND ND ND 1.1-Bichlorocthane up/kp ND ND ND ND ND 1.1-Bichlorocthane up/kp ND ND ND ND ND 1.2-Bichlorocthane up/kp ND ND ND ND ND 1.2-Bichlorocthane up/kp ND ND ND ND ND 1.1-Trichlorocthane up/kp ND ND ND ND ND 1.2-Bichloropropena up/kp ND ND ND ND ND 1.2-Dichloropropene up/kp ND ND ND ND ND 1.1_2-Trichoropethenc up/kp ND ND ND ND ND Penzene up/kp ND	Method 8240						
Nome Nome NO NO <th< td=""><td></td><td>us/ka</td><td></td><td>• •</td><td></td><td></td><td>нı</td></th<>		us/ka		• •			нı
Chloroothane us/ks ND	Bromomethane	us/k s	_	HD -			
Methylan chloride up/kg ND	Vinyl chloride						
N.1-DicklerostheneUJ/ksHDHDHDHDHDHDHD1.1-DicklorosthaneUJ/ksNDNDNDNDNDND1.2-DicklorosthaneUJ/ksNDNDNDNDNDND1.2-DicklorosthaneUJ/ksNDNDNDNDNDND1.2-DicklorosthaneUJ/ksNDNDNDNDNDND1.1-TicklorosthaneUJ/ksNDNDNDNDNDNDCarbon tetrachlorideUJ/ksNDNDNDNDNDNDPromodicklorosthaneUJ/ksNDNDNDNDNDND1.2-DicklorosthaneUJ/ksNDNDNDNDNDND1.2-DicklorosthaneUJ/ksNDNDNDNDNDND1.1-2-TricklorosthaneUJ/ksNDNDNDNDND1.1.2-TricklorosthaneUJ/ksNDNDNDNDND2-ChlorosthaneUJ/ksNDNDNDNDND2-ChlorosthaneUJ/ksNDNDNDNDND2-ChlorosthaneUJ/ksNDNDNDNDND2-ChlorosthaneUJ/ksNDNDNDNDND2-ChlorosthaneUJ/ksNDNDNDNDND2-ChlorosthaneUJ/ksNDNDNDNDND2-ChlorosthaneUJ/ks<							-
1.1-Dichloroethaneus/ksNDNDNDNDND1.2-Dichloroethaneus/ksNDNDNDNDND1.2-Dichloroethaneus/ksNDNDNDND1.1-Trichloroethaneus/ksNDNDNDND1.1-Trichloroethaneus/ksNDNDNDND2.1.1-Trichloroethaneus/ksNDNDNDND2.1.1-Trichloroethaneus/ksNDNDNDNDPromodichloromoraneus/ksNDNDNDND1.2-Dichloromoraneus/ksNDNDNDND1.2-Trichloroethaneus/ksNDNDNDND1.1.2-Trichloroethaneus/ksNDNDNDND1.1.2-Trichloroethaneus/ksNDNDNDND1.1.2-Trichloroethaneus/ksNDNDNDND2-Chloroethri vinil etherus/ksNDNDNDND2-Chloroethri vinil etherus/ksNDNDNDND1.1.2.2-Tetrachloroethaneus/ksNDNDNDND2-Chloroethri vinil etherus/ksNDNDNDND2-Chloroethri vinil etherus/ksNDNDNDND2-Chloroethaneus/ksNDNDNDND2-Chloroethaneus/ksNDNDNDND2-Chloroethaneus/ksNDNDNDND				-		. –	
1.2-Dichloroethene (cis/trans) us/ksMDMDMDMDMDMDChloroforæus/ksMDMDMDMDMD1.1-Trichloroethaneus/ksMDMDMDMDCarbon tetrachlorideus/ksMDMDMDMDPromodichloroethaneus/ksMDMDMDMDCarbon tetrachlorideus/ksMDMDMDMDPromodichloroethaneus/ksMDMDMDMD1.2-Dichloroproraneus/ksMDMDMDMDtrans-1.3-Dichloropropeneus/ksMDMDMDMDPrichloroethaneus/ksMDMDMDMDSenzeneus/ksMDMDMDMDSenzeneus/ksMDMDMDMD2-Chloroethrivinvletherus/ksMDMDPrizeareus/ksMDMDMDMD2-Chloroethrivinvletherus/ksMDMD2-Chloroethrivinvletherus/ksMDMDMD2-Chloroethrivinvletherus/ksMDMDMD2-Chloroethrivinvletherus/ksMDMDMD2-Chloroetheneus/ksMDMDMDMD2-Chloroethaneus/ksMDMDMDMD2-Chloroethaneus/ksMDMDMDMD2-Chloroethane <t< td=""><td>••••</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	••••						
Chlorofora us/ks ND ND ND ND ND ND 1.1-Trichloroethane us/ks ND ND ND ND ND ND 2.1.1-Trichloroethane us/ks ND ND ND ND ND ND Romodichloromethane us/ks ND ND ND ND ND ND Romodichloromethane us/ks ND ND ND ND ND ND trans-1.3-Dichloropropene us/ks ND ND ND ND ND ND Sitromechloromethane us/ks ND ND ND ND ND Senzene us/ks ND ND ND ND ND Senzene us/ks ND ND ND ND ND Sitromechloromethane us/ks ND ND ND ND Sitromechloromethane us/ks ND ND ND ND Socaofora us/ks ND ND ND ND ND Sitromechloromethane us/ks ND ND ND ND ND Chlorobenzene us/ks ND ND ND ND ND Sitromechloromethane us/ks ND ND ND ND ND Accrolein us/ks ND ND ND ND ND Sitromeathane us/ks ND ND ND ND Sitrene uss/ks ND ND ND ND Sitromeathane us/ks ND ND ND ND S							
1,2-Dichloreethaneus/ksNDNDNDNDND1,1,1-Trichloroethaneus/ksNDNDNDNDNDCarbon tetrachlorideus/ksNDNDNDNDNDPromodichloromethaneus/ksNDNDNDNDND1,2-Dichloromoroneus/ksNDNDNDNDNDtrans-1,3-Dichloromoroneus/ksNDNDNDNDDibromechloromethaneus/ksNDNDNDNDDibromechloromethaneus/ksNDNDNDND1,1,2-Trichloromethaneus/ksNDNDNDNDSenzeneus/ksNDNDNDNDND2-Chloroethrl vinvl etherus/ksNDNDNDNDStrachloroetheneus/ksNDNDNDND1,1,2,2-Tetrachloroethaneus/ksNDNDNDNDStrachloroetheneus/ksNDNDNDND1,1,2,2-Tetrachloroethaneus/ksNDNDNDNDStrachloroetheneus/ksNDNDNDNDChloroethraeus/ksNDNDNDNDStrachloroetheneus/ksNDNDNDNDStrachloroetheneus/ksNDNDNDNDChloroethilus/ksNDNDNDNDStrachloroethaneus/ksNDNDNDND </td <td>1.2-Bichloroethene (cis/trans)</td> <td>u9/k9</td> <td></td> <td>ND</td> <td></td> <td></td> <td></td>	1.2-Bichloroethene (cis/trans)	u9/k9		ND			
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RF109 - Inactive Land Treatment Area and Drainage Ditch

Samrle roint number Dorth of samrle		05 V0.0	05 V3.0	05 V5.0	05 05.0	05 V7.0
Parameter	Units	Result	Result	Result	Result	Result
Total Metals						
Antimony	ns/ks	ND	ND	ND	ND	ND
Arsenic	as/ko	ND	NB	ND	ND	ND
Barium.	a9/k9	285	418	333	375	313
Beryllium	ss/ka	1.2	9.77	0.94	0.91	1.3
Cadmium	29/k9	ND	ND	ND	NÐ	ND
Chromium	ns/ks	3.1	32.2	5.1	6.8	8.5
Cobalt	as/ks	4.5	5.0	3.5	3.9	4.5
Correr	ne/ke	5.5	11.9	3.5	4.2	6.4
Lead	=3/k9	14.9	31.0	13.7	14.4	12.8
Mercury	as/ks	ND	ND	ND	ND	ND.
Nickel	23/k3	9.1	9.7	5.5	5.9	9.2
Potassium	±s/ks	1160	1100	925	935	1590
Selenium	ns/ks	ND	ND	ND	CH	NE
Vanadium	39/29	17.9	15.9	15.5	16.4	18.5
linc	2 9/k3	12.1	55.6	8.4	10.1	13.3

RF109 - Inactive Land Treatment Area and Drainase Ditch

		14 107	Inderive			
Sample roint number	-	05	05	05	05	05
Derth of sample		V0.0	V3.0	V5.0	D5.0	٧7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270 (con't)						
Ethyl methancsulfonate	u9/k9	ND	ND	НD	ND	ND
Fluoranthene	us/ks	ND	ND	ND	ND	ND
Fluorene	ua/ka	ND	ND	ND	ND	ND
Hexachlorobenzene	us/ka	ND	ND	ND	ND	ЫŅ
Hexachlorobutadiene	ua/ka	ND	ND	把	ND	ND
Hexachlorocyclopentadiene	u3/20	ND	מא	ND	024	ND
Hexachloroethane	uo/ka	<u>ات ا</u>	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	us/ks	ND	ВN	ND	ND	MD
Isorhorone	us/ke	ND	ND	ND	ND	ND
3-Methylcholanthrene	vo/ke	ND	ND	ND	ND	ND
Methyl methanesulfonate	uc/kg	ND	ND	ND	ND	ND
2-Methylnaphthalene	ua/ka	ND	ND	ND	ND	ND
Narhthalene	uo/ka	ND	ND	ND	תא	ND
1-Naphthylamine	uo/ka	NÐ	ND	HD.	ND	ND
2-Naphthylaminc	us/ka	ND	ND	ΥD	ND	ND
2-Nitroaniline	uo/ka	MD	NÐ	DK	ND	ND
3-Mitroaniline	ug/kg	ND	ND	ND	ND	ND
4-Nitroaniline	na\ka	ND	ND	ND	ND	ND
Nitrobenzene	us/ks	ND:	ND	ND	ND	ND
2-Nitrorhenol	us/ks	ND	ND	ND	ND	ND
4-Nitrophenol	us/ka	HD	ND	NI	ND	D
N-Nitroso-di-n-butylamine	us/ks	ND	ND	ND	D	ND
N-Nitrosodimethylaminc	us/ka	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	us/ks	םא	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	us/ka	ND	ND	ND	ND	ND
N-Nitrosoriperidine	us/ks	ND	ND	ND	M	ND
Pentachlorobenzone	us/ks	ND	ND	CM.	ND	ND
Pentachloronitrobenzene	u3/ko	ND	ND	ND	ND	HD
Pentachlorophenol	us/ks	ND	ND	ND	ND	ND
Phenacetin	'19/ k 9	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	ND
Phenol	us/ks	ND	ND	Ъ	ND	ND
2-Picoline	u9/k3	ND	ND	ND	ND	ND
Pronamide	us/ks	ND	ND	ND	ND	ND
Pyrene	us/ks	ND	ND	ND	ND	NU
1,2,4,5-Tetrachloro-benzene	u9/ko	ND	DM	שא	ND	ND
2,3,4,6-Tetrachlororhenol	ug/kg	ND	ND	NC	ND	ND
1,2,4-Trichlorobenzene	us/ks	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	u9/ks	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	us/ko	ND	ND	CM	ND	ND
Benzidine	us/ko	ND	ND	ND	ND	ND
Benzoic acid	us/ka	ND	ND	ND	ND	ND
1-Chloronaphthalenc	us/ks	NB	NÜ	ND	ND	ND
1,2-Diphenylhydrazine	ua/ka	ND	ND	ND	ND	ND

		RF109 -	Inactive	Land Tr	eatment	Area and
Sample point number Derth of sample		05 V0.0	05 73.0	05 ∀5.0	05 05.0	05 V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270						
Acenarthene	ug/kg	ND	ND	ND	ND	ND
Acenaphthylene	us/ks	ND	MD	ND	ND	ND
Acetophenone	ua/ka	ND	ND	ND	ND	ND
4-Aminobiphenyl	uo/ko	ND	ND	ND ND	ND	ND
fniline	ug/kg	ND	ND	ND	ND	ND
Anthracene	u3/k3	D/	ND	ND ND	Щ. М	ND
Benzo(a)anthracene	u9/k9	ND	ND	ND	ND ND	ND ND
Benzo(b)fluoranthene	uo/ko	DH D	ND	MD MD	ND ND	-MD
Benzo(k)fluoranthene	us/ks	ND	ND ND	ND ND	ND	ND
Benzo(s,h,i)pervlene	us/ks	ND		ND ND	ND	ND
Benzo(a)ryrenc	us/kg	ND	ND ND	ND	ND	ND
Benzyl alcohol	us/ka	ND ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	u9/k9 u9/ko	שת כא	ND	ND ND	ND	ND
bis(2-Chloroethyl) ether	u9/x5 u9/k5	ND	ND	ND	ND	ND
bis(2-Chloroisopropy))-ether bis(2-Ethylhexyl) phthalate	09/k9 09/k9	ND	ND	ND	ND	ND
	09/29 09/29	ND	ND	ND	HD	ND
4-Bromophenyl phenyl ether	us/ks ug/kg	ND	жD ND	ND	ND	ND
Butyl benzyl phthalate	u9/k9	ND	ND	ND	ND	ND
4-Chlorcanilinc 4-Chloro-3-methylphenol	09/k3 09/k3	ND D	ND	ND ND	ND	ND
2-Chloromaphthalenc	us/ks	NU DA	ND	ND	ND	CC/
2-Chlorophenol	03/ks	םא םא	· ND	ND DA	ND	ND
4-Chlorophenyl phenyl ether	u9/k9	ND	ND	ND DA	ND	ND
o-Cresoi	us/ks	ND	ND	ND	ND	םא
n & F-Cresol(s)	us/kc	ND	ND	ND	ND	ND
Chrysene	us/ks	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	us/ks	ND	ND	ND	ND	ND
Di-n-butyl phthalate	นว/หว	ND	ND	ND	ND	ND
1.2-Dichlorobenzene	us/ks	ND	NÐ	ND	ND	ND
1.3-Dichlorobenzene	us/ko	ND	ND	D	ND	ND
1.4-Dichlorobenzenc	u9/ks	ND	ND	ND	ND	ND
3.3-Dichlerobenzene	us/ko	ND	ND	ND	нD	ND
2,4-Dichlorophenol	us/kc	ND	ND	ND	ND	ND
2,6-Dichlorophenol	us/ks	ND	ND	ND	ND	ND
Dicthyl phthalate	us/ks	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	us/ks	ND	NÐ	MD	ND	ND
7,12-Dimethylbenz(a)-	u9/k9	ND	ND	ND	ND	ND
anthracene	us/kg	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	us/ks	ND	ND	ND	ND	ND
2,4-Dimethylphenol	us/ks	ND	NÐ	HD	ND	ND
Dimethyl phthalate	us/ks	ND	NO	ND	ND	ND
1,3-Dinitrobenzene	us/ko	ND	ND	ND	ND	ND
4.6-Dinitro-o-cresol	us/ks	ND	ND	ND	ND	ND
2,4-Dinitrophenol	uo/ka	ND	ND	ND	ND	Ю
2,4-Dinitrotoluene	u9/k9	ND	HD	ND	ND	ND
2.5-Dinitrotoluene	us/ks	ND	Œf	ND	ND	ND
Di-n-octyl phthalate	us/kc	ND	ND	ND	ND	ND
Dichenylamine	us/ks	ND	ND	ND	ND	ND

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RF109 - Inactive Land Treatment Area and Drainage Ditch

a a transform		05	05	05	05	05	
Sample point number Dopth of sample		V0.0	V3.0	.v5.0	25.0	V7.0	
BORTH OF SLEPTC			,,,,,	1010			
Parazeter	Units	Result	Result	Result	Result	Result	
				•			
Method 9210							
Chloromethane	us/ks	ND	ND	ND	ND	, ND	
Bromomethane	us/ks	ND	ND	ND	ND	HD.	
Vinyl chloride	us/kg	ND	ND	ND	ND	ND	
Chloroethane	uo/ko	MD.	ND	ND.	ND	НD	
Methylenc chloride	us/ks	ND	ND	ND .	EN	ND	
1,1-Dichloroethene	ug/kg	ND	ND	ND	ЮM	ND	
1,1-Dichloreethane	u3/k9	ND	ND	ND	нD	нD	
1,2-Dichloroethene (cis/trans)	uo/ka	ND	ND	HD	ND	ND	
Chloroform	us/ks	ND	ND	ND	ND	ND	
1,2-Dichloroethane	us/ks	ND	ND	ND	ND	HD	
1.1.1-Trichlorocthane	us/kg	ND	ND	Ð	NÐ	ND	
Carbon tetrachloride	us/ko	ND	ND	ND	NÐ	ND	
Bromodichloromethane	u9/k9	ND	ND	ND	ND	ND	
1,2-Dichloropropane	uo/ka	פא	ND	ND	ND	HC	
trans-1,3-Dichloroprorene	us/ks	ND	ND	CM CM	ND	ND	
Trichlorosthene	uo/ka	ND	ND	ND	ND	ND	
Dibromochloromethane	u9/k9	ND	ND	ND	ND	ND	
1,1,2-Trichloroethene	us/ks	ND	ND	ND	ND	нD	
Kenzenc	uo/ks	ND	ND	ND	ND	Ð	
cis-1,3-Dichlororropene	us/ko	ND	ND	DI	ND	ND	
2-Chloroethyl vinyl ether	ua/ka	ND	ND	ND	ND 1	ND	
Bromoform	us/ks	ND	ND	ND.	ND	ND	
1,1,2,2-Tetrachloroethane	us/k9	ND	ND	ND	ND	ND	
Tetrachloroethene	uc/ka	СM	ND	DK	ND	CH.	
Toluene	ua/ka	HC	ND	ND	ND	ND	
Chlorobenzene	uo/ks	ND	ND	ND	ND	ND.	
Ethylbenzene	us/ks	'ND	D.	ND	ND	HD	
Acetone	ua/ka	ND	ND ·	ND	ND	ND	
Acrolein	us/ks	ND	ND	ND	ND	ND	
Acrylonitrile	uo/ks	ND	ND	ND	ND	HD	
Carbon disulfide	us/ks	ND	ND	ND	NÐ	ND ND	
Dibromomethane	us/ks	ND	ND.	ND	NÐ	ND	
trans-1,4-Dichlero-2-butene	u9/k9	ND	ND	ND	ND	Ð	
Dichlorodifluoromethane	us/ks	ND	NÐ	ND	ND	HD I	
trans-1,2-Dichloroethene	u9/k9	ND	ND	ND	ND.	ND	
Ethanol	us/ko	ND	ND	ND	ND	ND	
Iodomethane	u9/ks	ND	ND	ND	ND	ND	
2-Butanone (MEK)	us/ko	ND	ND	ND	ND	ND ND	
4-Methy1-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND	
Styrene	us/ks	ND	ND	ND	ND	HD I	
Trichlorofluoromethane	us/ko	ND	NE	ND	ND	ND	
1,2,3-Trichloropropane	uo/ks	ND	ND	ND	ND	HD	
Vinyl acetate	us/ks	ND	ND	ND	ND	ND	
Ethyl methacrylate	uo/ka	ND ND	ND	ND	ND	ND ND	
Xylencs (total)	us/ka	ND	HD	ND	ND	ND	
2-Hexanonc	uo/ks	ЮH	ND	ND	MÐ	ND	



RF109 - Inactive Land Treatment Area and Drainage Ditch

Samrle roint number Derth of samrle		03 • 0.0V	03 V3.0	03 75.0	03 - V7.0	04 ⊻0.0	04 V3.0	04 15.0	04 V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Total Metals									
Antimony	ng/kg	ND	ND	нÐ	ND	ND	ND	ND	ND
Arsenic	313/ 29	ND	НD	ND	0,58	2.1	ND	ND	ND
Barium	5 3/k9	214	307	334	224	405	275	309	229
Beryllium	ng/ko	0.73	1.0	1.2	1.1	0.91	1.3	1.1	1.4
Cadaium	ms/ks	ND	ND	HD	ND	ND	ND	ND	ND
Chromium	#9/k9	4.9	5.1	7.5	7.5	12.3	5.7	5.2	3.1
Cobalt	29/kg	1.6	2.1	3.4	3.2	4.4	1.1	2.4	4.8
Correr	zs/ko	4.5	4.2	8.5	5.8	13.9	5.5	5.2	7.2
Lcad	ns/ks	6.0	8.0	9.9	7.3	29.7	13.9	12.4	16.4
Hercury	13/kg	ND	ND	tD:	ND	ND	ND	ND	ND
Nickel	#9/kg	5.1	6.7	9.1	9.2	10.0	7.4	5.1	7.3
		991	? 55	1300	1860	1259	1139	<u>ેલ્</u> ગ	1560
Sclenium	ps/kg	ND	ND	ND	ND	ЮH	ND	NÐ	ND
Vanadium	19/k3	10.1	13.1	15.1	14.9	15.4	16.4	12.8	13.1
Zinc	2:9/k9	8.7	9.6	13.4	13.3	69.6	11.1	9.1	14.0

		RF109 -	Inactive	Land Tr	reatment	Area and	Draina	se Ditch	i
Sample point number		03	03	03	03	04	04	04	04
Depth of sample		VQ.0	V3.0	V5.0	٧7.0	VO. 0	V3.0	V5.0	V7.0
Deren of Stanfie									
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 9270 (con't)									
Ethyl methanesulfonate	up/ka	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ua/ka	ND	ND	ND	ND	ND NF	<u>е</u> м	ND	פא
Fluorene	u9/k9	ND	ND	ND	ND	СN СN	ND	ND	KD
Hexachlorobenzene	us/ks	ND	10	DM.	מא	HD	CM D	ND	D.
Hexachlorobutadienc	ua/ka	ND	ND	NÐ	ND	ND VD	ND	ND	ND'
Hexachlorocyclorentadiene	us/ks	DИ	ND	ND	ND	ND	HD	D	ND
Hexachlorcethane	u9/k9	ND	ND	ND	ND ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	us/ks	MD	ND	ND	ND ND	ND	ND	ND	ND
Isophorone	u9/k9	ND	ND	ND	ND ND	ND	ND	ND	ND-
3-Methylcholanthrene	טפ/גט	ND	ND	Df M	ND	nd ND	ND ND	nd Nd	nd ND
Hethyl methanesulfonate	us/kg	ND	ND	ND ND	ND	ND ND	ND	ND	ND
2-Methylnaphthalene	us/ks	ND	ND	ND	ND ND	ND ND	ND	ND	ND D
Narhthalene	u9/k9	ND	ND	ND	ND ND	ND	ND	ND	ND
1-Narhthylamine	ug/kg	ND -	ND	ND ND	AD ND	EI EI	ND	ND	ND:
2-Haphthrlamine	u9/k9	ND	NB	ND ND	ND	ND CM	тш ЮМ	ND	ND
2-Nitroaniline	u9/k9	ND	nd Nd	nd Nd	ND	ND	ND	ND	ND
3-Nitroaniline	us/ks	ND ND	nd ND	ND	ND	ND	ND	ND	ND ND
4-Nitroaniline	133/23 19/29	ND	ND .	ND	ND	ND	ND	ND	NE
Nitrobenzene 2-Nitrophenol	ug/kg	ND	nu. MD	ND	ND	NU DH	DA DA	ND	ND
A-Nitrophenol	u9/k9	ND	ND	NE	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	us/ks	שו םא	ND ND	ND		ND	ND	ND	ND
N-Nitrosodimethyizmine	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodirhenylamine	ug/kg	ND	ND	ND	ND	NŪ	ND	ND	ND
N-Nitroso-di-n-propylamine	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroscriperidine	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorobenzene	up/kg	ND	NU	ND	ND	ND	ND	ND	ND
Pentachloronitrobenzene	us/ka	ND	ND	ND	ND	ND	ND	פא	DN
Pentachlorophenol	us/ks	ND	NŪ	ND	ND	ND	ND	ND	NÐ
Phenacetin	us/ks	ND	ND	ND	MD	ND	ND	ND	ND
Phenanthrene	us/ka	ND	ND	ND	ND	ND	ND	ND	NE
Phenol	uo/ka	HD	ND	ND	ND	04	ND	ND	ND
2-Picoline	u9/k9	ND	ND	ND	ND	CM	ND	ND	ND
Pronamide	uo/ka	ND	ND	ND	ND	ND	ND	ND	ND
Fyrene	u9/k9	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	us/ko	ND	ND	ND	ND	ND	ND	ND	КŪ
1,2,4-Trichlorobenzene	us/ks	ND	ND	ND	ND	нD	ND	ND	ND
2,4,5-Trichlorophenol	us/ks	нD	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ua/ka	DM	ND	ND	ND	ND	DM	ND	ND
Benzidine	u9/k9	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic acid	uo/ks	ND	ND	ND	ND	ND	ND	ND	ND
1-Chloronaphthalcne	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichenylhydrazine	us/ks	HD	Œ	ND	ND	ND	MD	ND	MD

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		RFIO9 -	Inactive	Land Tr	eatment	Area and	Braina	se Ditct)
Sample roint number Depth of sample		03 V0.0	03 V3.0	03 V5.0	03 V7.0	04 V0.0	04 V3.0	04 V5.0	04 V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270									
Acenarthene	u9/k9	ND	ND	ND	ND	ND	ND	ND.	ND
Acenaphthylene	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
Acetophenone	us/ko	MD	ND	ND	ND	ND	ND	Œ	ND
A-Aminobirhenyl	us/ka	HD	ND	ND	10	ND ND	ND	ND	ND
Aniline	u9/k9	ND	ND	ND	ND	۲D ۱۳۵	ND ·		NB
Anthracene	u3/23	ND	םא	ND	ND	ND ND	ND ND	nd Hei	nd ND
Benzo(a)anthracene	v9/ks	NC	ND	ND	ND			ndi ND	ND
Benzo(b)fluoranthene	u3/k3	ND		ND	ND ND	nd Nd	nd Nd	ru ND	red ND
Benzo(k)fluoranthene	ug/kg ug/kg	nd ND	nd Nd	ND ND	ND	ND	ND	ND	ND
Benze(s,h,i)pervlene		ND	ND ND	ND	ND	ND	ND	ND	ND
Benzo(a)ryrene	uo/ko uo/ko	ND ND	יים: אנו	ND	лс MD	ND DA	ND	100 100	ND ND
Benzyl alcohol	ua/ka	Er Contraction (Contraction) (ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane bis(2-Chloroethyl) ether	us/ko	שי מא	ND ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ua/ka	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) shthalate	us/ks	ND	100 100	מא	ND	ND	ND	ND	 D
4-Bromophenyl rhenyl ether	us/ks	ND	ND	ND	ND	ND	ND	ND	NE
Butyl benzyl phthalate	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	ua/ka	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloromaphthalenc	us/ks	ND	ED.	ND	ND	ND	ND	ND	ND
2-Chlorophenol.	uo/ka	ND	ND	ND	ND	ND	ND	DA.	ND
4-Chlorophenyl rhenyl ether	us/ks	ND	ND	ND	ND	ND	Œ	ND	ND
o-Cresol	us/ko	ND	ND	DM	ND	ND	ND	ND	ND
a & p-Cresol(s)	us/ks	ND	ND	ND	ND	ND	ND	NŪ	ND
Chrysenc	us/ks	ND	ND	DH	MD	ND	ND	Ъ	ND
Dibenz(a,h)anthracene	ua/ka	ND	ND	ND	ND	CH CH	ND	ND	ND
Di-n-butyl phthalate	us/ks	MD	ND	NÐ	ND	ND	ND	ND	MD
1.2-Dichlorobenzene	ua/ka	ND	ND	ND	ND	NU	ND	ND	ND
1.3-Dichlorobenzene	uo/ko	ND	ND	ND	ND	ND	ND	ND	ND
1.4-Dichlorobenzene	ua/ka	НÐ	ND	ND -	ND	ND	ND	ND	NE
3,3-Dichlorobenzene	uo/ko	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2.6-Dichlorophenol	uo/ka	НD	D	ND	MD	ND	ND	ND	ND
Dicthyl phthalate	ua/ka	ND	ND	ND	ND ND	ND	ND	ND	ND
P-Dimethylaminoazobenzene	u3/ks	CM CM	ND	ND	ND	EA EA	ND	ND ND	ND
7.12-Dimethylbenz(a)-	us/ks	ND	ND	ND	ND	ND	ND	ND	NTI NTI
anthracene	us/ks	DM	ND	ND	ND	ND	ND	ND	ND
a,a-Dimethylrhenethyl-aminc	us/ks	ND	ND		ND	ND ND	ND ND	ND ND	ND ND
2,4-Dimethylphenol	us/ks	ND	ND ND	ND	ND	ND ND	ND ND		
Dimethyl rhthalate	us/ks	ND ND	ND	· ND	ND	ND	ND ND	MD ND	ND .
1.3-Dinitrobenzene	uo/ks	ND	HD	ND	HD ND		ND ND	ND ND	nd ND
4,6-Dinitro-o-cresol	us/ks	ND.	ND	ND	ND	ND	ND ND	ND	שא סא
2,4-Dinitrophenol	us/ks	ND	ND NTI	ND NTI	ND	or Da	nd ND	nd ND	ND
2,4-Dinitrotoluene 2,5-Dinitrotoluene	us/ks us/ks	ND ND	ne) Ne)	NU ND	nd Nd	ND	ND	ND	ND
		nu HD	ND ND	nu ND	нш ND	nto ND	ND -	ND	ND
Di-n-octyl rhthalate Dirhenylamine	us/ks us/ks	ND	nd ND	ND	ND ND	HD ND	ND ND	ND	ND ND
ar nen ichtig	427 KJ								8.2

RFI09 - Inactive Land Treatment Area and Drainage Ditch

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Samrle roint number Derth of samrle		03 70.0	03 V3.0	03 V5.0	03 V7.0	04 V9.0	04 V3.0	04 V5.0	04 97.0
Parameter	Units	Result							
Method 8240									
Chloromethane	us/ks	ND							
Bromomethane	us/ks	MD	ND	ND	MD	DA.	ND	ND	<u>بی</u>
Vinyl chloride	us/ks	ND	ND	ND	ND.	ND	ND	ND	ND ND
Chloroethane	us/ks	ND .	ND	ND	ND ND	- DD	ND ND	D	ND
Methylene chloride	u9/k9	ND	D.	ND	ND ND	ND ND	ND	ND	NÐ
1.1-Dichloroethene	us/ks	ND	ND ND	ND	ND ND	ND	ND	ND	き
1.1-Dichloroethane	us/ka	ND	ND	ND	ND ND	ND	ND	ND	MD ا
	us/ks	ND	ND	NÐ	ND	ND	ND	ND	ND NT
Chloroform	u9/k9	Ю	ND	ND	ND	НD	ND	ND	ND
1,2-Dichloroethane	us/ka	ND	ND	È	ND	ND	ND	ND	CH
1,1,1-Trichloroethane	us/ks	HD	ND	HD	ND	ND	ND	ND	ND
Carbon tetrachloride	13/K2	ND	ND	ND	ND	DM	ND	ND	ND
Promodichloromethane	us/ko	ND	HD	ND	ND	ND	ND	ND	ND
1,2-Dichlororrorane	uo/ko	MD	ND						
trans-1,3-Dichlororropene	us/ko	ND							
Trichloroethene	uo/ka	DM	ND	ND	ND	ND	ND	ND	NÐ
Dibromochloromethane	u9/k9	ND							
1,1,2-Trichloroethene	טס/גפ	ND	EM	КD	MD	- ND	DH	MD	MD
Benzene	us/ke	ND	ND	NU	ND	ND	ND	ND	ND
cis-1.3-Dichloropropena	us/ks	ND	ND	НD	ND	ָ תא	ND	ND	ND
2-Chloroethyl vinyl ether	us/ks	ND	EY.	ND	ND	ND	ND	ND	ND
Bromoform	บร/kว	ND	DM.	D	НÐ	NC	ND	ND	ND
1,1,2,2-Tetrachloroethane	us/ko	ND	НD	ND	ND	ND	ND	ND	ND
Tetrachloroethene	us/ks	ND	ND	NÐ	ND	ND.	ND	ND	ND
Toluene	us/ks	ND	ND	NÐ	ND	ND	ND	ND	ND
Chlorobenzene	us/ks	ND	DM	DH	ND	ND	ND	DA	ND
Ethylbenzene	u9/k9	ND	ND.	ND	ND	ND	ND	ND	ND
Acetone	us/ks	CLA	ND	ND	ND	ЖD	ND	ND	ND
Acrolein	ua/ka	ND							
Acrylonitrile	us/ko	ЫD	ND	NÐ	Ϋ́Ω	D	ND	ND	ND
Carbon disulfide	us/k9	ND	ND	НD	ND	ND	ND	ND	ND
Dibromomethane.	us/ks	ND	MD	НD	ND	ND	ND	ND	ND
trans-1.4-Dichloro-2-butenc	us/ks	DM	ND	NÐ	ND	ND	ND	HD	ND
Dichlorodifluoromethane	us/ko	ND	ND	ND	ND	NÐ	DM	ND	ND
trans-1,2-Dichloroethene	us/ko	ND	ND	DI	ND	ND	ND	ND	ND
Ethanol	us/ks	ND	ND	D.	ND	ND	20000	22000	12000
Iodomethane	uc/ka	ND							
2-Butanone (MEK)	us/ko	ND							
1-Methyl-2-pentanone (MIBK)	u9/k9	ND							
Styrene	us/ks	ND	HD						
Trichlorofluoromethane	us/ks	ND							
1,2,3-Trichloropropane	us/ks	ND							
Vinyl acctate	us/kg	ND							
Ethyl methacrylate	us/ks	DND	ND						
Xylenes (total)	us/ks	ND	ND	ND CM	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	D/	ND

		RF109 - 1	Inactive	Land Tr	catment	Area and	Draina	9e Ditch	
Sample roint number Derth of sample		01 V0.0	01 V3.0	01 · V5.0	01 V7.0	02 70.0	02 V3.0	02 75.0	02 V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Total Metals									
Antinany	ac/ks	ND	ND	ND	ND	ND	ND	ND	ND
Antimony	ED/ks	0.35	MD	ND	D	ND	ND	Œ	אם
Arsenic	ms/ko	316	330	332	309	302	318	237	252
Barium	m9/k9	0.95			1.2	1.3	1.2	1.2	0.59
Beryllium	ms/ks	ND	ND	ND	ND	ND	ND	NÐ	ND
Cadaiua	as/ks	13.9	4.9	5.4	5.4	11.3	£.3	7.2	2.3
Chromium	as/ks	3.2	2.9	5.8	1.0	5.8	3.7	6.4	2.0
Cobalt	as/ko	7.1	3.5	5.3	5.7	9.1	5.6	5.7	ND
Corner	5. ks	13.4	11.4	9.8	13.2	16.1	13.9	13.4	11.9
Lead	29/ks	ND	ND	ND	ND	ND	ND	ND	ND
Mercury	ms/ks	6.3	5.2	5.7	6.7	11.4	£.8	8.2	КD
Nickel Potassium	mg/kg	1219	712	1400	963	2110	1220	1640	ND
	b9/ks	ND	ND	ND	ND	ND	ND	HD	NÐ
Selenium Vanadium	m9/k9	12.9	12.9	14.1	14.7	20.1	15.0	15.9	9.5
Zinc	ns/ks	19.7	6.9	9.3	9.2	18.4	12.0	12.3	5.7

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RF109 - Inactive Land Treatment Area and Drainase Ditch

Sample point number lepth of sample		01 V0.0	01 V3.0	01 V5.0	01 V7.0	02 V0.0	02 V3.0	02 \\5,0	02 77.0
Parameter	Units	Result	Result						
Method 8270 (con't)					· ·				
Ethyl methanesulfonate	uo/ka	ND	КD	ND	ND.	ND	ND	ND	ND
Fluoranthene	us/ks	ND	MD						
Fluorene	ug/kg	ND	ND						
Hexachlorobenzene	us/ks	ND	HD	ND	ND .	ND	ND	ND	ND
Hexachlorobutadiene	uc/ks	ND	ND	ND	ND	ND	ND	ND.	ND
Hexachlorocyclorentadiene	ao/ka	ND	ND	ND	ND	MD	ND	ND	ND
Hexachloroethane	us/ks	ND	ND	HD	Ð	M	HD	ND	ND
Indeno(1,2,3-cd)pyrene	us/ks	ND	ND	ND	ND	ND	DM	ND	КD
Isorhorone	us/ks	ND	ND						
3-Methylcholanthrene	us/ks	םא	ND	ND	ND	ND	ND	ND	ND
Methyl methanesulfonate	us/ko	ND	ND	ND	ND	Ю	ND	ND	ND
2-Methylnarhthalene	us/ks	ND	סא						
Narhthalene	uo/ks	ND	ND						
1-Naphthylamine	us/ks	ND	HD	ND	15D	ND	MD	HD	ND
2-Naphthylamine	us/kg	ND	ND						
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	НD	NÐ	ND
3-Nitroanilinc	ug/kg	ND	ND						
A-Nitroaniline	us/ks	ND	ND	ND	DH.	ND.	ND	ND	ND
Nitrobenzene	us/ks	ND	ND	ND	ND	ND.	ND	ND.	ND
2-Nitrophenol	uo/ka	ND	2	ND	םא. םא	HD	ND	ND.	ND
4-Nitrophenol	us/ks	ND	ND						
N-Nitroso-di-n-butylamine	ug/k3	ND	ND	ND	нD	ND	ND	ND	ND
N-Nitrosodimethylamine	us/ks	ND	ND	ND	ND	ND	ND	КD	ND
N-Nitrosodiphenylamine	us/ks	ND	ND	ND	 CM	ND.	- DH	ND	ND
N-Nitroso-di-n-propylazine	us/ks	ND	ND	10	ND	КD	ND	ND	ND
N-Nitrosopiperidine	us/ks	ND	ND						
Pentachlorobenzene	us/ks	ND	ND						
Pentachloronitrobenzene	us/ks	ND	ND	ND	ND	ND	ND	MD	ND
Pentachlorophenol	u9/k3	ND	ND	ND	ND	ND CH	ND	ND.	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ש. של	ND	ND	ND
Phenanthrene	u9/k9	ND	ND	ND	КD	ND	ND	ND	ND
Phenol	u9/k9 u9/k9	ND	ND	ND	ND	ND ND	ND	ND	ND
2-Picoline	us/ks	ND	ND						
Pronamide	us/ks us/k3	ND	ND	ND	ND	אר סא	ND	ND	ND
			ND	ND	ND	ND	ND	ND	ND
Pyrene	us/ks	NB		ND	ци НО	- ND ND	ND	100 110	ND
1,2,4,5-Tetrachloro-benzene	עס/גפ אין/פט	ND	ND ND	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlororhenol	ug/kg	ND				ND	ND	ND ND	ND
1,2,4-Trichlorobenzene	uo/ka	ND	ND ND	ND ND	ND ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	us/kg	ND	HD	ND ND	ND		ND		ND
2,4,6-Trichlorophenol	uo/ka	ND	ND	ND ND	ND	ND ND		ND ND	
Benzidine	us/ks	ND	ND						
Benzoic acid	us/ks	ND	D						
1-Chloronaphthalene	u9/k9	ND	NB	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazinc	us/ks	ND.	NÐ	ND	ND	NÐ	ND	ND	ND

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		RF109 -	Inactive	Land	.atment	Arca and	Draina	se Ditch	l
Sample point number		01	01	01	01 V7.0	02 V0.0	02 V3.0	02	02 V7.0
Depth of sample		VO.0	V3.0	V5.0	v/.u	VU.U	¥3.U	V5.0	v/.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Resul
Method 8270									
Acenarthene	ua/ka	ND	MD	ND	ND	ND	ND	ND	ND
Acenarhthylene	uc/ka	ND	ND	ND	ND	ND	ND	ND	ND
Acetophenonc	us/ks	ND	ND	ND	ND	ND	ND	MD	ND
4-Aminobiphenyl	us/ks	ND	ND	ND	ND	ND	ND	ND	NI
Aniline	u9/k9	DA	ND	ND	ND	ND	ND	ND	ND
Anthracene	u9/k9	ND	ND	ND	ND	ND.	ND	ND	ND
Benzo(a)anthracene	uc/ka	ND	Œ	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	us/ks	סא	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	us/ka	ND	ND	ND	ND	ND	ND.	ND	RD
Benzo(o,h,i)rerylene	uo/ka	ND.	ND	ND	ND	ND	ND	ND	ND
Benzo(a)PYrenc	uc/ka	ND	ND.	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ua/ka	ND	ND	ND	ND	ND	ND	ND	KD
bis(2-Chloroethoxy)-methane	u9/k9	NÐ	КÐ	Ю	ND	ND	DH.	ND	ND
bis(2-Chlorocthyl) other	u3/k3	ND	ND	ND	ND	מא	ND	HD	HD
bis(2-Chloroisopropyl)-ether	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	uo/ko	ND	E M	ND	ND	ND	ND	ND	ND
A-Bromorheny! rhenyl ether	u9/k9	ND	ND	ND	ND	Œ	ND	ND	ND
Butyl benzyl phthalato	uo/ka	ND	DH.	ND	ND	ND	MD	ND	ND
4-Chloroaniline	u9/k9	ND	ND	E.	CM	ND	НD	ND	НD
1-Chloro-3-acthylphenol	up/ks	ND	50	ND	ND	ND	M	МD	ND
2-Chloromaphthalone	u9/k9	ND	ND	ND:	ND	ND	ND	ND	ND
2-Chlorophenol	uc/ks	ND	ND	ND	MD	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	us/ks	ND	ND	ND	ND	<u>C</u> A	ND	ND	ND
o-Cresol	us/ks	םא	D!	ND	ND	ND	ND	ND	ND.
a & r-Cresol(s)	us/ks	ND	ND	ND	ND	ND	ND	ND	КD
Chrysene	u9/ks	DI	ND	ND	ND	ND	ND	MD	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	CH.	ND	ND	ND	ND	ND
Di-n-butyl phthalate	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzenc	us/ks	ND	Ð	ND	ND	ND	ND	ND	ND
1.3-Dichlorobenzene	u9/k9	ND	ND	ND)D	ND	D	ND	ND
1,4-Dichlorobenzene	u9/k9	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	uo/ka	ND	ND	ND	ND	ND	НÐ	DA	ND
2,4-Dichlorophenol	us/ko	ND	NÜ	ND	ND	ND	ND	ND	ND
2,6-Dichlorophenol	uo/ka	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl rhthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
P-Dimethylaminoazobenzene	us/ks	ND	מא	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	us/ks	ND	ND	ND	ND	NÐ	ND	ND	ND
anthracene	us/ko	ND	ND	ND	ND	ND	ND	ND	ND
a,a-Bimethylphenethyl-anine	us/kg	ND	ND	ND	ND	ND	· NED	ND	ND
2, 1-Dimethylphenol	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	u9/k9	ND	ND	ND	NÐ	ND	ND	ND	HD
1,3-Dinitrobenzene	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
1.6-Dinitro-o-cresol	us/ks	ND	ND	ND	ND	ND	ND.	ND	ND
2.4-Dinitrophenol	us/ks	ND	NÐ	ND DM	ND	ND CM	סא	ND	ND
	us/ka	ND	ND	NÐ	ND	ND	ND DA	ND	NED
	us/K9	πu	nu)	μ	ιw	nu	1947	100	
2.4-Dinitrotoluene		10D	MD.	MD	MD.	M	M	ND	MU.
2,5-Dinitrotoluene 2,5-Dinitrotoluene Di-n-octy! phthalate	us/ks us/ks	ND ND	ned Ned	nd ND	ND ND	ND ND	ND ND	nd ND	hd) Nei

RFI09 - Inactive Land Treatment Area and Drainase Ditch

Sample roint number Derth of samrle		01 70.0	01 V3.0	01 V5.0	01 V7.0	02 70.0	02 V3.0	02 ∿5.0	02 V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8240									
Chloromethane	u9/k9	١D	ND	ND	ND	ND	ND	NE	ND
Bromomethane	us/ka	ND	D	ND	ND	ND	ND	NU:	ND
Vinyl chloride	ua/ka	ND	ND	ND	ND	ND	ND	ND	ND
Chlorocthane	aa\ka	ND	MD	ND	СN	ND	ND	DN	ND
Methylene chloride	us/ks	ND	ND	Ð	ND	ND	ND	œ	NŪ
1,1-Dichloroethenc	us/ka	ND	ND	ND	ND	ND	D	ND	ND
1,1-Bichloroethane	us/ks	ND	ND	Юł	ND	ND	ND	ND	CH
1,2-Dichloroethene (cis/trans)	ua;ka	ND	ND	DN	MD	ND	ND	ND	ND
Chloreform	uc/ka	ND	ND	ND	ND.	ND	ND	ND	ND
1,2-Dichlorocthane	us/ko	ND	ND	iΨ	· .•	ND	ND	ND	ND
1,1,1-Trichloroethane	us/kc	ND	ND	M	ND	ND	ND	ND	ND
Carbon tetrachloride	us/ko	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	uo/ka	ND	ND	ND	ND	MB	ND	M	ND
1,2-Dichloropropane	uo/ks	ND	ND	ND	ND	ND	ND	ND	ND
trans-1.3-Dichloropropene	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorocthene	uo/ka	ND	ND	ND	ND	DH	ND	ND	ND
Dibromochloromethane	us/ko	ND	ا ه:	ND	NÐ	NÐ	ND	ND	QI
1.1.2-Trichloroethene	uo/ko	ЖD	ND	DM	ND	ND	ND	ND	ND
Benzenc	u9/k9	ND	ND	ND	ND	ND	ND	ND	D
cis-1,3-Dichlororrorene	us/ks	ND	ND	ЮK	HD	ND	ND	ND	ND
2-Chloroethyl vinyl ether	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
Broasform	u9/ks	ND	ND	ND	DH	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane,	uc/ka	ND	ND	ND	ND	ND	HD	ND	нD
Tetrachloroethene	us/ks	ND	ND	ND	ND	ND .	ل لا	ND	ND
Toluene	us/ks	ND	ND	ND	ND	ND	ND	RD	ND
Chlorobenzene	u9/k9	NÐ	ND	МD	ND	ND	ND	ND	ND
Ethylbenzene	us/ks	ND	ND	ND	ND	ND	ND	нD	M
Acetone	us/ks	ND	ND	ND	MD	ND	ND	ND	ND
Acrolein	u9/ks	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	us/ks	ND	ND	ND	ND	<u></u> ND	ND	ND	ND
Carbon disulfide	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	us/ks	ND	ND	CM	ND	ND	ВM	ND	ND
trans-1,4-Dichloro-2-butene	us/ka	ND	ND	CM.	ND	ND	DA DA	ND	ND
Dichlorodifluoromethane	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	us/ks	ND	ND	ND	ND	ND	ND	ND	Ð
Ethanol	uo/ko	ND	16000	ND	24090	ND	23000	ND	Ð
Iodomethane	ua/ka	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	us/ks	ND	. ND	מא	ND	ND	ND:	ND	ND
4-Methyl-2-pentanone (MIBK)	us/ks	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	u3/k9	ND	ND	DK	ND	DM	ND	ND	ND
Trichlorofluoromethane	us/ks	ND	нD	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	u9/k9	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	us/ks	ND	ND	ND	ND	ND	ND	DИ	ND
Ethyl methacrylate	us/ks	ND	ND	ND	ND	ND	ND	DM	ND
Xylenes (total)	us/ks	ND	ND	ND	CD4	ND	ND	ND	ND
2-Hexanone	ua/ka	ND	ND	ND	ND	ND	ND	NÐ	ND

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SWMU No. 10, Sludge Pits

The sludge pits were identified as a solid waste management unit (SWMU) and designated as SWMU 2 No. 10 during a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) conducted 3 at the Giant Refining Company - Ciniza Refinery (Ciniza) in the early 1990s. This investigation included 4 soil sampling and analysis, which indicated the presence of organic contaminants above State of New 5 6 Mexico corrective action levels and trace metals slightly above ambient background concentration. 7 Results and recommendations were reported to the U.S. Environmental Protection Agency (EPA) in 8 1990. In 1994, the EPA requested additional sampling at greater depth. Follow-up sampling and analysis confirmed the original findings. 9

A final remedy plan was proposed in the Phase I RFI supplemental report, which included remediation of the soils. In-place remediation of the soils was formalized in the voluntary corrective action plan (VCAP) for the sludge pits submitted to the EPA in December 1992. The EPA approved the VCAP in November 13993, requiring additional site monitoring. The additional monitoring was completed in 1994.

14 10.1 Site Description and Operational History

SWMU No. 10, *Sludge Pits*, (Figure 10-1) consists of two former American Petroleum Institute (API) separator sludge pits located approximately 200 feet southwest of the existing API separator. The sludge pit area is an oblong flat site measuring approximately 120 feet wide by 200 feet long. Within this area, two pits were previously excavated and filled with oily waste from the API separator. In 1980, the sludge was removed from the pits and replaced with clean fill soil. The site was then covered with a layer of clean soil. Photographs of the sludge pits, taken during the 1998 site inspection performed by Practical Environmental Services, Inc. (PES), are provided in the SWMU No. 10 Summary Report.

22 10.2 Land Use

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The sludge pits have been backfilled and are no longer being used. The area is vacant of operations and is naturally revegetating. The area, which has not been designated for a new purpose, will remain under the ownership of Ciniza.

26 10.3 Investigation Activities

Applied Earth Sciences (AES) investigated the sludge pits in 1990 and 1995. Soil samples were collected
and analyzed. Trace volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and
metals were detected in several of the samples.

SWMU No. 10 Sludge Pits

10-1

1 10.3.1 Investigation #1

During the initial site investigation in 1990, AES collected and analyzed soil samples from eight locations
and multiple depths within the sludge pits: surface, and 3, 6, 9, and 12.5 feet below ground surface. VOCs
were detected in 7 of 27 samples; xylenes, at 540 mg/kg, represented the highest detected concentration.
SVOCs were detected in 10 of 27 samples; methylnaphthalene, at 1,400 mg/kg, represented the highest
detected concentration.

As a result of this investigation, AES recommended tilling the site to promote natural attenuation of
organics, followed by capping to contain residual metals. Results and recommendations were reported to
the EPA in 1990. In 1994, the EPA requested additional sampling at greater depth. Follow-up sampling
and analysis confirmed the original findings.

11 10.3.2 Investigation #2

12 In 1995, AES conducted a second round of sampling and analysis at eight locations and depths of 19 and

13 25 feet below ground surface. No VOCs were detected in any sample. Trace SVOCs were detected in four

samples, of which di-n-butyl phthalate, at 13 mg/kg, represented the highest detected concentration.

State of New Mexico corrective action levels for benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil is 50 mg/kg total and 10 mg/kg benzene. Seven of 43 samples indicated BTEX constituents, the highest of which was over 900 mg/kg total; which is above the 50 mg/kg action level.

All samples detected trace metals. Chromium and lead were detected at levels above ambient backgroundconcentration.

20 10.4 Site Conceptual Model

21 There is no impact on the environmental fate of the land.

22 10.5 Site Assessments

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23 During the week of March 23, 1998, PES performed an on-site inspection. Observations are as follows:

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The sludge pits area was observed vacant and inactive. No sign of soil staining or residual waste was evident at or in the vicinity of the site.

- Native shrubs and grasses were observed growing throughout the general vicinity. No signs of distress were evident.
- Local soil in the vicinity of the sludge pits is bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.

PES did not perform any sampling or analysis during this site inspection. The inspection was limited only 1 2 to visual observations.

Based on this site assessment, PES determined that SWMU No. 10 has been characterized in accordance 3 4 with current applicable state and federal regulations and that installation of an engineered earthen cap is recommended as corrective action for this site. 5

6 10.6 NFA Proposal

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7 Ciniza is proposing that no further action is required for SWMU No. 10 based on the following criterion:

A release from the SWMU to the environment has occurred, but the SMWU was characterized and 8

9 remediated (capped), adequately addressing RCRA corrective action. Documentation, such as a closure

10 letter, is available. (NFA Criterion 4)

11 The following provides the basis for this proposal:

- ٠ Oily waste originally placed in the sludge pits has been substantially removed and the pits now contain a mixture of residual waste and backfilled clean soil.
 - Residual organic contaminants, consisting of both VOCs and SVOCs, are present in moderate • concentrations and substantially confined to a 20 foot soil layer beneath the surface cover.
 - Residual metal contaminants, consisting primarily of chromium and lead, are present in the same soil layer at elevated levels.
- 18 The currently approved VCAP recommended excavation and tilling to enhance • 19 biodegradation of organics. This technique would have exposed soil metals to oxidation and precipitation; thereby mobilizing these contaminants and promoting migration. The alternative corrective action of installing an engineered soil cap represented a preferred and appropriate remedy for this site.
 - Local soil underlying this site has a very low hydraulic conductivity, which effectively inhibits outward migration of contaminants.

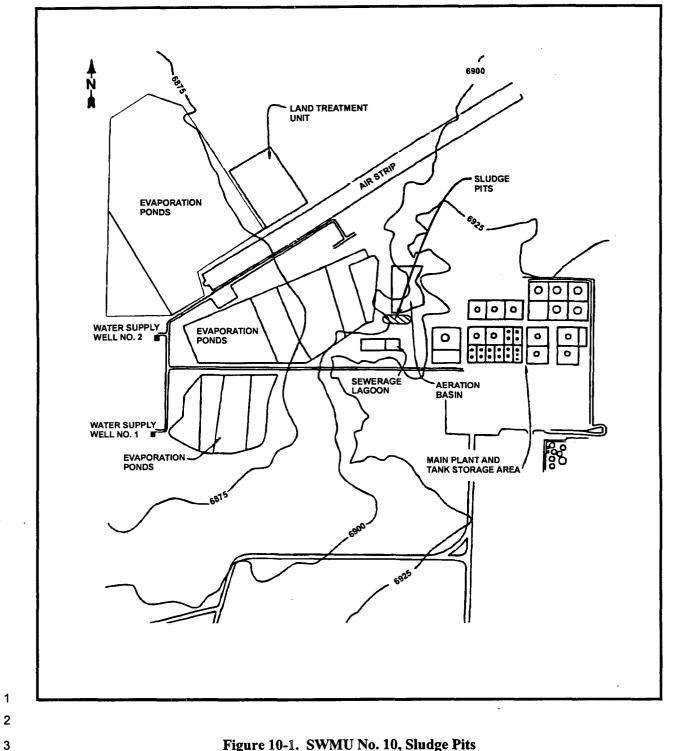


Figure 10-1. SWMU No. 10, Sludge Pits

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SWMU #10 Summary Report

Sludge Pits Ciniza Refinery McKinley County, New Mexico



Prepared for:

Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Prepared by:

Practical Environmental Services, Inc. 1444 Wazee Street, Suite 225 Denver, Colorado 80202

Job No. 98-205-03

April 23, 1998

1.0 EXECUTIVE SUMMARY

Practical Environmental Services, Inc. (PES) has been retained by Giant-Ciniza Refinery (Ciniza) to perform a visual inspection, data evaluation, and status assessment for the sludge pits located at the Ciniza Refinery, in McKinley County, New Mexico.

The sludge pits area was identified as a Solid Waste Management Unit (SWMU), and designated as SWMU #10, during a RCRA Facility Investigation (RFI) conducted at the refinery in the early 1990's. This investigation included soil sampling and analysis, detected organic contaminants, and recommended corrective action.

In 1994, the Environmental Protection Agency Region VI Office (EPA) requested additional sampling at greater depth. Results confirmed previous findings. A corrective plan was prepared by Ciniza and approved by the EPA.

This summary report for SWMU #10 has been prepared in conjunction with submittal of a Resource Conservation and Recovery Act (RCRA) Part B permit application covering post closure care of the Ciniza Refinery Land Treatment Unit. All investigative activities for SWMU #10 have been completed. This assessment is summarized as follows.

- ⇒ Sludge was removed from the pits in 1980 and replaced with clean soil. The site was then covered with a layer of clean soil.
- ⇒ Soil sampling and analysis was conducted during an initial site investigation and subsequent re-investigation at greater depth. Organic contaminants were detected above corrective action levels.
- ⇒ SWMU #10 has been characterized in accordance with current applicable state and federal regulations.
- ⇒ Installation of an engineered earthen cap is recommended as corrective action for this site.

2.0 BACKGROUND

During 1987, a RCRA Facility Assessment was conducted at the Ciniza Refinery. This assessment identified various "solid waste management units" and recommended further evaluation. A RCRA Facility Investigation was subsequently conducted and the sludge pits area was identified as SWMU #10.

Applied Earth Sciences (AES) investigated the sludge pits area during the early 1990s. Soil samples were collected and analyzed. Organic contaminants were detected above State of New Mexico corrective action levels. Trace metals were also detected; of which, a few samples indicated levels slightly above ambient background concentration. As a result of the investigation, AES recommended tilling the site to promote natural attenuation of organics, followed by capping to contain residual metais. Results and recommendations were reported to the EPA in 1990. In 1994, the EPA requested additional sampling at greater depth. Follow-up sampling and analysis confirmed the original findings.

3.0 SITE LOCATION AND DESCRIPTION

SWMU #10 is located within the Ciniza Refinery's property boundary. This refinery is located on the north side of Interstate 40, approximately 17 miles east of Gallup, New Mexico. Within the refinery, SWMU #10 is located approximately 200 feet southwest of the API separator. See Figure No. 1 for location details.

The sludge pits area is an oblong flat site measuring approximately 120 feet wide by 200 feet long. Within this area, two pits were previously excavated and filled with oily waste from the API separator.

In 1980, the sludge was removed from the pits and replaced with clean fill soil. The site was then covered with a layer of clean soil.

4.0 SITE INSPECTION

During the week of March 23, 1998, an on-site inspection was performed. Observations are noted as follows:

- The sludge pits area was observed vacant and inactive. No sign of soil staining or residual waste was evident at or in the vicinity of the site.
- Native shrubs and grasses were observed growing throughout the general vicinity. No signs of distress were evident.
- Local soil in the vicinity of the sludge pits presents as bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.

5.0 DATA REVIEW

Soil samples from within the sludge pits area were collected and analyzed during the initial site investigation and subsequent re-sampling at greater depth.

In 1990, the initial site investigation collected samples at eight locations and multiple depths; including surface, 3, 6, 9, and 12.5 feet below ground surface. VOCs were detected in 7 of 27 samples; of which, xylenes at 540 mg/kg represented the highest detection. SVOCs were detected in 10 of 27 samples; of which, methylnaphthalene at 1,400 mg/kg represented the highest detection.

In 1995, a second round of sampling and analysis was conducted at eight locations and depths of 19 and 25 feet below ground surface. No VOCs were detected in any sample. Trace SVOCs were detected in four samples; of which, di-n-butyl phthalate at 13 mg/kg represents the highest detection.

State of New Mexico corrective action levels for BTEX in soil is 50 mg/kg total and 10 mg/kg of benzene. Seven of 43 samples indicated BTEX constituents, the highest of which was over 900 mg/kg total; which is above the 50 mg/kg action level.

All samples detected trace metals; of which, chromium and lead were detected at levels above ambient background concentration.

6.0 ASSESSMENT

Based on the site inspection and data review, the sludge pits area is assessed as follows.

- Oily waste originally placed in the sludge pits has been substantially removed and the pits now contain a mixture of residual waste and backfilled clean soil.
- Residual organic contaminants, consisting of both VOCs and SVOCs, are present in moderate concentrations and substantially confined to a 20 foot soil layer beneath the surface cover.
- Residual metal contaminants, consisting primarily of chromium and lead, are present in the same soil layer at elevated levels.
- The currently approved CAP recommends excavation and tilling to enhance biodegradation of organics. This technique will expose soil metals to oxidation and precipitation; thereby mobilizing these contaminants and promoting migration.
- Local soil underlying this site has a very low hydraulic conductivity which effectively inhibits outward migration of contaminants.
- An alternative corrective action is recommended. Installation of an engineered soil cap represents a preferred and appropriate remedy for this site.

7.0 PROFESSIONAL ENGINEER'S CERTIFICATION

This summary report for SWMU #10 has been prepared under the direct supervision and control of a Registered Professional Engineer.

Client: Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Job No.: 98-205-03

Date: April 23, 1998

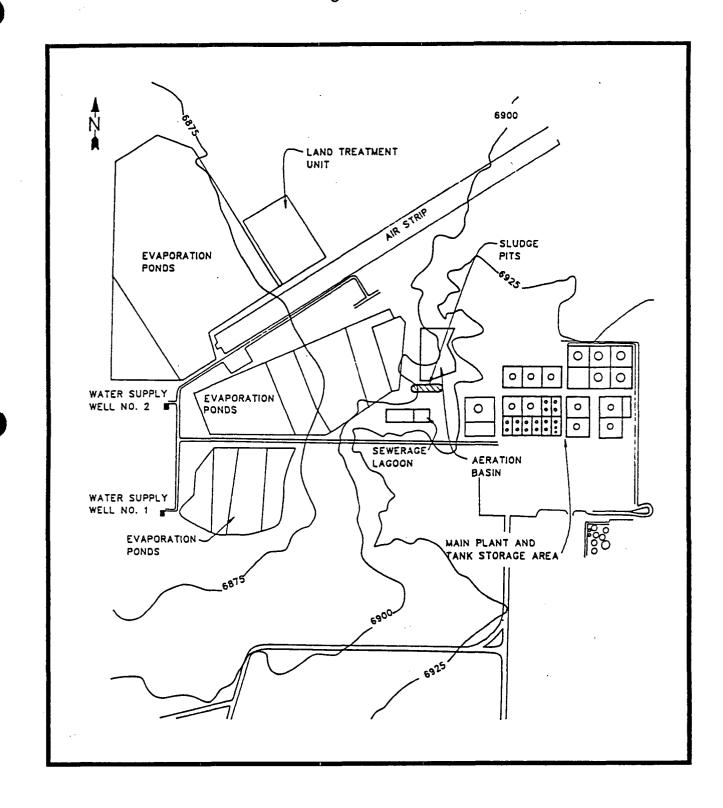
Prepared and Certified by:



Thomas D. Atwcod, P.E. Colorado Registration No. 22866

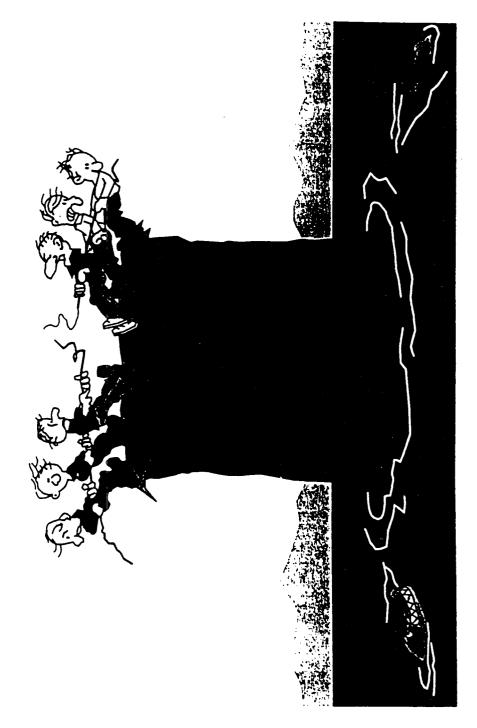
SWMU #10 Summary Report

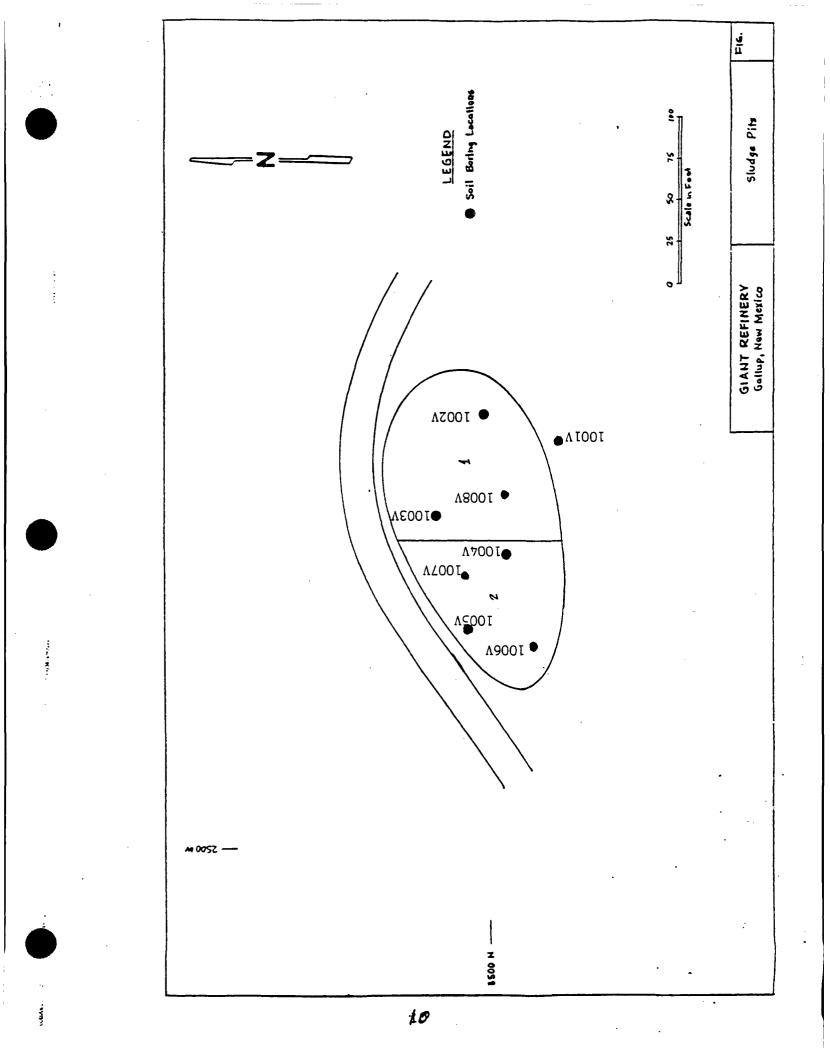
Figure No. 1 Sludge Pits Area



SWMU #10 Summary Report

SWMU-9 SLUDGE PITS





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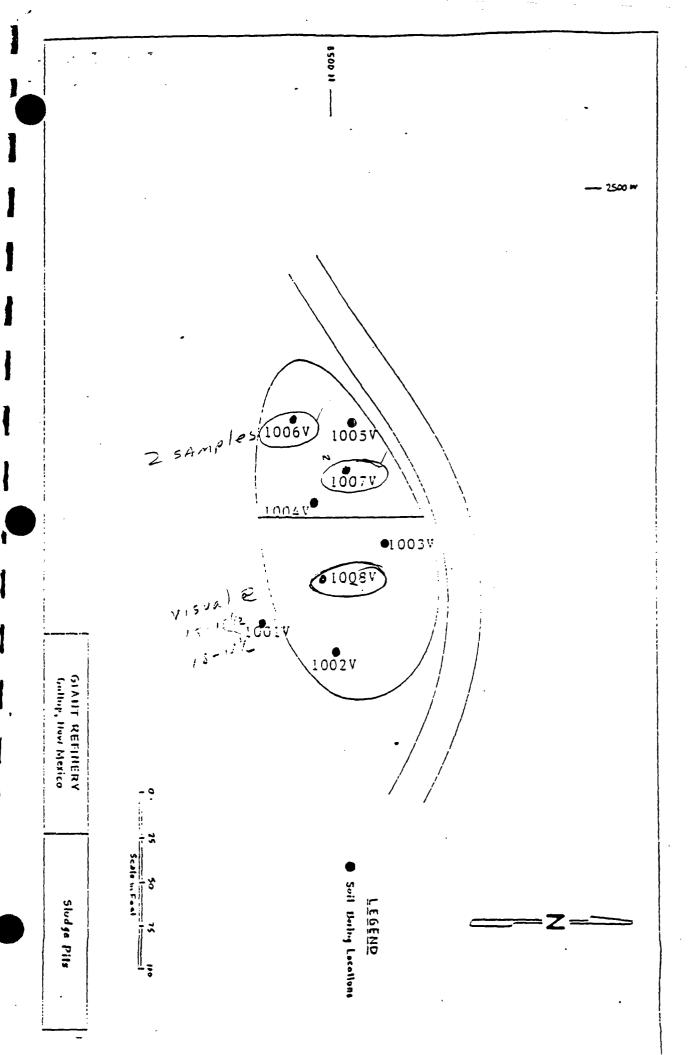
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	NEW MEXICO AND PEDERAL FA	CLIMES BELION
TO: Ed Horst, Em	viroamental Manager - Giant Refini	ag Company, Ciaiza
MACHINE NUMBER: 505.722.0210	VERUFICATION NUMBER: 505.722.0	27
FROM: James A. Harris, Jr., RCRA F	cility Manager/Geologist	
PHONE: (214) 668-8302	Mail Code: 6PD-N	
OFFICE: New Mastice/Federal Facilit	ies Section	PAGES, INCLUDING COVER SHEET
ATE: March 15, 1996		3
	PLEASE NUNBER ALL PAGES	
INF	URMATION FOR SENDING FACSIMILE.	LESSAGES
EQUIPMENT:	FACSIMILE NUMBER	VERIFICATION NUMBER:
PANAFAX UF-766	(214) 665-6762	(214) 665-6760
COMMENTS Ed. Here's what I have been using to track Ginet, C	iniza's corrective action progress. Plause rerie	w and lot's discuss it next week. Have a good one.
Thank JAPAES		

10: The Sludge Pits (9)	8: The Fan Out Area (associated v/Railroad Rack Lagoon) (6)	8: The Overflow Ditch (associated w/Railroad Rack Lagoon) (6)	8: The Railroad Rack Lagoon (6)	9: The Drainage Ditch near the Inactive Land Farm (10 & 13)	6: The Tank Farm - Leaded Gasoline Tanks (3)	SWNU # now using 5/90 RFI WKPLN Designation; HBWA in ().	BWIND TRACKING LIBT
21	2	2	2	2	Phase I	PRABE/GROUP	- GINT
	3		under voluntary corrective action			STATUS	REFINERY EPA ID: NMD000333211,
monitoring requirements submitted w/quarterly status reports; notify EPA when final closure has been initiated	3	2	monitoring requirements submitted w/quarterly status reports; notify EPA when final closure has been	Survey Plat submitted; closure certification must be submitted prior to initiating Class III Permit Mod process	Additional sampling for extent of contamination and confirmation sampling is required; completed first quarter '95	Comments/Notes	Gallup, NM

- -



10.12

(TENTATIVE) OCD INSPECTION 4-29 MON -BAIL, PUMP + SAMPLE OW 16, 25, 26 PUMP mwd, ows, 7 4-30 TUES -SAMPLE MW-4,0W5,7 PUMP OW 1, 2, 9, +10 5-1 WED -SAMPLE OW1, 2,9 + 10 INSPECT 5-2+3 THU + FRI OPEN (FINISH INSPECTION, SAMPLE 0w12,13,14,20) RFI PHASE I +II MON, MAY 6 - Swmu #8 - 2 samples 7-11/2' + DUPLICATE, I TRIP BEANK SWMU #6 - TANIL 454, 453 11-11/2' #568 - 11-11.12 CUT DIKE ON #567 FOR TUESDAY (TUES) MAY 7 - SAMPLE #569-11-11/2' (+ DOPLICATE) (100P) (EQPT RINSE) # 569 (2 sample points) 11-11/2" 8.3.51 (TRIP BLANK) #570- 11-11/2' #_571__ # 572-(WED) MAY 8 - Scome #10 -2 SAMPLES @ 15-15/-(I DUPLICATE + HEAVE BEANK) (SLUDGE PIT) VISUAL CHY! (STEAM BUCKET @ 12.13') I VISUAL ON 3rd HOLE @ 15-151, VISUAL@ 18' SEPARATE SAMPL OF BLACK SLUDGE FOR INSITU REMEDIATION ~ 19th

Swmu #13 for all 4 pales 2.21/2 + 4-4/2 1-DUPLICATE 8 samples 1- TRTP BLANK 1 EQUIEMENT MAY 10,13,15 START SWMU # Z -TAKE PROBABLY THREE DAYS 12 VERTICAL, C ANGle - 31/2-4, 5-51/2, 61/2-7 (54 SAmples) (3 DUPLICATES, ZEQUIP BLANKS, 3 TRIP BLANKS MAY-14 KRAMER AIR SAMPLING MAY 16'- 5 MWU #1 AERAMON LAGOONS f vertical z Angle (3 DAYS) 4-41/2 , 9-91/2 , 11-111/2 , 14-141/2 24 SAMPLES 2 EQU BLANKS , 3 TRIP BLANKS 2 OUPLICATES 2

June 28, 1994

Rich Mayer U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: Quarterly Progress Report

Dear Mr. Mayer:

Pursuant to requirements of the HSWA Permit, Condition C.4., Page 11 and the May 31, 1990 RFI Workplan approval, Giant Refining Company - Ciniza (Giant) submits the <u>Quarterly Progress Report</u> for the second quarter of 1994.

Giant has completed piping modifications to the "Railroad Rack Lagoon" (SWMU #8) system and is presently evacuating the remaining water from the lagoon and disposing of it in the process wastewater system. As soon as it is feasible, Giant will sample the SWMU as required and begin bioremediation activities.

Giant is soliciting proposals for the survey requirement of SWMUs #1, 3, 8, 9 and 13.

Giant is also developing a scope and estimate of expense to further characterize SWMUs #4, 5, 6, 7, 10, and 11 and expects to complete that sampling during the third quarter of 1994.

If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false

REFINING CC

Route 3, Box 7 Gallup, New Mexico

87301 505 722-3833 information, including the possibility of fine and imprisonment for knowing violations."

Sincerely; John Stokes

Refinery Manager

JJS/TLS:sp

cc: Kim Bullerdick, Corporate Counsel Giant Industries Arizona, Inc.

> David Pavlich, Health/Safety and Environmental Manger Giant Refining Company

INTEROFFICE MEMORANDUM

~/:/./

DATE: June 28, 1994

TO: David Pavlich

FROM: Lynn Shelton Jos

SUBJECT: Required RFI Sampling

In its January 7, 1994 letter, EPA required additional sampling and conditions of the RCRA Facility Investigation.

Although some of the requirements are considered redundant and are therefore subject to challenge, certain additional sampling requirements are acceptable and should be completed in a timely manner regardless of the protest of other, less productive sampling.

A list of the additional sampling sites, depths, and estimated costs are presented below.

I. SWUM #4 Old Burn Pit

BoringsDepthsSamplingAnalysis36.0', 10.0'\$475\$7,026

II. SWMU #5 Landfill Areas

		Co	sts
<u>Borings</u>	Depths	Sampling	<u>Analysis</u>
9	11.0', 16.0,	\$2,848	\$21,525
	20.0'		

III. SWMU #6 Tank Farm

		C	osts
<u>Borings</u>	<u>Depths</u>	Sampling	<u>Analysis</u>
8	16.0', 20.0'	\$2,531	\$1,000

IV. SWMU #7 Fire Training Area

		hi cu		-
			Costs	
<u>Borings</u>	<u>Depths</u>	Sampling		<u>Analysis</u>
2	7.0', 11.0'	\$348		\$400

V. SWMU #10 Sludge Pits

		(JOSTS
<u>Borings</u>	<u>Depths</u>	<u>Sampling</u>	<u>Analysis</u>
18	19.0', 25.0'	\$7,119	\$18,450

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VI. SWMU #11 Secondary Oil Skimmer

			CUSES	
<u>Borings</u>	<u>Depths</u>	<u>Sampling</u>		<u>Analysis</u>
2	6.0', 10.0'	\$316		\$3,180

Casta

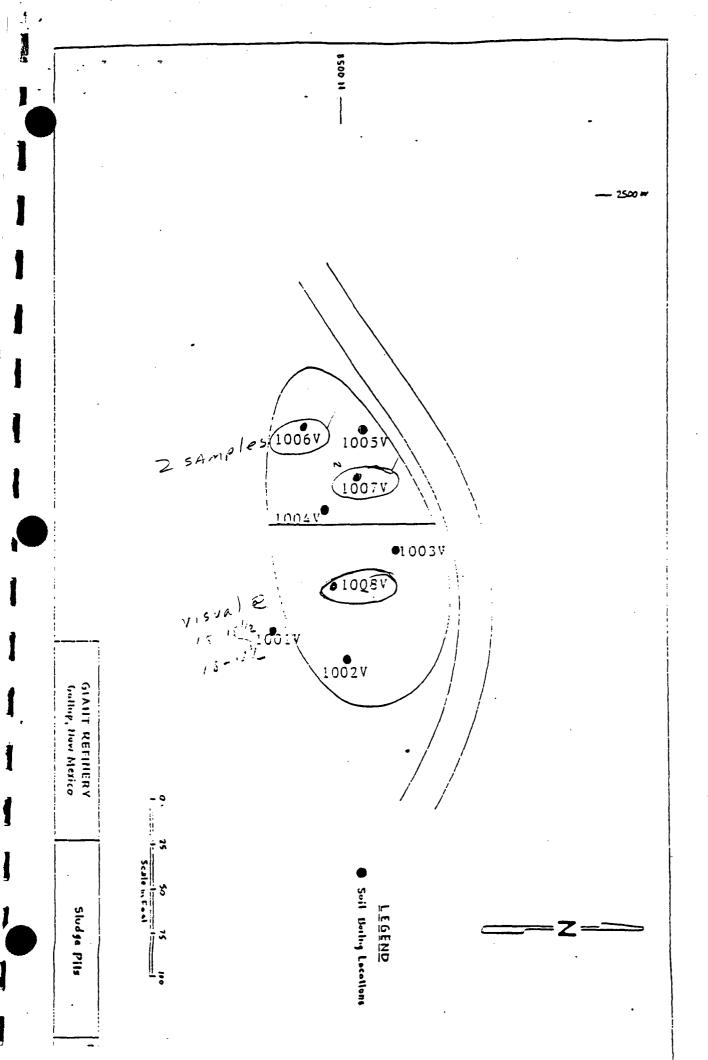
Total costs for this initial sampling project are estimated to be \$65,218.

It is my recommendation that Giant complete an RFE and implement the sampling and analysis by July 15, 1994.

TLS:sp

(TENTATIVE) OCD INSPECTION 4-29 MON -BAIL, PUMP + SAMPLE OW 16, 25, 26 PUMP MWY, OWS, 7 **4-30** TUES -SAMPLE MW-4, OWŚ, 7 PUMP OW 1, 2, 9, +10) 5-1 WED-SAMPLE OWI, Z,9 + 10 INSPECT 5-2+3 THU + FRI OPEN (FINISH INSPECTION, SAMPLE OW 12, 13, 14, 20) RFI PHASE I +II MON, MAY 6 - Swmu #8 - 2 samples 7-1/2' + DUPLICATE , I TRIP BEANK SWMU #6 - TANIL #54, 453 11-11/2' #568 - 11-11-12 CUT DIKE ON #567 FOR TUESDAY (TUES) MAT 7 - SAMPLE #567-11-11/2' (+ DUPLICATE) (LDUP) (EQPT RINSE) # 369-(2 sample points) 11-11/2' 8-3-51 (TRIP BLANK) #570- 11-11/2' #_571_ # 572-(WED) MAY 8- STATUTE +0-(SLUDGE PIT) 2 sameres @ 15-15/1-(I DUPLICATE + HEAVE BEANE) (STEAM BUCKET @ 12.13') VISUAL @ 191 I VISUAL ON 3rd HOLE @ 15-15/2 VISUAL@ 18' SEPARATE SA F. BLACK SLUDGE FOR INSITU REMEDIATION ~ 19ty

5wm0 #13 mat9 4 pales 2.21/2 + 4-41/2 1-DUPLICATE 8-samples 1- TRIP BLANK 1 EQUIRMENT MAY 10,13,15 START SWMU # Z - TAKE PROBABLY THREE DAYS 12 VERTICAL, 6 ANGle - 31/2-4, 5-51/2, 61/2-7 (54 SAmples) (3 DUPLICATES, ZEQUIP BLANKS, 3 TRIP BLANKS MAY -14 KRAMER AIR SAMPLING MAY 16- 5 MWU #1 AERAMON LAGOONS + vertical z Angle (3 DAYS) 4-41/2 , 9-91/2 , 11-111/2 , 14-141/2 24 SAMPles 2 EQU BLANKS , 3 TRIP BLANKS 2 OUPLICATES



10.12

4.0 SUMMARY AND DISCUSSION OF SWMUs

This section summarizes the methods used to investigate each of the SWMUs and presents a summary of the field observations and analytical results. Recommendations are also made for future corrective actions.

4.1 SWMU No. 4 - Old Burn Pit

SWMU No. 4 consists of the old burn pit located just north and slightly west of the tank farm (Figure 4). The old burn pit was used to burn acid-soluble oils (ASO) which are a high molecular weight, asphalt-type cross polymerized hydrocarbon. The pit has been inactive since the early 1980s.

4.1.1 <u>Methods</u>

Three soil borings were drilled within the perimeter of the old burn pit using a CME drilling rig with a $2\frac{1}{2}$ " hollow-stem carbon steel auger to a depth of 10.0 feet. Samples were collected at the 6.0 and 10.0 foot intervals. A description of the soil types encountered during drilling was recorded on the lithologic log (Appendix C). Attempts were made to take field headspace measurements with the photo ionization detector (PID), but, part way through the sampling schedule, the PID pump ceased functioning.

The soil samples were collected in a clean stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to Westech Laboratories in El Paso, Texas under chain of custody (COC). Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All auger flights, split spoons, and sampling equipment were decontaminated by steam cleaning and/or washing as outlined in section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List); semi-volatile organic compounds (SVOCs) using EPA Method 8270 (Skinner

List); and Total Metals. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.1.2 <u>Results</u>

Only one VOC (Methyl Ethyl Ketone [MEK]) and no SVOCs were observed in the analytical data. MEK was observed in RFI 0406V6.0 at a concentration of 1.2 mg/kg.

Chromium and nickel were observed in concentrations that exceeded background levels for soil at the Ciniza refinery area. Chromium exceedances were observed in 4 of 7 samples, ranging from 23 to 49% above background levels. Nickel exceedances were observed in 3 of 7 samples, ranging from 35 to 53% above background levels. Cadmium, lead, mercury, arsenic, barium, beryllium, and vanadium concentrations were within background levels in all of the samples examined.

4.1.3 <u>Recommendations</u>

Soil analyzed from the old burn pit contained only one elevated concentration of VOCs and some elevated levels of nickel and chromium. The VOC, methyl ethyl ketone, was detected at 1.2 mg/kg.

Remediation of this site should be limited to tilling the soil to a depth of 4.5 feet to aerate the deeper soil to promote natural attenuation. The metals can be isolated from human contact and surface receptors by applying a cap of native soil. This would also prevent infiltration of surface water and thereby limit downward migration of constituents.

A corrective action plan will be prepared for SWMU No. 4 and submitted for EPA approval.

4.2 SWMU No. 5 - Landfill Areas

SWMU No. 5 consists of landfill areas midway between the tank farm and the air strip (Figure 6). The landfills were used to dispose of non-regulated, non-hazardous materials from the refinery. The landfills have been inactive since the early 1980s.

4.2.1 <u>Methods</u>

Seven soil borings were drilled, as extensions of previous RFI borings, with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger to a depth of

20 feet (Figure 7). Samples were collected at 11.0, 16.0, and 20.0 feet. A description of the soil types encountered during drilling was recorded on the lithologic log (Appendix C). Field headspace measurements of volatile organic concentrations in each soil sample were made with a PID meter and recorded on the data management forms.

The soil samples were collected in a clean stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed in a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All auger flights, split spoons, and sampling equipment were decontaminated by steam cleaning and/or washing as outlined in Section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: VOC using EPA Method 8240/8260 (Skinner List); SVOCs using EPA Method 8270 (Skinner List); and Total Metals. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.2.2 <u>Results</u>

VOCs were not detected in any of the soil samples collected. Field headspace measurements of volatile organic compounds made with a PID were all non-detect.

One SVOC was detected in three samples from three bore holes. Di-n-Butyl phthalate was detected in RFI 0515V20.0 at 13 mg/kg; in RFI 0516V16.0 at 7.5 mg/kg; and in RFI 0516V20.0 at 13.0 mg/kg.

Barium, chromium, lead, and nickel were detected concentrations exceeding background levels in the refinery area. Chromium was detected in 12 of 22 samples in concentrations from 7 to 120% above background levels. Barium was detected in 2 of 22 samples in concentrations from 25 to 31% above background levels. Lead was detected in 3 of 22

samples in concentrations from 2 to 15% above background levels; and nickel was detected in 12 of 22 samples in concentrations of 33 to 34% above background levels.

4.2.3 <u>Recommendations</u>

Elevated concentrations of chromium, barium, lead, and nickel were detected in the landfill area. Capping with a native soil cap, sloped to allow drainage away from the SWMU, will isolate the metals from surface receptors and will limit infiltration of surface water and downward migration of contaminants. Giant proposes to proceed with the corrective action plan submitted in February, 1993 to USEPA Region VI.

4.3 <u>SWMU No. 6 - Tank Farm</u>

SWMU No. 6 consists of seven hydrocarbon storage tanks, (ranging in size from 1,000 to 24,800 barrels) that have contained leaded gasoline (that is, gasoline blended with the compound tetraethyl lead). The tank farm is located immediately north of the operating units (Figure 2).

4.3.1 <u>Methods</u>

Seven borings were made, as extension of previous RFI borings, with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger. Samples were collected at 16.0 feet in all borings except RFI 0642V20.0 which was collected at 20.0 feet per USEPA request. Additional depths were sampled as necessary. A description of the soil types encountered during drilling was recorded on the lithologic logs (Appendix C). Field headspace measurement of volatile organic concentrations in each soil sample was attempted with a PID, but the meter was found to be defective.

The soil samples were collected in a clean stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Section 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All auger flights, split spoons, and sampling equipment were decontaminated by steam cleaning and/or washing as outlined by Section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: 8020 BTEX with the exception of samples RFI 0610V16.0 and RFI 0641V19.0 which were accidentally marked on the COC for VOCs by 8240/8260 Skinner List. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.3.2 <u>Results</u>

Elevated levels of VOCs were detected in most Two tanks in particular showed high samples. concentrations of BTEX, with results for total BTEX of 601,000 ug/kg in sample RFI 0639V16.0 (Tank 569) and 318,600 ug/kg in sample RFI 0640V16.0 (Tank 570). Concentrations in both of these borings showed marked reductions from the 16.0 foot to the 20.0 foot levels: 82% and 41% respectively. Other samples ranged from 52 ug/kg to 190,300 ug/kg for total BTEX. It is important to note that the highest benzene concentration in any sample was 4,600 ug/kg. It is also important to note that none of the deeper samples exceeded the New Mexico Environment Improvement Board water quality control regulatory action limits, which are:

Benzene	-	10,000	ug/kg
BTEX	-	500,000	ug/kg

In the event that obvious contamination is observed in a boring, standard practice is to continue drilling until two "clean" samples are obtained. As previously mentioned, the PID meter malfunctioned part way through the sampling program and, due to the fact that the Ciniza refinery is so isolated, a replacement PID meter could not be found in a timely manner. Sampling and drilling personnel were thus forced to rely on their olfactory senses in determining whether or not the samples collected appeared to be "clean".

4.3.3 <u>Recommendations</u>

Although the deepest samples contained BTEX in concentrations lower than WQCC standards, Giant has contracted to drill additional corings at Tank 569 and 570 to more adequately characterize BTEX concentrations. This drilling will occur on October 24, 1994.

Giant was unable to drill a coring at tank 451 due to limited operating space. A hand auger was used, but sampling personnel were unable to penetrate a gravel interval at approximately 14.0 feet. A portable pneumatic sampling spoon will be used on October 24 or 25 to obtain the samples at RFI 0635V16.0 (Tank 451). Results of both additional sampling activities will be submitted by December 1, 1994.

Elevated BTEX levels at the leaded tanks will need to be addressed. Giant will submit a corrective action plan to EPA to address those problems.

4.4 <u>SWMU No. 7 - Fire Training Area</u>

SWMU No. 7 consists of an open top tank, approximately 1,000 bbl, cut to one-third of its original height. This tank has been used once or twice per year for fire training for the Ciniza fire fighting team.

4.4.1 <u>Methods</u>

Two borings were made, at two points that had been previously sampled, at an angle under the tank. Samples were collected at 7.0 and 11.0 feet in both borings. A description of the soil types encountered during drilling was recorded on the lithologic logs (Appendix C). Field headspace measurement of volatile organic concentrations in each soil sample was attempted, but the PID meter was found to be defective.

The soil samples were collected in a clean stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling All auger flights, split spoons, Plan. and sampling equipment were decontaminated by steam cleaning and/or washing as outlined by Section 5.0 of the Generic Sampling Plan.

Westech Laboratories analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List); SVOCs using EPA Method 8270 (Skinner List); Total Petroleum Hydrocarbon and Oil & Grease. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.4.2 <u>Results</u>

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No VOCs were detected in SWMU No. 7. An SVOC (di-n-butyl phthalate) was detected in two samples (RFI 0705A11.OD and RFI 0706A7.0). No concentrations of Total Petroleum Hydrocarbon or Oil & Grease were detected in this SWMU.

4.4.3 <u>Recommendations</u>

Additional sampling has demonstrated that Oil & Grease and TPH contamination is limited to a total depth of approximately 4.5 feet. Tilling and additions of nutrients will reduce the Oil & Grease concentrations. Upon approval by EPA, Giant will implement the corrective action plan submitted in February, 1993.

4.5 <u>SWMU No. 10 - Sludge Pits</u>

SWMU No. 10 consists of two connected pits that received API separator sludge (K051) and slop oil emulsion solids (K049) in the past. Contents of the pits were vacuumed out in 1980 and clean, dry soil was used to backfill the pits. The sludge pits were sampled in 1990 and again in 1991. A corrective action plan was submitted in 1993 and Giant has been given the authorization to proceed with bioremediation activities, with requirements (see EPA letter of January 7, 1994, in the Correspondence Section).

4.5.1 <u>Methods</u>

Eight borings were made to a depth of 25.0 feet, two being required by EPA to fully characterize the extent of potentially hazardous constituents, and the other six to satisfy requirements of closure of SWMU #10. All borings were made with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger. A visual description of the soil types encountered while drilling was recorded in the lithologic log (Appendix C). Field headspace measurement of volatile organic concentrations in each soil sample were made with a PID meter and

these data were recorded on the data management forms.

The soil samples were collected into a stainless steel pan and were then placed into laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All augers, split spoons, and sampling equipment were decontaminated prior to each use by steam cleaning and/or washing as outlined in Section 5.0 of the Generic Sampling Plan.

Westech Laboratory analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List); SVOCs using EPA Method 8270 (Skinner List); and Total Metals. Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.5.2 <u>Results</u>

No VOCs were detected in SWMU No. 10. An SVOC (di-n-butyl phthalate) was detected in four samples: RFI 1018V19.0 at 13 mg/kg; RFI 1019V25.0 at 11 mg/kg; RFI 1021V19.0 at 11 mg/kg; and RFI 1021V25.0 at 11 mg/kg. Giant believes these results may be due to outside contamination. lead, Barium, chromium, and nickel showed statistical significant exceedances above background soil samples from the refinery area. Barium exceedances were observed in 10 of 17 samples, ranging from 2 to 182 % above background. Chromium exceedances were observed in 13 of 17 samples, ranging from 2 to 95%. Lead was observed in 11 of 17 samples, ranging from 2 to 28%. Nickel was observed in 17 of 17 samples, ranging from 9 to 67% above background. The detection of metals showed even distribution throughout the SWMU.

4.5.3 <u>Recommendations</u>

Due to the absence of hazardous hydrocarbon constituents at the deeper levels, Giant proposes to implement the corrective action plan submitted to EPA in February, 1993. igures

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4.6 SWMU No. 11 - Secondary Skimmer

SWMU No. 11 consists of the area where the old secondary skimmer was situated, in a drainage ditch south of evaporation Lagoon #4. The secondary skimmer has not been used since the late 1970s and was removed in 1991 to expedite sampling.

4.6.1 <u>Methods</u>

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Two borings were made , to a depth of 10.0 feet, within the area occupied by the secondary skimmer with a CME drilling rig using a $2\frac{1}{2}$ " hollow stem carbon steel auger. A visual description of the soil types encountered while drilling was recorded in the lithologic logs (Appendix C). Field headspace measurement of volatile organic concentrations were made with a PID meter and recorded on the data management forms.

The soil samples were collected in a stainless steel pan and were then place in laboratory supplied containers, labeled, and placed into a cooler chilled to approximately 4°C for shipment to the lab under COC. Samples were collected, labeled, and shipped as required by Sections 3.4, 4.0, and 6.0 of the Generic Sampling Plan. All augers, split spoons, and sampling equipment were decontaminated prior to each used by steam cleaning and/or washing as outlined by Section 5.0 to the Generic Sampling Plan.

Westech Laboratory analyzed each of the soil samples collected for: VOCs using EPA Method 8240/8260 (Skinner List) and SVOCs using EPA Method 8270 (Skinner List). Analytical results are summarized below and are also presented in tabulated form in the appendices.

4.6.2 <u>Results</u>

Two VOCs (ethylbenzene and xylenes) were detected in two borings: RFI 1104V6.0 and RFI 1104V10.0. No SVOCs were detected.

4.6.3 <u>Recommendations</u>

The extremely low levels of volatile organic compounds present no threat to human health or the environment. Giant believes that natural attenuation will remove the remaining trace VOCs.

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INTEROFFICE MEMORANDUM

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DATE: February 3, 1994

TO: David Pavlich Kim Bullerdick

FROM: Lynn Shelton 748

SUBJECT: RCRA Facility Investigation - Additional Requirements

I. Introduction

Giant Refining Company - Ciniza (Giant) performed a RCRA Facility Investigation (RFI) in three phases (I, II, and III) over three years (1990, 1991, and 1992).

Using the analytical results of those three sampling events, Giant submitted four corrective action plans and eight "No Further Action" proposals to Region VI, United States Environmental Protection Agency (EPA).

Correspondence from the EPA (1-7-94) indicated approval of the corrective action plans (with additional requirements) for three Solid Waste Management Units (SWMUs), for RFI reports Phase I, II, and III and assigns a deadline for submittals of additional data.

The additional sampling and reporting requirements, some of which are redundant and unnecessary, are the focus of this correspondence. In the following pages, the scope and cost of the additional sampling requirements will be presented.

Some explanation of a potential problem is in order. The SWMU identification numbering sequence is inconsistent. In discussing the draft letters with Rich Mayer, of Region VI EPA, the discrepancy in reference to the SWMU numbers was mentioned. Mr. Mayer responded that the correct SWMU numbers were taken from the HSWA Permit (Section C, Corrective Actions for Continuing Releases, 5.(a)(1)). Giant had used the numbering sequence from the approved RFI Workplan (revised May 17, 1990). As shown in Table 1, there are discrepancies in all three sequences. Giant should propose to use the numbering sequence identified in the revised RFI Workplan to avoid confusion with the numbering sequence of SWMUs and sample numbers already reported.

Table 2 presents an overview of the status of the SWMUs.

TABLE 1

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SWMU IDENTIFICATION

RFI	WORKPLAN	HSWA	EPA	LETTER	SWMU
	1	1		1	Aeration Basin
	2	2		2	Evaporation Ponds
	3	5		5	Empty Container Storage
	4	8		8	Burn Pit
	5	7		7	Four Landfills
	6	3		6	Tank Farm
	7	4		4	Fire Training Area
	8	6		8	Railroad Rack Lagoon
	9	10 & 13		-	Inactive Land Treatment
	10	9		9	Two Sludge Pits
	11	11	1	1	Secondary Oil Skimmer
	12	14	1	.3	Wastewater Collection
	13	14	1	.3	Drainage Ditch

TABLE 2

STATUS - INDIVIDUAL SWMU

<u>Caps</u>:

3

- * Railrack Lagoon
- * Sludge Pits
- Fire Training Area
- * Landfills

No Further Action:

- ****** Aeration Basin
- ****** Evaporation Ponds
- ****** Drainage Ditch
- Tank Farm
- ** Empty Container Storage Old Burn Pit Secondary Oil Skimmer
- Secondary Oil Skimmer *** Inactive Land Treatment

* Accepted by EPA with Additional Requirements ** "No Further Action" Approved by USEPA

*** Not Addressed in Correspondence

II. Discussion

A discussion of additional requirements, by SWMU, follows. Included, as Figures 1 to 12, are drawings of the SWMUs with individual sample points.

<u>SWMU #1</u> - Aeration Lagoon

EPA approved Giant's proposal for "No Further Action". Although Giant demonstrated that no significant migration of hazardous constituents had taken place, EPA requires biennial sampling that duplicates the original RFI sampling. This is redundant and expensive. Giant should propose either a five year sampling rotation or a phased-in plan (of six sample locations, sample two biennially until all samples are taken, then start again). These sampling plans will diminish the costs considerably and still provide documentation that migration has not occurred.

EPA also requires a survey plat of the SWMU. Giant agrees that this is a reasonable requirement.

<u>SWMU #2</u> - Evaporation Ponds

EPA has also approved Giant's proposal for "No Further Action" of this SWMU. EPA requires that Giant sample the seven groundwater wells (MW-4, OW-1, OW-2, OW-5, OW-7, OW-9 and OW-10) biennially for the same constituents as monitored for in the RFI sampling event. Giant may wish to propose a five year sampling rotation.

<u>SWMU #3</u> - Empty Container Storage Area

EPA approved Giant's proposal for "No Further Action" for the SWMU, requiring only that Giant provide a survey plat.

<u>SWMU #4</u> - Old Burn Pit

EPA does not approve Giant's proposal for "No Further Action". Three borings at six and ten feet will be required to characterize constituent migration in this SWMU.

<u>SWMU #5</u> - Landfill Areas

EPA requires that additional borings, at eleven, sixteen and twenty feet to fully characterize contamination.

<u>SWMU #6</u> - Tank Farm

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. EPA requires seven additional borings to sixteen feet and one additional boring to twenty feet to fully characterize contamination. When Giant performed supplemental sampling of this SWMU in 1991, it was anticipated that further sampling would be required.

<u>SWMU #7</u> - Fire Training

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. Two additional angle borings to seven and eleven vertical feet are required. Additional sampling was anticipated when this SWMU was sampled in 1992, although I question why we now have to analyze for the Skinner List constituents. Samples from this SWMU were originally analyzed for TPH and oil & grease only.

<u>SWMU</u> #8 - Railroad Rack Lagoon

EPA has approved Giant's corrective action plan for this SWMU, with additional requirements. After piping modifications at the railroad loading rack are complete and the railroad rack lagoon no longer receives waste, sampling is required within the footprint of the lagoon (five borings) and around the periphery of the lagoon (six borings). Sampling is also required in the overflow ditch (three borings to seven feet) and the fan out area (four borings to seven feet). Some sampling will be required during remediation of the lagoon to document completion of the corrective action plan.

A survey plat of the SWMU, after remediation, must be submitted to the EPA.

<u>SWMU **‡**9</u> - Inactive Land Treatment Area

Although Giant had provided data and proposed no further action, this SWMU was not addressed in the correspondence with the EPA. It needs to be determined if EPA accepts our proposal or has additional requirements.

<u>SWMU #10</u> - Sludge Pits

EPA is requiring additional sampling to 25' in this SWMU (seven borings) to fully characterize any contamination. Monitoring will be required during remediation to document completion of the corrective action plan. It is reasonable to expect that EPA will require a survey plat of this SWMU after closure.

<u>SWMU #11</u> - Secondary Oil Skimmer

EPA does not approve Giant's proposal for "No Further Action" and is requiring additional sampling to ten feet (two borings). This is a reasonable request.

<u>SWMU #12</u> - Contact Wastewater System

Although onerous, the requirement to inspect the wastewater system every five years is acceptable in that we were not sure if we could get any kind of "Buy In" from EPA. Costs of monitoring this SWMU are therefore significantly less than anticipated.

SWMU #13 - Drainage Ditch

Although EPA approves Giant's proposal of "No Further Action", additional requirements have been added. Complete resampling is required biennially. This is redundant and expensive. Even though this SWMU continues to be exposed to wastewater, Giant does not believe there is a significant possibility of migration. Giant should propose a five year sampling schedule or a "Phased-In" rotation of sampling.

A survey plat will be required for this SWMU.

III. Estimation of Expenses

Not normally a consideration of the regulatory community, expense is an indicator to industry of the scope and complexity of regulatory requirements. In providing a cost estimate, we are able to judge the economic impact for our company and determine the extent to which we are willing to contest the requirements issued to us.

The following tables (Tables 3, 4, and 5) illustrate the estimated costs per SWMU (for 1994 and biennially).

Table 3

<u>SWMU #</u>	SAMPLES REQUIRED	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
4	6	8240 8270 Metals pH	1,800 2,970 2,250 60
5	21	8240 8270 Metals	6,300 10,395 4,830
6	8	BTEX	1,000
7	4	TPH Oil & Grease	200 200
8	50	8240 8270	15,000 24,750
10	18	8240 8270 Metals	5,400 8,910 4,140
11	4	8240 8270	1,200 1,980
13	12	8240 8270	3,600 5,940

Total Analytical Cost 1994 Only

<u>\$119,245</u>

	BI	TABLE 4 ENNIAL ANALYTICAL COS	Т
SWMU #	SAMO		
1	REQUIRED		
	30	ANALYSIS	
2	7	8240 8270 Metals	<u>Cosr</u> \$ 9,000
13	12	8240 8270 Metals PH	6,900 1,750
Total		8240	2,765 1,435 70
	Biennial Anaj	rtical Cost	8,600 5,9 <u>4</u> 0

1

\$46,310

TABLE 5

TOTAL COST OF 1994 SAMPLING (ESTIMATE)

SWMU #	ANALYTICAL COST	LABOR *	COST
1	\$ 30,750	\$12,600	\$ 43,350
2	6,020	1,100	7,120
4	7,080	3,000	10,080
5	21,525	14,000	35,525
6	1,000	13,200	14,200
7	400	2,200	2,600
8	39,750	21,400	61,160
10	18,450	22,500	40,950
11	3,180	2,000	5,180
13	9,540	2,600	12,140
	<u>\$119,245</u>	<u>\$94,600</u>	<u>\$213,845</u>

* Including Drilling Rig

IV. Conclusions

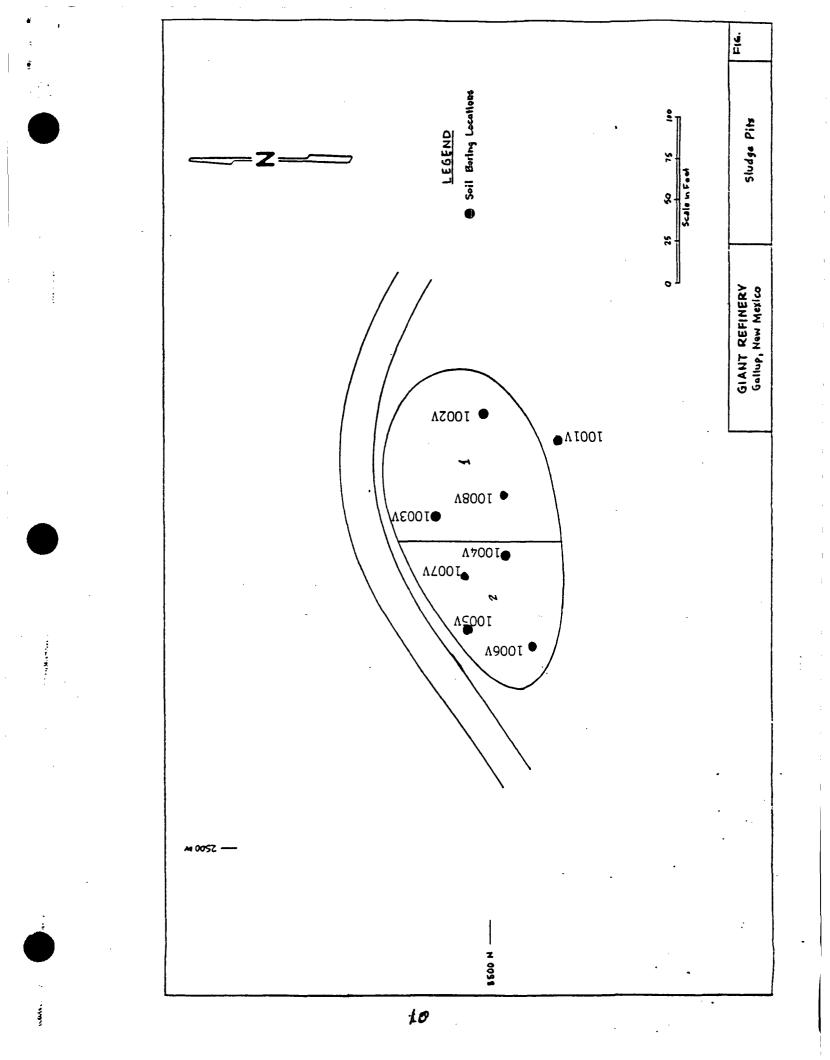
The additional requirements to fully characterize SWMUs #4, 5, 6, 7, 8, 10 and 11 are reasonable. Although expensive, full characterization of potential pollution is the thrust of an RFI project and is Giant's objective.

The biennial sampling requirements for SWMUS #1, 2, and 13 are, in effect, a repeat of the original RFI project every two years. This is redundant, expensive and, in my opinion, unwarranted. In completing the original RFI work, it was demonstrated that SWMUS #1, 2, and 13 pose no threat to human health or the environment. Additional sampling is probably justified, because these SWMUs continue to handle wastewater, but on a smaller scale. I recommend that we propose to do additional sampling every five years on one-third of the sample points, or something of that magnitude. This should be enough sampling to document that there is no contamination.

It is important that we act now to minimize sampling requirements in that we can reasonably assume that as other SWMUs are characterized, additional long term sampling requirements for those SWMUs will be requested. This could be an expensive task that provides minimal protection to the environment.

The actual sampling process should be fairly straight forward. Sampling protocol will be identical to past projects and can be accomplished by refinery personnel. The sampling process needs to be modified to using a drilling rig to take core samples in place of backhoe and hand auger. This change is due to the increased depths of samples, the sheer number of samples to be collected, analyzed and reported during 1994, and the requirement to use more appropriate soil boring logs. Using a drilling contractor will provide the necessary speed of sampling and the lithologic observations necessary to complete this project in a timely and efficient manner.

It is in the best interest of Giant that we develop the proper response to these new requirements. I recommend that we carefully analyze our options in this matter and schedule a meeting with the RCRA staff at EPA to discuss this issue.

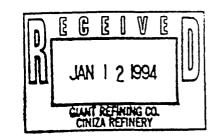


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

JAN 0 7 1994



CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I and Phase II Supplemental Reports and Voluntary Corrective Action Plan Giant Refining Co. NMD000333211

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) hereby approves your RCRA Facility Investigation (RFI) Phase I Supplemental Report, dated October 21, 1991, with the enclosed list of modifications. Your Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad Rack Lagoon, submitted in November and December, 1992, respectfully, are also approved with the enclosed list of modifications.

The EPA is requiring that additional monitoring be completed at several sites. An annual report detailing the monitoring results shall be submitted to the EPA by December 31, 1994, and each year thereafter. The EPA is also requiring that additional soil sampling be completed at the Sludge Pits and the Tank Farm. Sampling results shall be submitted to the EPA by October 1, 1994. Further information concerning the additional monitoring and sampling requirements may be found in the attached list of modifications.

If you have any further questions or need additional information, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

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Allyn M. Davis, Director Hazardous Waste Management Division (6H)

Enclosure

cc: Kathleen Sisneros, NMED

APPROVAL WITH MODIFICATIONS RFI PHASE I SUPPLEMENTARY REPORT RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS

The Environmental Protection Agency (EPA) has completed a technical review of Giant Refining's RCRA Facility Investigation (RFI) Phase I Supplementary Report; RFI Phase II Report; and voluntary Corrective Action Plan (CAP) for the Sludge Pits and Railroad Rack Lagoon. The subject reports are hereby approved with the following comments and modifications.

GENERAL COMMENTS

SWMU 1, The Aeration Basin; SWMU 2, The Bvaporation Pond; and SWMU 13, The Drainage Ditch

The EPA agrees with the finding of no further action for Solid Waste Management Units (SWMUs) 1, 2 and 13. The EPA is, however, requiring periodic monitoring of these SWMUs (see below under Modifications). However, this approval is contingent upon the completion of a survey plat for these SWMUs. The survey plats shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit copies of the completed survey plats to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for these SWMUs.

SWMU 6, The Tank Farm

The EPA disagrees with Giant on their recommendation of no further action. Sampling results indicate that 9 of the 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 8, The Railroad Rack Lagoon, Overflow Ditch and Fan Out Area The EPA agrees with the finding of no further action for this SWMU. The EPA understands that Giant has elected to perform voluntary corrective measures at this unit which will include bioremediation Giant's of the wastes with periodic soil and waste monitoring. voluntary bioremediation should reduce the volume and toxicity of the wastes while continuing to periodically monitor the SWMU. The EPA will, however, require that additional monitoring be completed (see below under Modifications). The EPA is also requiring that a survey plat be completed for this SWMU. The survey plat shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit a copy of the completed survey plat to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for this SWMU.

SWMU 6, The Railroad Rack Lagoon

Giant shall take 5 soil borings within the lagoon after it has ceased receiving wastes. Three (3) of the five (5) borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Additionally, all six (6) borings required under the CAP closure (Section 5.0) must be sampled at the 5-6, 10-11, and 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Railroad Rack Lagoon has been initiated.

Continuation of SWMU 6, The Overflow Ditch

Giant shall complete three (3) soil borings in the Overflow Ditch after closing the Railroad Rack Lagoon. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. All results shall be included in the 1994 Annual Monitoring Report.

Continuation of SWMU 6, The Fan Out Area

Giant shall complete four (4) soil borings in the Fan Out Area after closure of the Railroad Rack Lagoon has been completed. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. Results shall be included in the 1994 Annual Monitoring Report.

SWMU #12, Contact Waste Water Collection System (CWWCS)

Giant shall perform an inspection of the CWWCS every five years beginning in calendar year 1996. The inspection shall be identical to the one performed in the previous RFI. If better technological equipment is developed, Giant may request that an alternative method be used. Results shall be included in the appropriate Annual Monitoring Report.

SWMU 9, The Sludge Pits

Giant shall complete soil borings as close as possible to sampling points 6 and 7 (numbers correspond to previous RFI sampling points, completed in May, 1991). Sampling intervals shall be at 18.0 -19.0 foot and 24.0 - 25.0 foot. Sampling procedures and analytical constituents shall be identical to those required in the previous

Approval with Modificatioms, 1/5/94 Giant's CAP and RFI Phase I & II Reports

SWMU /9, The Sludge Pits

The EPA is unable to approve Giant's finding of no further action for this SWMU. Two (2) soil samples collected at the 15 foot interval (the deepest interval sampled) contained semivolatile contaminants. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications). Giant may begin the voluntary bioremediation (see SWMU #8 voluntary corrective action) under the CAP after the deeper soil samples have been completed.

MODIFICATIONS

SWMU 1, The Aeration Basin

Giant shall take soil samples around the Aeration Basin every two (2) years beginning in calendar year 1994. Sampling requirements shall be identical to those performed during the previous RFI, except that all soil borings shall be angled and an additional sample shall be collected at the 20-21 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

SWMU 6, The Tank Farm

Giant shall complete additional soil borings as close as possible to the following sample points (numbers correspond to previous RFI sampling points completed in May, 1991): 21, 22, 23, 25, 26, 27, 30, and 31. The sampling interval shall be at 16 feet, with the exception of sample point 31 which shall be sampled at 20 feet. Samples shall be analyzed for BTEX constituents. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to EPA by October 1, 1994.

SWMU 2, Evaporation Ponds

Giant shall monitor the seven (7) groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall be included in the Annual Monitoring Report.

SWMU 13, Drainage Ditch between APIs Evaporation Ponds and <u>Neutralization Tank Evaporation Ponds</u>

Giant shall conduct soil sampling around the Drainage Ditch every two (2) years, with sampling beginning in calendar year 1994. Sampling procedures and analytical constituents shall be identical to those required in the RFI, except that all soil borings shall be angled and an additional interval shall be sampled at from 6.0-6.5 feet. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

Approval with Modificatioms, 1/5/94 Giant's CAP and RFI Phase I & II Reports RFI. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to the EPA by October 1, 1994.

Before final closure of the West Pit under the CAP, all soil borings shall be sampled at the 18.0 - 19.0 and 24.0 - 25.0 foot intervals. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Four (4) soil borings shall also be completed (before closure) in the East Pit using the same requirements specified for the West Pit borings. Results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Sludge Pits has been initiated.

Soil Boring Logs: The EPA has included an example of a soil boring log to be used for all future borings.

Approval with Modifications, 1/5/94 Giant's CAP and RFI Phase I & II Reports UEC-17-1993 UB:40

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I Supplemental and RFI Phase II Reports - Giant Refining Co. - NMD000333211

Dear Mr. Stokes:

We hereby approve your Phase I Supplemental Report dated August 21, 1991 and the RFI Phase II Report dated October 21, 1991, with the enclosed modifications. The Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad Rack Lagoon (submitted November and December 1992, respectfully) are also approved, with the enclosed modifications.

The Annual Monitoring (see enclosure for SWMUs requiring monitoring) Report is due to EPA by December 31, 1994, and each year thereafter. The additional soil sampling results for the Sludge Pits and the Tank Farm are due to EPA by June 1, 1994. If you have any further questions pertaining to the above discussed items, please contact Nancy Morlock or Richard Mayer of my staff at (214) 655-6650.

Sincerely yours,

Allyn M. Davis, Director Hazardous Waste Management Division

Enclosure

cc: Kathleen Sisneros, NMED

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APPROVAL OF THE RFI PHASE I SUPPLEMENTARY REPORT, RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS (CAP), WITH MODIFICATIONS, FOR GIANT REFINING COMPANY

Below are EPA's general comments and modifications pertaining to Giant's RFI Reports and the voluntary CAP for the Sludge Pits and the Railroad Rack Lagoon. Under general comments, there is a discussion describing the RFI status of each SWMU and the remaining RFI process/requirements for each SWMU. The modifications consist of SWMU specific monitoring or investigations required by EPA.

General Comment: EPA agrees with the finding of no further action for the following SWMUs: SWMU #1, the Aeration Basin; SWMU #2, the Evaporation Ponds; and, SWMU #13, the Drainage Ditch. Even though EPA is not requiring further investigations/remediation (no further action determination), periodic monitoring of the above mentioned SWMUs will be required (see below under modifications).

On SWMU #6, the Tank Farm, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, 9 out of 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #9, the Sludge Pits, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, two samples at the 15'interval (the deepest interval sampled) contained semivolatiles. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

EPA agrees with the finding of no further action for SWMU #6, the Railroad Rack Lagoon, Overflow Ditch and Fan Out Area. Even though EPA is not requiring further investigations/remediation (no further action determination), periodic monitoring of the above mentioned SWMU will be required. Giant has decided to perform voluntary corrective measures (bioremediation of the wastes) on the above mention SWMU and will perform periodic monitoring on the SWMU while bioremediation is occurring. Giant's voluntary bioremediation should reduce the volume and toxicity of the waste contained in the SWMUs while continuing periodic monitoring of the SWMUs (which satisfies EPA's monitoring requirements). Also, EPA included some additional monitoring requirements besides those included by Giant in the CAP (see below under modifications).

Also, EPA will require one administrative control for all SWMUs which EPA has tententively approved a no further action determination. It is the following: A survey plat of each SWMU, according to the procedures required in 40 CFR 264.116. Once Giant has sent documentation to EPA verifying completion of the administrative control (for each SWMU), then Giant can submit a Class III permit modification to terminate the RFI/CMS process for a particular SWMU.

Modifications

SWMU #1, the Aeration Basin: Giant shall take soil samples around the Aeration Basin every 2 years, with sampling beginning in calender year 1994. Sampling requirements shall be identical to what was performed in the previous RFI, except, that all soil borings shall be angled and that an additional interval be sampled at the 20-21 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.). SWMU #6, the Tank Farm: Giant shall take soil borings as close as possible to the following sample points (numbers are from previous RFI sampling points, done 5/6 & 5/7/91): number's 21, 22, 23, 25, 26, 27, 30, and 31. Sampling intervals shall be at 16', except for #31, which shall be taken at 20'. Samples shall be analyzed for BIEX Constituents. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by June 1, 1994.

swhu #2, Evaporation Ponds: Giant shall monitor the seven groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall WHICH WELLS be included in the Annual Monitoring Report.

SWMU #13, Drainage Ditch between APIs Evaporation Ponds and Neutralization Tank Evaporation Ponds: Giant shall take soil samples around the Drainage Ditch every 2 years, with sampling beginning in calendar year 1994. Sampling procedures and constituents to be analyzed shall be identical to those required in the RFI, except, that all soil borings shall be angled and that an additional interval be sampled at the 6-6.5 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

SWHU 19, Railroad Rack Lagoon: Giant shall take 5 soil borings within the lagoon after it has stopped receiving wastes and it is practicable to sample. Three of the five borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot interval. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Also, all six borings required under the CAP closure (Section 5.0) must be sampled at the 5-6', the 10-11' interval, and the 14-15'. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Continuation of SWMU #6, the Overflow Ditch: Giant shall take 3 soil borings in the Overflow Ditch after closure (stop receiving liquid wastes) of the Railroad Rack Lagoon. Sampling procedures and constituents to be analyzed shall be identical to those 7

required in the previous RFI. Soil borings shall be taken at the 3-4' interval and at the 6.5-7' interval. Results shall be included in the 1994 Annual Monitoring Report.

Continuation of SWMU #6, the Fan Out Area: Giant shall take 4 soil borings in the Fan Out Area after closure (stop receiving liquid wastes) of the Railroad Rack Lagoon. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Soil samples shall be taken at the 3-4' interval and at the 6.5' to 7' interval. Results shall be included in the 1994 Annual Monitoring Report.

SWMU #12, Contact Waste Water Collection System (CWWCS): Giant shall perform an inspection of the CWWCS every five years (the next inspection will be in 1996) and shall be identical to the one performed in the RFI (if better technological equipment is developed, then Giant may request that an alternative method be used). Results shall be included in the appropriate Annual Monitoring Report.

Since 35, Sludge Pits: Giant shall take soil borings as close as possible to sampling points (numbers are from previous RFI sampling points, done $5/6 \le 5/7/91$) 6 and 7. Sampling intervals shall be at 18-19' and 24-25'. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EFA by June 1, 1994.

Before <u>final closure of the West pit</u> under the CAP, all soil borings shall have samples taken at the 18-19' and 24-25' intervals. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Three soil borings shall also be taken (before closure) from the east pit using the same requirements specified for the West Pit borings. Results shall be included in the appropriate Annual Monitoring Report.

Soil Boring Logs: EPA has included an example of a soil boring log which they would like Giant to use in all future borings.



Route 3, Box 7 Gallup, New Mexico 87301

December 4, 1992

Ms. Barbra Driscoll U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

RE: Ciniza Refinery's RFI Phase III Process Sewer Inspection Report, Revised Corrective Action Plans

Dear Ms. Driscoll:

Enclosed is the RFI Phase III Process Sewer Inspection Report, and the revised RFI Phase II corrective action plans for the Rail Road Rack Lagoon and Sludge Pit. The draft corrective action plans for the Phase III investigations are under development and should be complete and to your office by early January, 1993.

I would be glad to answer any questions you may have about these submittals. Please contact me at (505) 722-3833 at your convenience.

Respect fully yours,

Zeke Sherman Manager of Environmental Affairs Ciniza Refinery Giant Industries Arizona, Inc.



Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

August 21, 1991

Mr. Rich Mayer U.S. Environmental Protection Agency Region VI 1445 Ross Avenue Suite 1200 Dallas, Texas 75202-2733

RE: Phase I RFI Supplemental Report Giant Refining Company NMD000333211

Dear Mr. Mayer:

The attached document includes the supplemental sampling data outlined in the Phase I RFI Final Report submitted on April 8, 1991 and the additional requirements outlined in your July 9, 1991 approval letter. Sections 1 through 7 includes data associated with the additional sampling requirements. Section 8 contains Giant's conclusions and recommendations, including Final Remedy Plans (FRP's) for SWMU #8 - Railroad Rack Lagoon and SWMU #10 - Two Sludge Pits. Amendments to the RFI Work Plans are also included to cover the work required by the FRP's.

If you have any questions, contact my office at (505) 722-0217.

Sincerely,

Claud Kasence

Claud Rosendale Environmental Manager Ciniza Refinery

cc w/enclosure -

David Boyer - Director New Mexico Oil Conservation Division

Richard Mitzelfelt - Director New Mexico Environment Department

Linda Carleson - Head Librarian Gallup Public Library

Kim Bullerdick - Corporate Counsel Giant Industries Arizona, Inc.

File Giant Refining

SWMU No. 11, Secondary Oil Skimmer

The secondary oil skimmer was identified as a solid waste management unit (SWMU) and designated as 2 SWMU No. 11 during a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) 3 conducted at the Giant Refining Company - Ciniza Refinery (Ciniza) in the early 1990s. This 4 investigation included soil sampling and analysis, which indicated the presence of organics. Based on 5 6 sample results, Ciniza recommended no further action (NFA) for the SWMU. The U.S. Environmental 7 Protection Agency (EPA) rejected the recommendation and required two additional borings with samples collected at a depth of 10 feet. Follow-up sampling and analysis confirmed the original findings. Ciniza 8 proceed with corrective action in accordance with the approved VCAP criteria. The secondary oil 9 skimmer area was capped in 1999 in conjunction with the closure activities of SWMUs Nos. 5, 7 and 8. 10

11 11.1 Site Description and Operational History

SWMU No. 11, Secondary Oil Skimmer (Figures 11-1, 11-2) consists of the secondary oil skimmer 12 located south of the main evaporation ponds. The secondary oil skimmer site is a rectangular area 13 measuring approximately 10 feet wide by 25 feet long, and centered over an earthen stormwater drainage 14 ditch. Within this area, a steel box was previously installed and used to collect suspended oil and 15 sediment from stormwater flowing through the ditch. This box was known as the secondary oil skimmer. 16 17 Before removal, it was used as a backup oil skimmer during maintenance activities on the primary oil skimmer. Remediation efforts include excavation and backfilling with clean soil as well as retrenching the 18 19 ditch for proper stormwater drainage. Photographs of the secondary oil skimmer site, taken during the site 20 inspection performed by Practical Environmental Services, Inc. (PES) in 1998, are provided SWMU No. 21 11 Summary Report.

22 11.2 Land Use

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The secondary oil skimmer box has been removed and is no longer present at the site. The area, which is vacant of operations, is part of the refinery drainage system and will remain under the ownership of Ciniza.

26 11.3 Investigation Activities

Applied Earth Sciences (AES) investigated the secondary oil skimmer area during the early 1990s. Soil samples were collected and analyzed. Trace volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) were detected in several of the samples. AES performed additional sampling operations in 1994, with similar results.

11-1

1 11.3.1 Investigation #1

During the initial site investigation in 1992, AES collected and analyzed soil samples from two locations and depths within the secondary oil skimmer area: surface and 3 feet below ground surface. Trace VOCs and SVOCs were detected in three of four samples, of which, xylenes, at 98 mg/kg, and ethylbenzene, at 15 mg/kg, represented the highest concentrations detected. Most of the remaining constituents were detected in much lower concentrations, typically less than 5 mg/kg.

7 11.3.2 Investigation #2

8 In 1994, AES conducted a second round of sampling and analysis at two locations and depths of 6 and 10
9 feet below ground surface. Xylenes were detected in one bore at 5 mg/kg at a depth of 6 feet and 0.5
10 mg/kg at a depth of 10 feet.

State of New Mexico corrective action levels for benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil is 50 mg/kg total and 10 mg/kg of benzene. Four of six samples indicated BTEX constituents, the highest of which was over 100 mg/kg total; which is above the 50 mg/kg action level.

14 11.4 Site Conceptual Model

15 There is no impact on the environmental fate of the land.

16 11.5 Site Assessments

17 During the week of March 23, 1998, PES performed an on-site inspection. Observations are as follows:

- The secondary oil skimmer box has been removed and is no longer present at the site.
- At the time of the inspection, no water was present in the ditch.
- Local soil in the vicinity of the secondary oil skimmer site is bentonitic clays and silts.
 Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.
- No soil staining or distressed vegetation was present at or in the vicinity of the secondary oil skimmer site.

PES did not perform any sampling or analysis during this site inspection. The inspection was limited only
 to visual observations.

11.6 NFA Proposal

Ciniza is proposing that no further action is required for SWMU No. 11 based on the following criterion:
A release from the SWMU to the environment has occurred, but the SWMU has been characterized and
remediated in accordance with current applicable state regulations, which adequately addressed RCRA
corrective action. Documentation, such as a closure letter, is available. (NFA Criterion 4)

- 6 The following is the basis for this proposal:
 - The secondary oil skimmer enclosure has been removed and is no longer present in the drainage ditch adjoining Evaporation No. 4.
 - Soil sampling and analysis were conducted during an initial site investigation and subsequent re-investigation at greater depth. Organic contaminants were detected in both investigations.
- 11 12

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- BTEX constituents have been detected at levels exceeding New Mexico corrective action levels.
- Contaminated soil has been removed from the site and replaced with clean fill dirt. A closure letter is on file.

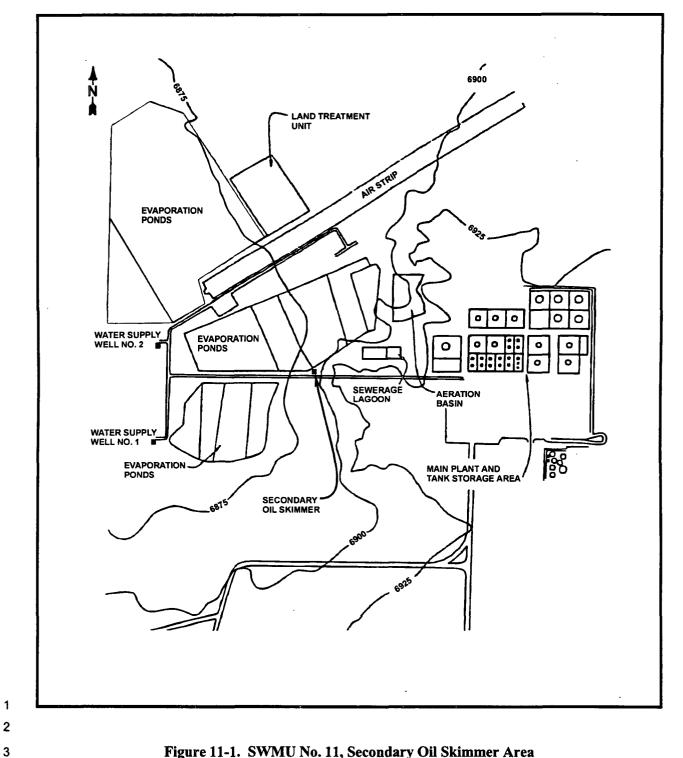


Figure 11-1. SWMU No. 11, Secondary Oil Skimmer Area





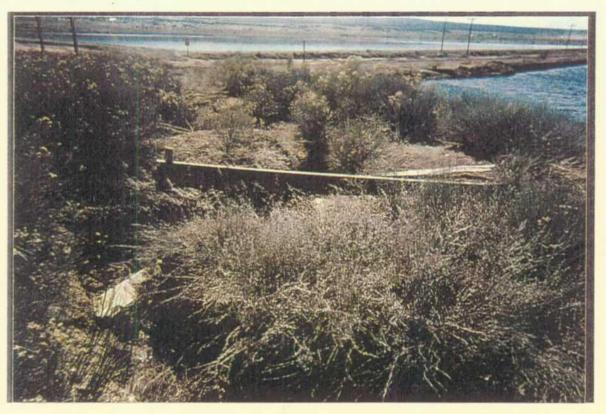
1

Figure 11-2. SWMU No. 11, Soil from Secondary Oil Skimmer

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SWMU #11 Summary Report

Secondary Oil Skimmer Ciniza Refinery McKinley County, New Mexico



Prepared for:

Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Prepared by:

Practical Environmental Services, Inc. 1444 Wazee Street, Suite 225 Denver, Colorado 80202

Job No. 98-205-03

April 23, 1998

1.0 EXECUTIVE SUMMARY

Practical Environmental Services, Inc. (PES) has been retained by Giant-Ciniza Refinery (Ciniza) to perform a visual inspection, data evaluation, and status assessment for the secondary oil skimmer located at the Ciniza Refinery, in McKinley County, New Mexico.

The secondary oil skimmer site was identified as a Solid Waste Management Unit (SWMU), and designated as SWMU #11, during a RCRA Facility Investigation (RFI) conducted at the refinery in the early 1990's. This investigation included soil sampling and analysis, detected organic contaminants, and recommended no further action (NFA).

In 1994, the Environmental Protection Agency Region VI Office (EPA) requested additional sampling at greater depth. Trace organic contaminants were again detected and remediation by natural attenuation was recommended.

This summary report for SWMU #11 has been prepared in conjunction with submittal of a Resource Conservation and Recovery Act (RCRA) Part B permit application covering post closure care of the Ciniza Refinery Land Treatment Unit. All investigative activities for SWMU #11 have been completed. This assessment is summarized as follows.

- ⇒ The secondary oil skimmer enclosure has been removed and is no longer present in the drainage ditch adjoining Evaporation No. 4.
- ⇒ Soil sampling and analysis was conducted during an initial site investigation and subsequent re-investigation at greater depth. Organic contaminants were detected in both investigations.
- ⇒ BTEX constituents have been detected at levels exceeding New Mexico corrective action levels.
- ⇒ Contaminated soil should be removed from the site and replaced with clean fill dirt prior to closure.

2.0 BACKGROUND

During 1987, a RCRA Facility Assessment was conducted at the Ciniza Refinery. This assessment identified various "units of concern" and recommended further evaluation. A RCRA Facility Investigation was subsequently conducted and the secondary oil skimmer site was identified as SWMU #11.

Applied Earth Sciences (AES) investigated the secondary oil skimmer site during the early 1990s. Soil samples were collected and analyzed. Organic contaminants, including BTEX constituents, were detected.

As a result of the investigation, AES recommended no further action for this SWMU. Results and recommendations were reported to the EPA in 1992. In 1994, the EPA requested additional sampling at greater depth. Follow-up sampling and analysis again detected organic contaminants.

3.0 SITE LOCATION AND DESCRIPTION

SWMU #11 is located within the Ciniza Refinery's property boundary. This refinery is located on the north side of Interstate 40, approximately 17 miles east of Gallup, New Mexico. Within the refinery, SWMU #11 is located along the drainage ditch south of Evaporation Pond No. 5. See Figure No. 1 for location details.

The secondary oil skimmer site is a rectangular area measuring approximately 10 feet wide by 25 feet long, and centered over an earthen stormwater drainage ditch. Within this area, a steel box was previously installed and used to collect suspended oil and sediment from stormwater flowing through the ditch. This box was known as the secondary oil skimmer.

4.0 SITE INSPECTION

During the week of March 23, 1998, an on-site inspection was performed. Observations are noted as follows:

- The secondary oil skimmer box has been removed and is no longer present at the site.
- At the time of the inspection, no water was present in the ditch.
- Local soil in the vicinity of the secondary oil skimmer site presents as bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.
- No soil staining or distressed vegetation was present at or in the vicinity of the secondary oil skimmer site.

5.0 DATA REVIEW

Soil samples from within the secondary oil skimmer site were collected and analyzed during the initial site investigation and subsequent re-sampling at greater depth.

In 1992, the initial site investigation collected samples at two locations and two depths; surface and 3 feet below ground surface. Trace VOCs and SVOCs were detected in three of four samples; of which, xylenes at 98 mg/kg and ethylbenzene at 15 mg/kg represented the highest detections. Most of the remaining constituents were detected in much lower concentrations, typically less than 5 mg/kg.

In 1994, a second round of sampling and analysis was conducted at two locations and depths of 6 and 10 feet below ground surface. Xylenes were detected in one sample at 5 mg/kg at a depth of 6 feet and 0.5 mg/kg at a depth of 10 feet.

State of New Mexico corrective action levels for BTEX in soil is 50 mg/kg total and 10 mg/kg of benzene. Four of six samples indicated BTEX constituents, the highest of which was over 100 mg/kg total; which is above the 50 mg/kg action level.

6.0 ASSESSMENT

Based on the site inspection and data review, the secondary oil skimmer site is assessed as follows.

- The secondary oil skimmer is no longer present in the drainage ditch. Oily stormwater no longer flows in the drainage ditch.
- Soil sampling and analysis has detected organic contaminants, primarily BTEX constituents, at the site. Significant contamination is localized to single "hot spot" underlying the former location of the skimmer box.
- Contaminated soil should be removed from the site and replaced with clean fill dirt prior to closure.

7.0 PROFESSIONAL ENGINEER'S CERTIFICATION

This summary report for SWMU #11 has been prepared under the direct supervision and control of a Registered Professional Engineer.

Client: Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Job No.: 98-205-03

Date: April 23, 1998

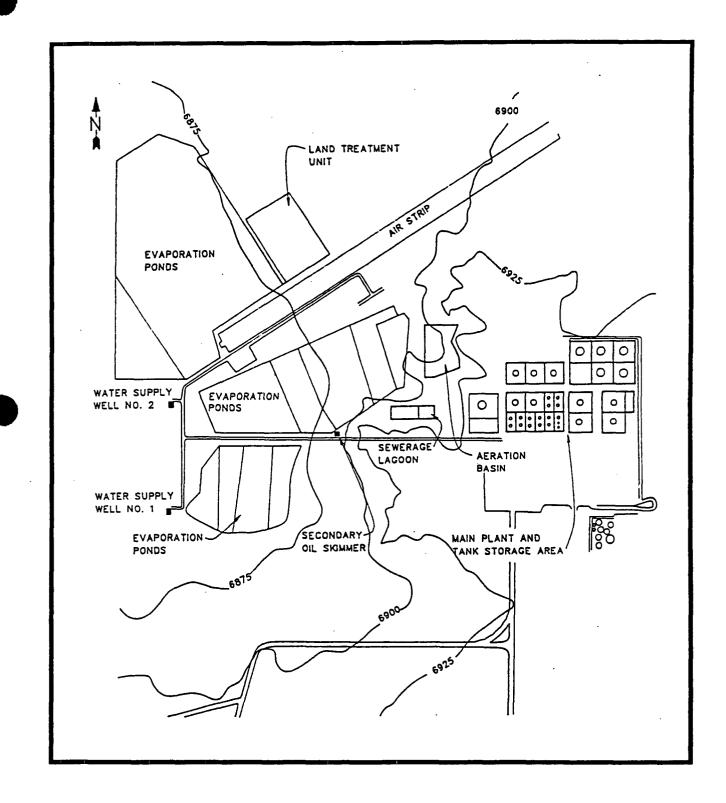
Prepared and Certified by:



Thomas D. Atwood, P.E. Colorado Registration No. 22866

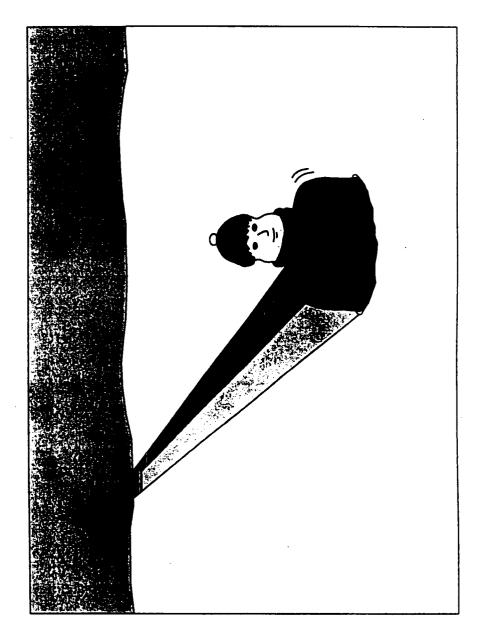
Page 3

Figure No. 1 Secondary Oil Skimmer Area



SWMU #11 Summary Report

SWMU-11 SECONDARY OIL SKIMMER





905047

GIANT REFINING COMPANY ROUTE 3 BOX 7 GALLUP, NM 87301

Project Name SWMU 11 CLOSURE Project Number (none)

Attention: STEVE MORRIS

On 5/14/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **non-aq** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

This report is being reissued to correct the project name. This report was originally dated 6/11/99.

EPA method 8260 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other parameters were performed by ESL (OR) Inc., Portland, OR.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

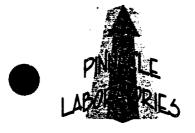
Kimberly D. McNeill Project Manager

Witchille

H. Mitchell Rubenstein, Ph. D. General Manager

MR: mt

Enclosure



CLIENT	: GIANT REFINING COMPANY	PINNACLE ID	: 905047
PROJECT #	: (none)	DATE RECEIVED	: 5/14/99
PROJECT NAME	SWMU 11 CLOSURE	REPORT DATE	: 6/11/99
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	SWMU-11-1-7FT-051199	NON-AQ	5/11/99
02	SWMU-11-2-6FT-051199	NON-AQ	5/11/99
03	SWMU-11-3-10FT-051299	NON-AQ	5/12/99
04	TRIP BLANK	AQUEOUS	4/29/99

Pico'steve



GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260 (MODIFIED SKINNER LIST)					
CLIENT	: GIANT REFINI		PINNACLE I.D		905047	
PROJECT #	: NONE		[DATE RECEIVED):	5/14/99
PROJECT NAME	: SWMU 11 CLC	SURE				
SAMPLE			DATE	DATE	DATE	DIL.
ID #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
905047-01	SWMU-11-1-7FT 051199	SOIL	5/11/99	5/25/99	05/25/99	1
PARAMETER	DET. LIMIT		UNITS			
1,4-Dioxane	5.0	< 5.1	MG/KG	(DRY WEIGHT)		
2-Butanone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
Carbon Disulfide	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Benzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Toluene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dibromoethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chlorobenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Ethylbenzene	• 0.05	< 0.05	MG/KG	(DRY WEIGHT)		
o-Xylene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
m&p Xylenes	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Styrene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chloroethylvinyl Ether	0.05	< 0.05	MG/KG	(DRY WEIGHT)		

SURROGATE % RECOVERY 1,2-Dichloroethane-d4	95
	(80-120)
Toluene-d8	98 (81-117)
Bromofluorobenzene	93
	(74 - 121)

DRY WEIGHT RESULTS (%DRY) = 98 Analyst: Vincent Speshock

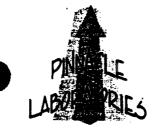


GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260 (MODIFIED SKINNER LIST)					
CLIENT	: GIANT REFINI	PINNACLE I.D. :			905047	
PROJECT #	: NONE		· (DATE RECEIVED):	5/14/99
PROJECT NAME	: SWMU 11 CLC	SURE				
SAMPLE			DATE	DATE	DATE	DIL.
1D #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOF
- 905047-02	SWMU-11-2-6FT 051199	SOIL	5/11/99	5/25/99	05/25/99	1
PARAMETER	DET. LIMIT		UNITS			
1,4-Dioxane	5.0	< 5.1	MG/KG	(DRY WEIGHT)		
2-Butanone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
Carbon Disulfide	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Benzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Toluene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dibromoethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chlorobenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Ethylbenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
o-Xylene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
m&p Xylenes	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Styrene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chloroethylvinyl Ether	0.05	< 0.05	MG/KG	(DRY WEIGHT)		

SURROGATE % RECOVERY 1,2-Dichloroethane-d4	96
Toluene-d8	(80-120) 104
Bromofluorobenzene	(81 - 117) 95
BIOMONDOIDENZENE	(74 - 121)

DRY WEIGHT RESULTS (%DRY) = 98 Analyst: Vincent Speshock



GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260 (MODIFIED SKINNER LIST) : GIANT REFINING COMPANY PINNACLE I.D. : 905					
CLIENT		NG COMPANY		PINNACLE I.D	•••	905047
PROJECT #	: NONE	0.005		DATE RECEIVED):	5/14/99
PROJECT NAME	: SWMU 11 CLO	SURE				
SAMPLE			DATE	DATE	DATE	DIL.
ID #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
905047-03	SWMU-11-3-10FT 051299	SOIL	5/12/99	5/25/99	05/25/99	1
PARAMETER	DET. LIMIT		UNITS			
1,4-Dioxane	5.0	< 5.1	MG/KG	(DRY WEIGHT)		
2-Butanone	0.5	< 0.5	MG/KG	(DRY WEIGHT)		
Carbon Disulfide	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dichloroethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Benzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Toluene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
1,2-Dibromoethane	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chlorobenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Ethylbenzene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
o-Xylene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
m&p Xylenes	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Styrene	0.05	< 0.05	MG/KG	(DRY WEIGHT)		
Chloroethylvinyl Ether	0.05	< 0.05	MG/KG	(DRY WEIGHT)		

SURROGATE % RECOVERY 1,2-Dichloroethane-d4	85
Toluene-d8	(80 - 120) 93
Bromofluorobenzene	(81 - 117) 90
	(74 - 121)

DRY WEIGHT RESULTS (%DRY) = 99 Analyst: Vincent Speshock



Environmental Services Laboratory, Inc. Es

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

June 07, 1999

Kim McNeill Pinnacle Laboratories 2709-D Pan American Fwy NE

Albuquerque, NM 87107

TEL: 505-344-3777

FAX (505) 344-4413

RE: 905047/GRC/ SWMU 11 CLOSURE

Order No.: 9905076

Dear Kim McNeill,

Environmental Services Laboratory received 3 samples on 5/17/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests: SKINNER LIST-SEMI VOL MASS SPEC (SW8270B)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Kimberly Hill Project Manager New Line

E Huni

Technical Review

ANALYTICAL SERVICES FOR THE ENVIRONMENT



Environmental Services Laboratory

CLIENT:Pinnacle LaboratoriesLab Order:9905076Project:905047/GRC/ SWMU 11 CLOSURELab ID:9905076-01A

Date: 07-Jun-99

Client Sample ID: SWMU-11-1-7FT-051199 Tag Number: Collection Date: 5/11/99 Matrix: SOIL

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
SKINNER LIST-SEMI VOL MASS SPEC	<u></u>				Analyst: keł
1,2-Dichlorobenzene	ND	0.192	mg/Kg-dry	1	5/24/99
1,3-Dichlorobenzene	ND	0.192	mg/Kg-dry	1	5/24/99
1,4-Dichlorobenzene	ND	0.192	mg/Kg-dry	1	5/24/99
1-Methylnaphthalene	ND	0.192	mg/Kg-dry	1	5/24/99
2,4-Dimethylphenol	ND	0.192	mg/Kg-dry	1	5/24/99
2,4-Dinitrophenol	ND	0.384	mg/Kg-dry	1	5/24/99
2-Methylphenol	ND	0.192	mg/Kg-dry	1	5/24/99
3&4-Methylphenol	ND	0.192	mg/Kg-dry	1	5/24/99
3-Methylcholanthrene	ND	0.192	mg/Kg-dry	1	5/24/99
4-Nitrophenol	ND	0.384	mg/Kg-dry	1	5/24/99
6-Methyl Chrysene	ND	0.192	mg/Kg-dry	1	5/24/99
7,12-Dimethylbenz(a)anthracene	ND	0.192	mg/Kg-dry	1	5/24/99
Anthracene	ND	0.192	mg/Kg-dry	1	5/24/99
Benz(a)anthracene	ND	0.192	mg/Kg-dry	1	5/24/99
Benzo(a)pyrene	ND	0.192	mg/Kg-dry	1	5/24/99
Benzo(b)&(j)fluoranthene	ND	0.192	mg/Kg-dry	1	5/24/99
Benzo(k)fluoranthene	ND	0.192	mg/Kg-dry	1	5/24/99
Bis(2-ethylhexyl)phthalate	ND	0.192	mg/Kg-dry	1	5/24/99
Butyl benzyl phthalate	ND	0.192	mg/Kg-dry	1	5/24/99
Chrysene	ND	0.192	mg/Kg-dry	1	5/24/99
Di-n-butyl phthalate	ND	0.192	mg/Kg-dry	1	5/24/99
Di-n-octyl phthalate	ND	0.192	mg/Kg-dry	1	5/24/99
Dibenz(a,h)acridine	ND	0.192	mg/Kg-dry	1	5/24/99
Dibenz(a,h)anthracene	ND	0.192	mg/Kg-dry	1	5/24/99
Dibenz(a,j)acridine	ND	0.192	mg/Kg-dry	1	5/24/99
Diethyl phthalate	ND	0.192	mg/Kg-dry	1	5/24/99
Dimethyl phthalate	ND	0.192	mg/Kg-dry	1	5/24/99
Fluoranthene	ND	0.192	mg/Kg-dry	1	5/24/99
Indene	ND	0.192	mg/Kg-dry	1	5/24/99
Naphthalene	ND	0.192	mg/Kg-dry	1	5/24/99
Phenanthrene	ND	0.192	mg/Kg-dry	1	5/24/99
Phenol	ND	0.192	mg/Kg-dry	1	5/24/99
Pyrene	ND	0.192	mg/Kg-dry	1	5/24/99
Pyridine	ND	0.192	mg/Kg-dry	1	5/24/99
Quinoline	ND	0.192	mg/Kg-dry	1	5/24/99
Thiophenol	ND	0.192	mg/Kg-dry	1	5/24/99
Surr: 2,4,6-Tribromophenol	69.5	19-122	%REC	1	5/24/99
Surr: 2-Fluorobiphenyl	40.5	30-115	%REC	- 1	5/24/99
Surr: 2-Fluorophenol	58.1	25-121	%REC	1	5/24/99
Surr: 4-Terphenyl-d14	80.0	18-137	%REC	1	5/24/99



ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level



CLIENT:	Pinnacle Laboratories
Lab Order:	9905076
Project:	905047/GRC/SWMU 11 CLOSURE
Lab ID:	9905076-01A

Date: 07-Jun-99

Client Sample ID: SWMU-11-1-7FT-051199 Tag Number: Collection Date: 5/11/99 Matrix: SOIL

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed
Surr: Nitrobenzene-d5	52.7	23-120	%REC	1	5/24/99
Surr: Phenol-d5	61.9	24-113	%REC	1	5/24/99
PERCENT MOISTURE	A	STM			Analyst: tmh
% Moisture	13	0.	wt%	1	5/24/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

- B Analyte detected in the associated Method Blank
- * Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

- R RPD outside accepted recovery limits
- E Value above quantitation range



CLIENT:Pinnacle LaboratoriesLab Order:9905076Project:905047/GRC/ SWMU 11 CLOSURELab ID:9905076-02A

Date: 0--Jun-99

Client Sample ID: SWMU-11-2-6FT-051199 Tag Number: Collection Date: 5/11/99 Matrix: SOIL

Analyses	Result	Limit (Qual Units	DF	Date Analyzed		
SKINNER LIST-SEMI VOL MASS SPEC	· · · · · · · · · · · · · · · · · · ·				Analyst: ket		
1,2-Dichlorobenzene	ND	0.196	mg/Kg-dry	1	5/24/99		
1,3-Dichlorobenzene	ND	0.196	mg/Kg-dry	1	5/24/99		
1,4-Dichlorobenzene	ND	0.196	mg/Kg-dry	1	5/24/99		
1-Methylnaphthalene	ND	0.196	mg/Kg-dry	1	5/24/99		
2,4-Dimethylphenol	ND	0.196	mg/Kg-dry	1	5/24/99		
2,4-Dinitrophenol	ND	0.393	mg/Kg-dry	1	5/24/99		
2-Methylphenol	ND	0.196	mg/Kg-dry	1	5/24/99		
3&4-Methylphenoi	ND	0.196	mg/Kg-dry	1	5/24/99		
3-Methylcholanthrene	ND	0.196	mg/Kg-dry	1	5/24/99		
4-Nitrophenol	ND	0.393	mg/Kg-dry	1	5/24/99		
6-Methyl Chrysene	ND	0.196	mg/Kg-dry	1	5/24/99		
7,12-Dimethylbenz(a)anthracene	ND	0.196	mg/Kg-dry	1	5/24/99		
Anthracene	ND	0.196	mg/Kg-dry	1	5/24/99		
Benz(a)anthracene	ND	0.196	mg/Kg-dry	1	5/24/99		
Benzo(a)pyrene	· ND	0.196	mg/Kg-dry	1	5/24/99		
Benzo(b)&(j)fluoranthene	ND	0.196	mg/Kg-dry	1	5/24/99		
Benzo(k)fluoranthene	ND	0.196	mg/Kg-dry	1	5/24/99		
Bis(2-ethylhexyl)phthalate	ND	0.196	mg/Kg-dry	1	5/24/99		
Butyi benzyi phthalate	ND	0.196	mg/Kg-dry	1	5/24/99		
Chrysene	ND	0.196	mg/Kg-dry	1	5/24/99		
Di-n-butyl phthalate	ND	0.196	mg/Kg-dry	1	5/24/99		
Di-n-octyl phthalate	ND	0.196	mg/Kg-dry	1	5/24/99		
Dibenz(a,h)acridine	ND	0.196	mg/Kg-dry	1	5/24/99		
Dibenz(a,h)anthracene	ND	0.196	mg/Kg-dry	1	5/24/99		
Dibenz(a,j)acridine	ND	0.196	mg/Kg-dry	1	5/24/99		
Diethyl phthalate	ND	0.196	mg/Kg-dry	1	5/24/99		
Dimethyl phthalate	ND	0.196	mg/Kg-dry	1	5/24/99		
Fluoranthene	ND	0.196	mg/Kg-dry	1	5/24/99		
Indene	ND	0.196	mg/Kg-dry	1	5/24/99		
Naphthalene	ND	0.196	mg/Kg-dry	1	5/24/99		
Phenanthrene	ND	0.196	mg/Kg-dry	1	5/24/99		
Phenol	ND	0.196	mg/Kg-dry	1	5/24/99		
Pyrene	ND	0.196	mg/Kg-dry	1	5/24/99		
Pyridine	ND	0.196	mg/Kg-dry	1	5/24/99		
Quinoline	ND	0.196	mg/Kg-dry	1	5/24/99		
Thiophenol	ND	0.196	mg/Kg-dry	1	5/24/99		
Surr: 2,4,6-Tribromophenol	66.4	19-122	%REC	1	5/24/99		
Surr: 2-Fluorobiphenyl	41.5	30-115	%REC	1	5/24/99		
Surr: 2-Fluorophenol	52.1	25-121	%REC	1	5/24/99		
Surr: 4-Terphenyl-d14	81.8	18-137	%REC	1	5/24/99		

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

3 of 6



CLIENT:Pinnacle LaboratoriesLab Order:9905076Project:905047/GRC/SWMU 11 CLOSURELab ID:9905076-02A

Date: 07-Jun-99

Client Sample ID: SWMU-11-2-6FT-051199 Tag Number: Collection Date: 5/11/99 Matrix: SOIL

Analyses	Result	Limit Qu	ual Units	DF	Date Analyzed
Surr: Nitrobenzene-d5	48.7	23-120	%REC	1	5/24/99
Surr: Phenol-d5	56.5	24-113	%REC	1	5/24/99
PERCENT MOISTURE	A	STM			Analyst: tmh
% Moisture	15	0.	wt%	1	5/24/99





Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

- B Analyte detected in the associated Method Blank
- * Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

4 of 6



CLIENT:Pinnacle LaboratoriesLab Order:9905076Project:905047/GRC/ SWMU 11 CLOSURELab ID:9905076-03A

Date: 07-Jun-99

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Client Sample ID: SWMU-11-3-10FT-051299 Tag Number: Collection Date: 5/12/99 Matrix: SOIL

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed		
SKINNER LIST-SEMI VOL MASS SPEC					Analyst: keh		
1,2-Dichlorobenzene	ND	0.188	mg/Kg-dry	1	5/24/99		
1,3-Dichlorobenzene	ND	0.188	mg/Kg-dry	1	5/24/99		
1,4-Dichlorobenzene	ND	0.188	mg/Kg-dry	1	5/24/99		
1-Methyinaphthalene	ND	0.188	mg/Kg-dry	1	5/24/99		
2,4-Dimethylphenol	ND	0.188	mg/Kg-dry	1	5/24/99		
2,4-Dinitrophenol	ND	0.375	mg/Kg-dry	1	5/24/99		
2-Methylphenol	ND	0.188	mg/Kg-dry	1	5/24/99		
3&4-Methylphenol	ND	0.188	mg/Kg-dry	1	5/24/99		
3-Methylcholanthrene	ND	0.188	mg/Kg-dry	1	5/24/99		
4-Nitrophenol	ND	0.375	mg/Kg-dry	1	5/24/99		
6-Methyl Chrysene	ND	0.188	mg/Kg-dry	1	5/24/99		
7,12-Dimethylbenz(a)anthracene	ND	0.188	mg/Kg-dry	1	5/24/99		
Anthracene	ND	0.188	mg/Kg-dry	1	5/24/99		
Benz(a)anthracene	ND	0.188	mg/Kg-dry	1	5/24/99		
Benzo(a)pyrene	ND	0.188	mg/Kg-dry	1	5/24/99		
Benzo(b)&(j)fluoranthene	ND	0.188	mg/Kg-dry	1	5/24/99		
Benzo(k)fluoranthene	ND	0.188	mg/Kg-dry	1	5/24/99		
Bis(2-ethylhexyl)phthalate	ND	0.188	mg/Kg-dry	1	5/24/99		
Butyl benzyl phthalate	ND	0.188	mg/Kg-dry	1	5/24/99		
Chrysene	ND	0.188	mg/Kg-dry	1	5/24/99		
Di-n-butyl phthalate	ND	0.188	mg/Kg-dry	1	5/24/99		
Di-n-octyl phthalate	ND	0.188	mg/Kg-dry	1	5/24/99		
Dibenz(a,h)acridine	ND	0.188	mg/Kg-dry	1	5/24/99		
Dibenz(a,h)anthracene	ND	0.188	mg/Kg-dry	1	5/24/99		
Dibenz(a,j)acridine	ND	0.188	mg/Kg-dry	1	5/24/99		
Diethyl phthalate	ND	0.188	mg/Kg-dry	1	5/24/99		
Dimethyl phthalate	ND	0.188	mg/Kg-dry	1	5/24/99		
Fluoranthene	ND	0.188	mg/Kg-dry	1	5/24/99		
Indene	ND	0.188	mg/Kg-dry	1	5/24/99		
Naphthalene	ND	0.188	mg/Kg-dry	1	5/24/99		
Phenanthrene	ND	0.188	mg/Kg-dry	1	5/24/99		
Phenol	ND	0.188	mg/Kg-dry	1	5/24/99		
Pyrene	ND	0.188	mg/Kg-dry	1	5/24/99		
Pyridine	ND	0.188	mg/Kg-dry	1	5/24/99		
Quinoline	ND	0.188	mg/Kg-dry	1	5/24/99		
Thiophenol	ND	0.188	mg/Kg-dry	1	5/24/99		
Surr: 2,4,6-Tribromophenoi	71.1	19-122	%REC	1	5/24/99		
Surr: 2-Fluorobiphenyl	50.1	30-115	%REC	1	5/24/99		
Surr: 2-Fluorophenol	62.0	25-121	%REC	1	5/24/99		
Surr: 4-Terphenyl-d14	83.4	18-137	%REC	1	5/24/99		



Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

- B Analyte detected in the associated Method Blank
- * Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



CLIENT:	Pinnacle Laboratories
Lab Order:	9905076
Project:	905047/GRC/ SWMU 11 CLOSURE
Lab ID:	9905076-03A

Date: 07-Jun-99

Client Sample ID: SWMU-11-3-10FT-051299 Tag Number: Collection Date: 5/12/99 Matrix: SOIL

Analyses	Result	Limit	Qual Un	its	DF	Date Analyzed
Surr: Nitrobenzene-d5	58.1	23-120	%R	EC	1	5/24/99
Surr: Phenol-d5	66.0	24-113	%R	EC	1	5/24/99
PERCENT MOISTURE	A	STM				Analyst: tmh
% Moisture	11	0.	wt%	6	1	5/24/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

- B Analyte detected in the associated Method Blank
- * Value exceeds Maximum Contaminant Level
- S Spike Recovery outside accepted recovery limits
- R RPD outside accepted recovery limits
- E Value above quantitation range

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SWMU # 4- BURN PIT

PARAMETERS - pH STERES - pH SILINNER LIST ORGANICS BACK GROUND METALS 9 SAMPLES

SOMU #5- FOUR LAND FILLS PARAMETERS - 8240 PRIORITY POLLUTANTS BACKGROUND METALS PH

SWMU #7 - FIRE TRAINING AREA

PARAMETERS - TPH

OIL & GREASE

12 SAMPLES

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48 SAMPLES

SWMU # 11 - SECONDARY OIL SKIMMER & ASSC. DITCH PARAMETERS - SKINNER LIST (CONSTITUENTS) 4 SAMPLES

S5 INDIVIDUAL SAMPLES

SENT BY:

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	FACSIMILE TRANSMITTA	L									
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 6 1445 ROSS AVENUE DALLAS, TEXAS 75202-3733 MULTIMEDIA PERMITTING AND PLANNING DIVISION NEW MEXICO AND PEDERAL FACILITIES SECTION PLEASE PRINT IN BLACE INE ONLY Ed Harst, Environmental Manager - Giant Refining Company, Cisiza											
TO: Ed Harat, Enviru	TO: Ed Horst, Environmental Manager - Giant Refining Company, Ciaiza										
MACHINE NUBERER: Ses.722.0210	VERIFICATION NUMBER: 505.722.0227										
FROM: James A. Harris, Jr., RCRA Facili	ity Manager/Geologist										
PHONE: (114) 665-8302	Mail Cades 6PD-N										
OFFICE: New Maxice/Federal Facilities S	actica	PAGES, INCLUDING COVER SHERT									
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COMMENTS											
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Hare's what I have been using to track Ginut, Ciniza	na. Hare's what I have been using to track Cinut, Ciniza's corrective action progress. Please review and lat's discuss it next weak. Have a good one.										
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 A Aration Basin (1) Phase II go and gi gampuing evaporation Ponds (2) The Evaporation Ponds (2) The Evaporation Ponds (2) The Drainage Mater Contact Waste Water Contact Waster Contact Waster<th>groundwater every five years</th><th>DET DUTT DDT ADD 1.</th>	groundwater every five years	DET DUTT DDT ADD 1.
" Inspection " Inspection beginning " soil and sampling Phase III "		W/modifications; Su. ay Plat submitted; closure certification must be submitted prior to initiating class III Permit Mod process
" Inspection " beginning " soil and " soil and " soil and Phase III "	=	Burvey and closure certification must be submitted prior to initiating class III Permit Mod process
Trainage Ditch between" soil andEvaporation Ponds and" samplingEvaporation Tanksamplingfeutralization Tank" samplingration Ponds (14)" samplingration Ponds (14) <t< td=""><td>n every 5 years 1996</td><td></td></t<>	n every 5 years 1996	
r Container Storage Phase (5) Jurn Pit (8) "	groundwater every five years	Survey Plat submitted, closure certification must be submitted prior to initiating Class III Permit Mod process
Pit (8)		=
Landfill Areas (7) " a Voluntary C Action (VCA) the "Landfill submitted in	a Voluntary Corrective Action (VCA) Plan to cap the "Landfill Areas" was submitted in March 1993.	EPA approved the VCA Plan on January 5, 1994 but required that additional soil borings be completed prior to Giant proceeding with the capping activities
Fire Training Area (4) " Under VCA		
11: Secondary Oil Skimmer (11) " Under VCA		discolored soil is the natural color; there is no hydrocarbon staining or odors detected; reference to "black fill" sand is actually "back fill"

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Route 3, Box 7 Gallup, New Mexico 87301

FILE COPY

January 6, 1995

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William Honker, Chief RCRA Permits Branch U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: RCRA Facility Investigation (RFI) Additional Sampling -Revised Report Giant Refining Company - NMD000333211

Dear Mr. Honker:

Giant Refining Company - Ciniza submits the revised report requested in your letter of December 19, 1994. Specifically, the comments are listed and addressed below:

General Comment:

Giant needs to justify in a revised report why the detection limits for the volatile and semi-volatile soil analysis (8240/8260) for each SWMU were relatively high. For example, the PQL for benzene for a low contaminated sample should be 5 ug/kg, Giant's detection limit was 500 ug/kg; likewise, the PQL for chrysene in a low contaminated sample should be 300 ug/kg, Giant's detection limit was 5,000 ug/kg.

Response:

Giant used the reporting limits for volatiles and semi-volatiles (8240/8260) that have been used in all of the RFI sampling since sampling began in 1990 and that are included in the approved <u>Generic Sampling Plan (May 17, 1990)</u>. Giant recognizes that there is a considerable difference between the reporting (detection) limits used in the RFI sampling and the practical quantitation limits determined in a laboratory and that a comparison of the two was never intended. Because no regulatory requirements for reporting (detection) limits in soil were noted, Giant reasoned

that, for consistency, the reporting (detection) limits for all 8240/8260 analysis would remain the same as in past RFI sampling events. As the reporting (detection) limits were well below New Mexico Water Quality Control Regulations and NMED's Solid Waste Management Regulations corrective action levels, Giant considered the limits used to be reasonable and acceptable.

General Comment:

Please include in a revised report the original data package from the sampling event and the QA/QC discussion/analysis on this data package.

Response:

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A copy of the original laboratory data and QA/QC report was forwarded to Region VI on or about December 19, 1994.

General Comment:

EPA is requiring that Giant use the boring log/description format attached in the January 7, 1994, RFI Phase I and II approval letter for all future borings required by EPA. Each boring log must indicate whether or not there is visual contamination in each interval; whether or not there is olfactory contamination in each interval; and, include the PID reading for each interval. In addition, Giant should carry an extra PID instrument when conducting the RFI investigations.

Response:

Giant will use the boring log/description format supplied by the EPA in all future borings required by EPA. A copy of of the requested format is attached. Giant will also lease an additional photo-ionization detector when conducting all future RFI sampling.

SWMU #5, Landfill Areas - Field Notes/Analytical Results:

Please explain in a revised RFI report why the PID reading for sample number 0513 at 16 feet was 230 ppm, but the analytical result for the soil sample was non-detect.

Response:

Although every effort is made during sampling to keep all equipment and materials downwind of the samples, it must be remembered that this is a field sampling project in a refinery and occasional changes in wind patterns, equipment movement, and sample collection, to name a few site variables, may bias certain observations. Giant feels that this is the case with sample 0513 at 16.0 feet and that exhaust fumes were detected with the PID.

Giant will keep more detailed notes of PID observations, PID background levels and weather changes on the RFI Data Management Forms during all future sampling required by EPA.

<u>SWMU #6, Tank Farm - Page 4.5; Results:</u>

EPA's interpretation of the soil boring results indicate that there is BTEX contamination in the most vertical interval taken at each tank boring. Therefore, the full extent of contamination has not been determined at each tank.

<u>Response</u>:

Using the same sampling locations and intervals, numbering system, and sampling protocol as the August, 1994 event, Giant will bore and sample until two clean samples are obtained at each tank. This sampling will occur in the first quarter of 1995.

<u>SWMU #11, Secondary Oil Skimmer - Field Notes from Coring 1104:</u>

Please clarify in the revised RFI report whether the discolored clay/sand at 6 feet is from hydrocarbon contamination or just the natural soil color.

<u>Response</u>:

The discolored soil mentioned in the field notes is the natural color. No hydrocarbon staining or odor was observed in any interval of this boring.

<u>SWMU #11, Secondary Oil Skimmer - Field Notes from Coring 1103:</u>

Please clarify in the revised RFI report whether the black "fill" sand at 5 feet is from hydrocarbon contamination or just the natural soil color.

Response:

The "black fill" sand was a recording error. It should read "back filled" sand and I should have caught the mistake. There were some grey/black sections in the 1.5 to 7.5 foot interval that were not hydrocarbon contaminated. Those sections were most likely the natural soil color or possibly the end product of natural biodegradation of organic matter.

Thank you for the opportunity to address the deficiencies in the <u>Report on the Additional RFI Sampling, October, 1994</u>. If you require additional information, please contact me at (505) 722-0227.

Sincerely,

Lynn Shelton Senior Environmental Coordinator Giant Refining Company

TLS:sp

cc: Kim Bullerdick, Corporate Counsel Giant Industries Arizona, Inc.

> Benito Garcia, Bureau Chief HRMB New Mexico Environment Department

TLS\WE-RCRA

BORING LOG RFI Project 1995 Boring ID Number: Date:

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3

GIANT – CINIZA Logged by: Drilled by: Total Depth:

Description	Depth	Symbol	Sample	PID
(Include odors and discoloration of soil)		I		(ppm)
	0.0			
	2.0			
	4.0			
	6.0			
	8.0			
	10.0			
	12.0			
	14.0			
	16.0			
	18.0			
	20.0			
	22.0			
	24.0			
	26.0			
	28.0			
	30.0			
	32.0			
	34.0		, ,	
	36.0			
	38.0			
	40.0			



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

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	6 1995	
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GIANT CINIZ	REFINENCE	

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CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, NM 87301

RE: RCRA Facility Investigation (RFI) Additional Sampling Report, Giant Refining Co. - NMD000333211

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) has completed a technical review of Giant Refining's RFI report, dated October 1, 1994, and has determined that the report is deficient. Enclosed is a list of deficiencies for your review.

A revised Report addressing the enclosed deficiencies must be submitted to EPA by February 10, 1995. If this revised report is not approved, then EPA may make further modifications as required. The modified report then becomes the approved RFI report.

If you should have any questions or need additional information, please feel free to contact Mr. Rich Mayer of my staff at (214) 665-7442.

Sincerely yours,

Oun gallaghen, ben

William K. Honker, P.E., Chief RCRA Permits Branch

Enclosure

cc: Mr. Benito Garcia New Mexico Environment Department



DEFICIENCY COMMENTS ON GIANT'S RFI ADDITIONAL SAMPLING REPORT FOR SWMUS' 4, 5, 6, 10 AND 11

General Comment: Giant needs to justify in a revised report why the detection limits for the volatile and semivolatile soil analysis (8240/8260) for each SWMU were relatively high. For example, the PQL for benzene for a low contaminated sample should be 5 ug/kg, Giant's detection limit was 500 ug/kg; likewise, the PQL for chrysene in a low contaminated sample should be 300 ug/kg, Giant's detection limit was 5,000 ug/kg.

General Comment: Please include in a revised report the original data package from the sampling event and the QA/QC discussion/analysis on this data package.

General Comment: EPA is requiring that Giant use the boring log/description format attached in the January 7, 1994, RFI Phase I and II approval letter for all future borings required by EPA. Each boring log must indicate whether or not there is visual contamination in each interval; whether or not there is olfactory contamination in each interval; and, include the PID reading for each interval. In addition, Giant should carry an extra PID instrument when conducting the RFI investigations.

SWMU #5, Landfill Areas

Field Notes/Analytical Results: Please explain in a revised RFI report why the PID reading for sample number 0513 at 16 feet was 230 ppm, but the analytical results for the soil sample was non-detect?

SWMU #6, Tank Farm

Page 4.5; Results: EPA's interpretation of the soil boring results indicate that there is BTEX contamination in the most vertical interval taken at each tank boring. Therefore, the full extent of contamination has not been determined at each tank.

SWMU #11, Secondary Oil Skimmer

Field Notes from Coring 1104: Please clarify in the revised RFI Report whether the discolored clay/sand at 6 feet is from hydrocarbon contamination or just the natural soil color.

Field Notes from Coring 1103: Please clarify in the revised RFI Report whether the black "fill" sand at 5 feet is from hydrocarbon contamination or just the natural soil color.

INTEROFFICE MEMORANDUM

DATE: June 28, 1994

> TO: David Pavlich

Lynn Shelton JSS FROM:

SUBJECT: Required RFI Sampling

In its January 7, 1994 letter, EPA required additional sampling and conditions of the RCRA Facility Investigation.

Although some of the requirements are considered redundant and are therefore subject to challenge, certain additional sampling requirements are acceptable and should be completed in a timely manner regardless of the protest of other, less productive sampling.

A list of the additional sampling sites, depths, and estimated costs are presented below.

Τ. SWUM #4 Old Burn Pit

> Costs <u>Sampling</u> Analysis <u>Borings</u> <u>Depths</u> 6.0', 10.0' \$475 \$7,026 3

II. SWMU #5 Landfill Areas

		Cos	sts
<u>Borings</u>	Depths	Sampling	<u>Analysis</u>
9	11.0', 16.0,	\$2,848	\$21,525
	20.0'		

III. SWMU #6 Tank Farm

		CUSES		
<u>Borings</u>	<u>Depths</u>	<u>Sampling</u>	<u>Analysis</u>	
8	16.0', 20.0'	\$2,531	\$1,000	

Coste

Costs

IV. SWMU #7 Fire Training Area

<u>Borings</u>	<u>Depths</u>	Sampling	<u>Analysis</u>
2	7.0', 11.0'	\$348	\$400

·V. SWMU #10 Sludge Pits

		Costs		
<u>Borings</u>	<u>Depths</u>	<u>Sampling</u>	<u>Analysis</u>	
18	19.0', 25.0'	\$7,119	\$18,450	

VI. SWMU #11 Secondary Oil Skimmer

	-	Cost		
Borings	<u>Depths</u>	Sampling		<u>Analysis</u>
2	6.0', 10.0'	\$316		\$3,180

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Total costs for this initial sampling project are estimated to be \$65,218.

It is my recommendation that Giant complete an RFE and implement the sampling and analysis by July 15, 1994.

TLS:sp

June 28, 1994

Rich Mayer U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: Quarterly Progress Report

Dear Mr. Mayer:

Pursuant to requirements of the HSWA Permit, Condition C.4., Page 11 and the May 31, 1990 RFI Workplan approval, Giant Refining Company - Ciniza (Giant) submits the <u>Quarterly Progress Report</u> for the second quarter of 1994.

Giant has completed piping modifications to the "Railroad Rack Lagoon" (SWMU #8) system and is presently evacuating the remaining water from the lagoon and disposing of it in the process wastewater system. As soon as it is feasible, Giant will sample the SWMU as required and begin bioremediation activities.

Giant is soliciting proposals for the survey requirement of SWMUs #1, 3, 8, 9 and 13.

Giant is also developing a scope and estimate of expense to further characterize SWMUS #4, 5, 6, 7, 10, and 11 and expects to complete that sampling during the third quarter of 1994.

If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false

REFINING CC

Route 3, Box 7 Gallup, New Mexico

87301 505 722-3833 information, including the possibility of fine and imprisonment for knowing violations."

Sincerely, John Stokes

Refinery Manager

JJS/TLS:sp

cc: Kim Bullerdick, Corporate Counsel Giant Industries Arizona, Inc.

> David Pavlich, Health/Safety and Environmental Manger Giant Refining Company

INTEROFFICE MEMORANDUM

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DATE: February 3, 1994

TO: David Pavlich Kim Bullerdick

FROM: Lynn Shelton 748

SUBJECT: RCRA Facility Investigation - Additional Requirements

I. Introduction

Giant Refining Company - Ciniza (Giant) performed a RCRA Facility Investigation (RFI) in three phases (I, II, and III) over three years (1990, 1991, and 1992).

Using the analytical results of those three sampling events, Giant submitted four corrective action plans and eight "No Further Action" proposals to Region VI, United States Environmental Protection Agency (EPA).

Correspondence from the EPA (1-7-94) indicated approval of the corrective action plans (with additional requirements) for three Solid Waste Management Units (SWMUs), for RFI reports Phase I, II, and III and assigns a deadline for submittals of additional data.

The additional sampling and reporting requirements, some of which are redundant and unnecessary, are the focus of this correspondence. In the following pages, the scope and cost of the additional sampling requirements will be presented.

Some explanation of a potential problem is in order. The SWMU identification numbering sequence is inconsistent. In discussing the draft letters with Rich Mayer, of Region VI EPA, the discrepancy in reference to the SWMU numbers was mentioned. Mr. Mayer responded that the correct SWMU numbers were taken from the HSWA Permit (Section C, Corrective Actions for Continuing Releases, 5.(a)(1)). Giant had used the numbering sequence from the approved RFI Workplan (revised May 17, 1990). As shown in Table 1, there are discrepancies in all three sequences. Giant should propose to use the numbering sequence identified in the revised RFI Workplan to avoid confusion with the numbering sequence of SWMUs and sample numbers already reported.

Table 2 presents an overview of the status of the SWMUs.

TABLE 1

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SWMU IDENTIFICATION

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RFI	WORKPLAN	hswa	EPA	LETTER	SWMU
	1	1		1	Aeration Basin
	2	2		2	Evaporation Ponds
	3	5		5	Empty Container Storage
	4	8		8	Burn Pit
	5	7		7	Four Landfills
	6	3		6	Tank Farm
	7	4		4	Fire Training Area
	8	6		8	Railroad Rack Lagoon
	9	10 & 13		-	Inactive Land Treatment
	10	9		9	Two Sludge Pits
	11	11		11	Secondary Oil Skimmer
	12	14		13	Wastewater Collection
	13	14		13	Drainage Ditch

TABLE 2

STATUS - INDIVIDUAL SWMU

Caps:

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- * Railrack Lagoon
- * Sludge Pits
- Fire Training Area
- * Landfills

No Further Action:

- ****** Aeration Basin
- ****** Evaporation Ponds
- ** Drainage Ditch Tank Farm
- ** Empty Container Storage Old Burn Pit Secondary Oil Skimmer
- *** Inactive Land Treatment

* Accepted by EPA with Additional Requirements
 ** "No Further Action" Approved by USEPA
 *** Not Addressed in Correspondence

II. Discussion

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A discussion of additional requirements, by SWMU, follows. Included, as Figures 1 to 12, are drawings of the SWMUs with individual sample points.

<u>SWMU #1</u> - Aeration Lagoon

EPA approved Giant's proposal for "No Further Action". Although Giant demonstrated that no significant migration of hazardous constituents had taken place, EPA requires biennial sampling that duplicates the original RFI sampling. This is redundant and expensive. Giant should propose either a five year sampling rotation or a phased-in plan (of six sample locations, sample two biennially until all samples are taken, then start again). These sampling plans will diminish the costs considerably and still provide documentation that migration has not occurred.

EPA also requires a survey plat of the SWMU. Giant agrees that this is a reasonable requirement.

<u>SWMU #2</u> - Evaporation Ponds

EPA has also approved Giant's proposal for "No Further Action" of this SWMU. EPA requires that Giant sample the seven groundwater wells (MW-4, OW-1, OW-2, OW-5, OW-7, OW-9 and OW-10) biennially for the same constituents as monitored for in the RFI sampling event. Giant may wish to propose a five year sampling rotation.

<u>SWMU #3</u> - Empty Container Storage Area

EPA approved Giant's proposal for "No Further Action" for the SWMU, requiring only that Giant provide a survey plat.

SWMU #4 - Old Burn Pit

EPA does not approve Giant's proposal for "No Further Action". Three borings at six and ten feet will be required to characterize constituent migration in this SWMU.

<u>SWMU #5</u> - Landfill Areas

EPA requires that additional borings, at eleven, sixteen and twenty feet to fully characterize contamination.

<u>SWMU #6</u> - Tank Farm

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. EPA requires seven additional borings to sixteen feet and one additional boring to twenty feet to fully characterize contamination. When Giant performed supplemental sampling of this SWMU in 1991, it was anticipated that further sampling would be required.

<u>SWMU #7</u> - Fire Training

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. Two additional angle borings to seven and eleven vertical feet are required. Additional sampling was anticipated when this SWMU was sampled in 1992, although I question why we now have to analyze for the Skinner List constituents. Samples from this SWMU were originally analyzed for TPH and oil & grease only.

<u>SWMU #8</u> - Railroad Rack Lagoon

EPA has approved Giant's corrective action plan for this SWMU, with additional requirements. After piping modifications at the railroad loading rack are complete and the railroad rack lagoon no longer receives waste, sampling is required within the footprint of the lagoon (five borings) and around the periphery of the lagoon (six borings). Sampling is also required in the overflow ditch (three borings to seven feet) and the fan out area (four borings to seven feet). Some sampling will be required during remediation of the lagoon to document completion of the corrective action plan.

A survey plat of the SWMU, after remediation, must be submitted to the EPA.

<u>SWMU #9</u> - Inactive Land Treatment Area

Although Giant had provided data and proposed no further action, this SWMU was not addressed in the correspondence with the EPA. It needs to be determined if EPA accepts our proposal or has additional requirements.

<u>SWMU #10</u> - Sludge Pits

EPA is requiring additional sampling to 25' in this SWMU (seven borings) to fully characterize any contamination. Monitoring will be required during remediation to document completion of the corrective action plan. It is reasonable to expect that EPA will require a survey plat of this SWMU after closure.

<u>SWMU #11</u> - Secondary Oil Skimmer

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EPA does not approve Giant's proposal for "No Further Action" and is requiring additional sampling to ten feet (two borings). This is a reasonable request.

<u>SWMU #12</u> - Contact Wastewater System

Although onerous, the requirement to inspect the wastewater system every five years is acceptable in that we were not sure if we could get any kind of "Buy In" from EPA. Costs of monitoring this SWMU are therefore significantly less than anticipated.

<u>SWMU #13</u> - Drainage Ditch

Although EPA approves Giant's proposal of "No Further Action", additional requirements have been added. Complete resampling is required biennially. This is redundant and expensive. Even though this SWMU continues to be exposed to wastewater, Giant does not believe there is a significant possibility of migration. Giant should propose a five year sampling schedule or a "Phased-In" rotation of sampling.

A survey plat will be required for this SWMU.

III. Estimation of Expenses

Not normally a consideration of the regulatory community, expense is an indicator to industry of the scope and complexity of regulatory requirements. In providing a cost estimate, we are able to judge the economic impact for our company and determine the extent to which we are willing to contest the requirements issued to us.

The following tables (Tables 3, 4, and 5) illustrate the estimated costs per SWMU (for 1994 and biennially).

Table 3

SWMU #	SAMPLES <u>REQUIRED</u>	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
4	6	8240 8270 Metals pH	1,800 2,970 2,250 60
5	21	8240 8270 Metals	6,300 10,395 4,830
6	8	BTEX	1,000
7	4	TPH Oil & Grease	200 200
8	50	8240 8270	15,000 24,750
10	18	8240 8270 Metals	5,400 8,910 4,140
11	4	8240 8270	1,200 1,980
13	12	8240 8270	3,600 5,940
	matal.	Amelutical Cost	

Total Analytical Cost 1994 Only

<u>\$119,245</u>

TABLE 4

BIENNIAL ANALYTICAL COST

<u>swmu</u>	SAMPLES <u>Required</u>	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
13	12	8240 8270	8,600 5,940

Total Biennial Analytical Cost <u>\$46,310</u>

TABLE 5

TOTAL COST OF 1994 SAMPLING (ESTIMATE)

<u>swmu</u>	ANALYTICAL COST	LABOR *	COST
1	\$ 30,750	\$12,600	\$ 43,350
2	6,020	1,100	7,120
4	7,080	3,000	10,080
5	21,525	14,000	35,525
6	1,000	13,200	14,200
7	400	2,200	2,600
8	39,750	21,400	61,160
10	18,450	22,500	40,950
11	3,180	2,000	5,180
13	9,540	2,600	12,140
	<u>\$119,245</u>	\$94,600	<u>\$213,845</u>

* Including Drilling Rig

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IV. Conclusions

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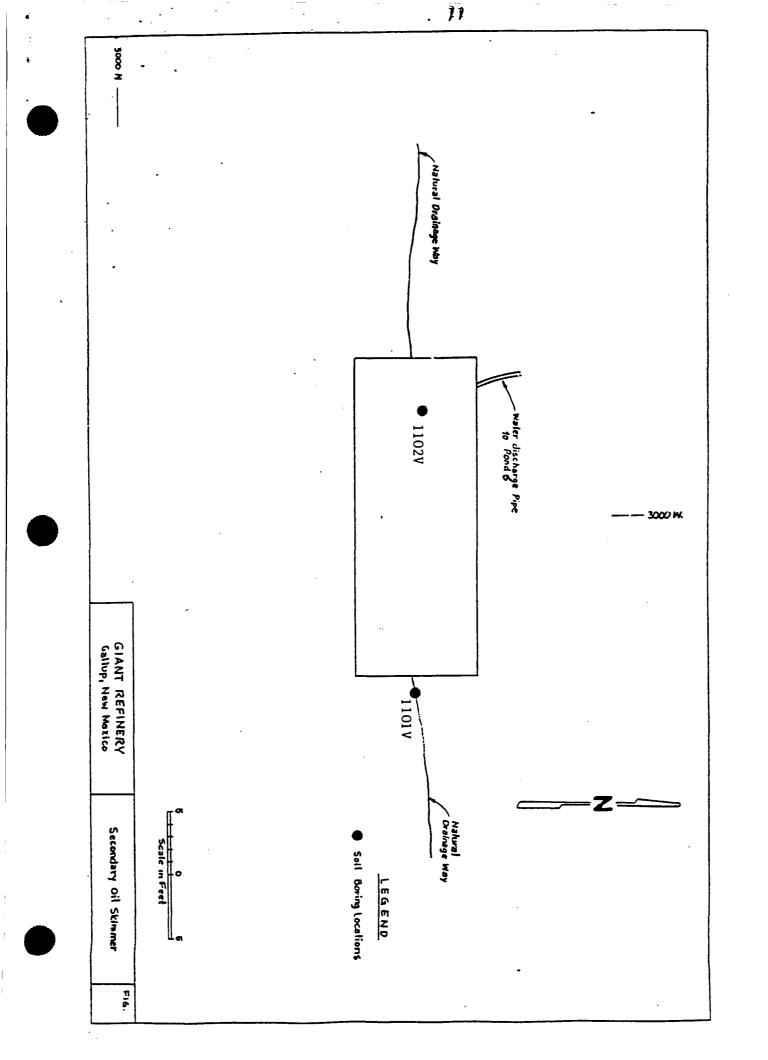
The additional requirements to fully characterize SWMUs #4, 5, 6, 7, 8, 10 and 11 are reasonable. Although expensive, full characterization of potential pollution is the thrust of an RFI project and is Giant's objective.

The biennial sampling requirements for SWMUs \$1, 2, and 13 are, in effect, a repeat of the original RFI project every two years. This is redundant, expensive and, in my opinion, unwarranted. In completing the original RFI work, it was demonstrated that SWMUs \$1, 2, and 13 pose no threat to human health or the environment. Additional sampling is probably justified, because these SWMUs continue to handle wastewater, but on a smaller scale. I recommend that we propose to do additional sampling every five years on one-third of the sample points, or something of that magnitude. This should be enough sampling to document that there is no contamination.

It is important that we act now to minimize sampling requirements in that we can reasonably assume that as other SWMUs are characterized, additional long term sampling requirements for those SWMUs will be requested. This could be an expensive task that provides minimal protection to the environment.

The actual sampling process should be fairly straight forward. Sampling protocol will be identical to past projects and can be accomplished by refinery personnel. The sampling process needs to be modified to using a drilling rig to take core samples in place of backhoe and hand auger. This change is due to the increased depths of samples, the sheer number of samples to be collected, analyzed and reported during 1994, and the requirement to use more appropriate soil boring logs. Using a drilling contractor will provide the necessary speed of sampling and the lithologic observations necessary to complete this project in a timely and efficient manner.

It is in the best interest of Giant that we develop the proper response to these new requirements. I recommend that we carefully analyze our options in this matter and schedule a meeting with the RCRA staff at EPA to discuss this issue.



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

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CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RCRA Facility Investigation (RFI) Phase III Report and RE: Voluntary Corrective Action Plan Giant Refining Co. NMD000333211

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) hereby approves your RCRA Facility Investigation Phase III Report dated November 3, 1992, with the enclosed modifications. The EPA is requiring that additional soil sampling be completed at several sites, including the Landfill Areas, the Old Burn Pit, the Secondary Skimmer, and the Fire Training Area. A supplementary report detailing the results of these sampling activities shall be submitted to the EPA by December 31, 1994.

Additionally, the EPA is approving the voluntary Corrective Action Plan for the Landfill Areas, submitted in March, 1993.

If you have any further questions or need additional information, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

Jack Dinta

Allyn M. Davis, Director Hazardous Waste Management Division (6H)

Enclosure

cc: Kathleen Sisneros, NMED

APPROVAL WITH MODIFICATIONS GIANT REFINING COMPANY RCRA FACILITY INVESTIGATION PHASE III REPORT AND THE CORRECTIVE ACTION PLAN FOR THE LANDFILL AREAS

The Environmental Protection Agency (EPA) has completed a technical review of your RCRA Facility Investigation (RFI) Phase III Report, dated October, 1992, and your voluntary Corrective Action Plan for the Landfill Area, dated February, 1993. The subject reports are hereby approved with the following comments and modifications.

GENERAL COMMENTS

SWMU 5, The Empty Container Storage Area

The EPA hereby approves the finding of No Further Action (NFA) for Solid Waste Management Unit (SWMU) number three (3), the Empty Container Storage Area. However, this approval is contingent upon the completion of a survey plat for the unit. The survey plat shall be completed in accordance with the procedures outlined in 40 CFR 264.116. Giant shall submit a copy of the survey plat to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for the Empty Container Storage Area.

SWMU 8, The Old Burn Pit

Due to the presence of elevated levels of volatile and semivolatile contaminants in soil samples from this unit, the EPA is unable to approve Giant's finding of No Further Action. All three (3) soil samples taken at the 4.5 foot interval (the deepest interval sampled) contained elevated levels of heavy molecular weight semivolatiles. Additionally, one of the three (3) samples at the 4.5 foot interval also contained elevated BTEX levels. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 11, The Secondary Oil Skimmer

Due to the presence of elevated levels of volatile and semivolatile contaminants in soil samples from this unit, the EPA is unable to approve Giant's finding of No Further Action. One of the two (2) samples taken at the 3.0 foot interval (the deepest interval sampled) contained volatile and semivolatile contaminants. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 4, The Fire Training Area

Due to the presence of elevated levels of oil and grease in soil samples from this unit, the EPA is unable to approve Giant's finding of No Further Action. Two (2) of the four (4) samples

Approval with Modifications, 1/5/93 Giant's RFI Phase III & CAP Reports taken at the 4.5 foot interval (the deepest interval sampled) contained oil and grease above 2,000 ppm. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 7, The Landfill Areas

Because soil borings completed in this unit indicate the presence of waste and metal contamination at depths up to 9.5 feet, the EPA is requiring that additional soil borings be completed at greater depths. These additional soil borings will be installed in order to:

- 1) Verify that saturated zones found in three (3) of the 12 deepest soil boring intervals are isolated and are not connected to the groundwater;
- 2) Ensure that the vertical extent of waste emplacement has been defined;
- 3) Confirm that the vertical extent of metal contamination has been delineated.

Following the completion of the additional soil borings in the Landfill Areas, Giant may proceed with the capping of the landfills as per their voluntary Corrective Action Plan.

MODIFICATIONS

All referenced sampling points correspond to the previous Note: RFI sampling points completed in May, 1992. Soil boring logs included in future report submittals shall follow the attached example.

SWMU #8, The Old Burn Pit

Giant shall complete soil borings as close as possible to sample points one (1), two (2) and three (3). Sampling intervals shall be at six (6) and (10) feet and must extend vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. Sampling procedures and analytical requirements are identical to those required in the previous RFI. The results of this sampling event shall be submitted to the EPA by December 31, 1994.

SWMU #11, The Secondary Oil Skimmer

Giant shall complete two (2) soil borings within the area occupied by the former Skimmer. All borings must be sampled at the 5-6 foot and 9-10 foot interval. Sampling shall extend vertically until no subsequent increase in contaminant levels is likely to occur. Α minimum of two (2) "clean" samples are required to delineate contamination. Sampling procedures and analytical requirements are identical to those required in the previous RFI. The results of this sampling event shall be due to EPA by December 31, 1994.

Approval with Modifications, 1/5/94 Giant's RFI Phase III & CAP Reports

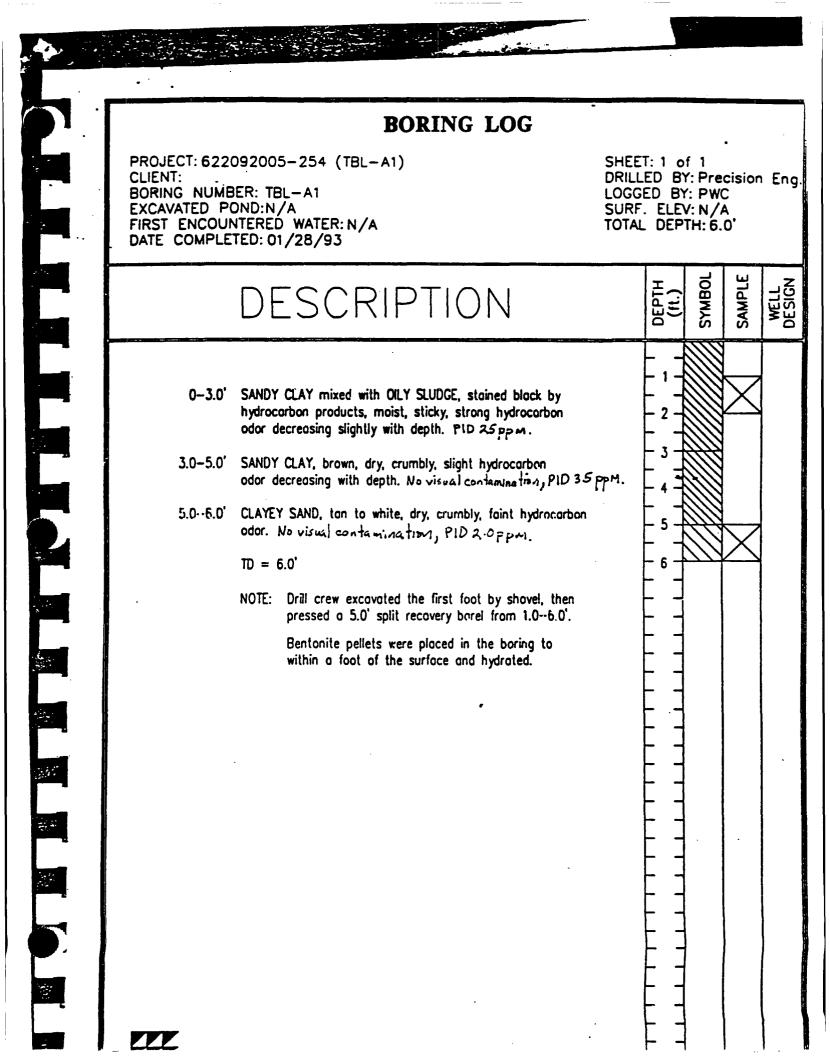
SWMU #4, The Fire Training Area

Giant shall complete <u>angled</u> soil borings as close as possible to sample points one (1) and two (2). Sampling intervals shall be at 7 and 11 feet. Sampling must extend vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to delineate contamination. Sampling procedures shall be identical to those required in the previous RFI. Analytical constituents shall include the Skinner constituents. The results of this sampling event shall be submitted to the EPA by December 31, 1994.

SWMU #7, The Landfill Areas

Giant shall take soil borings as close as possible to sample points two (2) through seven (7), and nine (9). Sampling intervals shall be at 11 feet, 16 feet and 20 feet. Sampling must extend vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to delineate contamination. Sampling procedures shall be identical to those required in the previous RFI. Giant shall analyze all samples for metals. If volatile or semivolatile contamination is encountered when sampling, then those constituents shall be analyzed also. The results of this sampling event shall be due to EPA by December 31, 1994.

Approval with Modifications, 1/5/94 Giant's RFI Phase III & CAP Reports



CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RCRA Facility Investigation (RFI) Phase III Report and Voluntary Corrective Action Plan - Giant Refining Co. -NMD000333211

Dear Mr. Stokes:

We hereby approve your Phase III RFI Report dated November 3, 1992, with the enclosed modifications. The voluntary Corrective Action Plan (CAP) for the Landfill Areas (submitted in March of 1993) is also approved.

The Phase III Supplementary Report (additional soil sampling for the Landfill Areas, the Old Burn Pit, the Secondary Skimmer and the Fire Training Area) is due to the Environmental Protection Agency (EPA) by December 31, 1994. If you have any further questions pertaining to the above mentioned items, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

Allyn M. Davis, Director Hazardous Waste Management Division

Enclosure

cc: Kathleen Sisneros, NMED

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APPROVAL OF THE RFI PHASE III REPORT, WITH MODIFICATIONS, AND APPROVAL OF THE VOLUNTARY CORRECTIVE ACTION PLAN (CAP) FOR THE LANDFILL AREAS FOR GIANT REFINING COMPANY

Below are EPA's general comments and modifications pertaining to Giant's RFI Report and the voluntary CAP for the Landfill Areas. Under general comments, there is a discussion describing the RFI status of each SWMU and the remaining RFI process/requirements for each SWMU. The modifications consist of SWMU specific monitoring or investigations required by EPA.

General Comment: EPA agrees with the finding of no further action for the SWMU #3, the Empty Container Storage Area. Even though EPA is tentatively agreeing with the no further action determination, EPA will require one administrative control for the Empty Container Storage Area. The administrative control shall consist of: a survey plat of the SWMU, according to the procedures required in 40 CFR 264.116. Once Giant has sent documentation to EPA verifying completion of the administrative control, Giant may submit a Class III permit modification to terminate the RFI/CMS process for the Empty Container Storage Area.

On SWMU #4, the Old Burn Pit, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, all 3 samples taken at the 4.5 foot interval (the deepest interval sampled) contained elevated levels of heavy molecular weight semivolatiles. One of the three samples at the 4.5 foot interval also contained elevated BTEX levels. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #11, the Secondary Oil Skimmer, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, one of the two samples taken at the 3 foot interval (the deepest interval sampled) contained volatiles and semivolatiles. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #7; the Fire Training Area, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, 2 of the 4 samples taken at the 4.5 foot interval (the deepest interval sampled) contained oil and grease above 2000 ppm (detection limit is <10 ppm). Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #5, the Landfill Areas, EPA believes that additional deeper borings are needed to: 1) verify that saturated zones found in 3 of the 12 deepest soil boring intervals are isolated and are not connected to the groundwater; 2) ensure that the vertical delineation of waste emplacement has been identified (soil boring logs indicate waste at the 8-9'zone, the deepest samples were taken at 9.5'); and, 3) ensure that the vertical extent of metal contamination has been identified (some of 9.5' samples had elevated metal levels. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

After Giant has completed the additional sampling requirements for the Landfill Areas, they then may proceed with the capping of the landfills under the voluntary Corrective Action Plan.

Modifications

SWMU #4, the Old Burn Pit: Giant shall take soil borings as close as possible to the following sample points (numbers are from previous RFI sampling points, done May of 1992): number's 1, 2, and 3. Sampling intervals shall be at 6 and 10 feet. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by December 31, 1994.

SWMU #11, the Secondary Oil Skimmer: Giant shall take 2 soil borings within the area occupied by the former Skimmer. All borings must be sampled at the 5-6 foot and 9-10 foot interval. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. The results of this sampling event shall be due to EPA by December 31, 1994.

SWMU #7, the Fire Training Area: Giant shall take soil borings as close as possible to sample points number 1 and 2 (numbers are from previous RFI sampling points, done in May of 1992). Sampling intervals shall be at 7' and at 11'. Sampling procedures shall be identical to those required in the previous RFI, except, that all soil borings shall be angled. Constituents to be analyzed shall include the Skinner constituents. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by December 31, 1994.

SWMU #5, the Landfill Areas: Giant shall take soil borings as close as possible to the following sample points (numbers are from previous RFI sampling points, done in May of 1992): number's 2, 3, 4, 5, 6, 7, and 9. Sampling intervals shall be at 11', 16' and 20'. Sampling procedures shall be identical to those required in the previous RFI. Giant shall analyzed the samples for metals. If volatile or semivolatile contamination is encountered when sampling, then those constituents shall be analyzed also. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by December 31, 1994.

Soil Boring Logs: EPA has included an example of a soil boring log which they would like Giant to use in all future borings.



Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

August 11, 1992

Barbara Driscoll U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: Quarterly Progress Report

Dear Mr. Driscoll:

Giant Refining Company - Ciniza (GRC) is submitting this quarterly progress report as required by the May 31, 1990 RFI Workplan approval letter and HSWA Permit Condition C.4., Page 11.

GRC finished soil sampling of SWMU's #3, 4, 5, 7, and 11 on May 15, 1992. All samples were sent to Westech Laboratories for analysis. Hard copy of analytical results has been received and tabulated and is currently having statistical analysis done by Mr. Mark Wilson of the University of New Mexico.

The inspection of the remaining process wastewater system (that part not inspected in 1990) is being organized. Please refer to the attached drawings for lines that may be inspected. The lines were identified using the drawings included in the approved RFI Workplan and by using a corrected drawing from a hydroblasting project completed in 1988. Only lines marked in blue may be inspected and will represent what GRC believes will reasonably demonstrate the integrity of the process wastewater system. Some lines may not be inspected due to safety or process considerations.

This inspection is tentatively scheduled to take place in late August, 1992.

If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely,

John Stokes Refinery Manager Ciniza Refinery

JJS/TLS:sp

cc: Kim Bullerdick - Corporate Counsel Giant Industries Arizona, Inc.

DATA MANAGEMENT

Sample Location:	Sample Date: <u>5-7-92</u>
Sample Type:	
Team Leader: SHELTON	
Sample Personnel: <u>MBARNEY</u> TROGER	-5
Sampling Method:	
Sample No. <u>RFE//C/V0.0</u> Sample Time/Description: <u>Z:07</u>	PID-Ø
Sample No. <u><i>RFI</i>//0/VJ</u> O Sample Time/Description: <u>2:4</u>	5 PM WETSOIL PID- 4,2
Sample No. <u>LFF/10/03</u> Sample Time/Description: _ <u>2</u> 74	ISPM WETSOIL PID \$2
Sample No Sample Time/Description:	/
Sample No Sample Time/Description:	
Surface Terrain: WET ACEA IN BOTTOM O DRAINAGE DITCH	FORIGINAL
Weather Conditions: <u>CircUAY</u> , WSW @ 5	mpH , 65°F
General Field Observations:	
Boring Lithology: <u>0-1' MIXEN CLAY & SA</u> BLACK LAYER, SMELLS LIKE SENAG	ND, 1' to 3.5' E. VERY WET.

DATA MANAGEMENT

Sample Location: <u>Swnv #11</u>	Sample Date: <u>5-7-92</u>
Sample Type:	-
Team Leader:	-
Sample Personnel: <u>MBARNEY</u> , TROGEN	es
· · ·	
Sampling Method: <u>AVGER</u>	
Sample No. <u>RFF//02 V0</u> .0Sample Time/Description:	<u>2:10 PM NOUSTSOIL</u> PID-Ø
Sample No <u>LFI/102V1</u> 0Sample Time/Description: _	
Sample No. <u><i>EFI</i>/102 E3</u> OSample Time/Description:	2:35PM WATER
Sample No Sample Time/Description: _	
Sample No Sample Time/Description: _	
Surface Terrain: <u>RENEATH DRIGINAL</u>	SKIMMER - VERYMEIST
Weather Conditions: <u>CLOUNY</u> , WSW	@ 5mpH, 65°F
General Field Observations:	
Provide Annual A	
Boring Lithology: <u>0-41</u> <u>RED /GRAY</u> <u>SOME WHITE SPECKLING</u>	

Original Date 05/31/89 Revision Date 12/15/89

TABLE 2

Field Equipment Checklist Soil and Sludge Sampling

ITEM

REMARKS Calibrated

PID Meter Site Specific SWMU Work Plan Generic Sampling Plan Site Map With Sample Locations Sample Bottles Ice Chests Trip Blanks Methanol PROPANOL Deionized Water Squeeze Bottles Personal Protective Equipment Chain of Custody and Sample Record Forms Plastic Bags (To provide clean surfaces) Disposable Gloves Paper Towels Tape (For labels and dispenser) Sharpie, Pens, Pencils Sharpie, Pens, I
Blue Ice or Ice Zip-Lock Bags, 1 Gallon

5-7-92 Jols

PHASE III, RFI 1992 GIANT REFINING CINIZA

SOLID WASTE MANAGEMENT UNIT #11-"Old Skimmer"

8260 - Volatile Organics

SAMPLE POINT		01	01	01	02	02	02
SAMPLE DEPTH (feet)		V0.0'	V3.0'	D3.0'	V0.0'	V3.0'	E3.0'
PARAMETER	UNITS	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	540	270	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	15000	19000	ND	ND	ND
Methyl Ethyl Ketone	ug/kg	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	830	280	ND	ND	ND
Toluene	ug/kg	ND	100	130	ND	ND	ND
Chloroethylviyl Ether	ug/kg	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ug/kg	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/kg	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/kg	ND	98000	74Ŭ	70	ND	ND
1,2-Dibromoethane (EDB)	ug/kg	ND	ND	ND	ŃD	ND	ND

PHASE III, RFI 1992 GIANT REFINING CINIZA

SOLID WASTE MANAGEMENT UNIT #11-"Old Skimmer"

8270 - Semi-Volatile Organics

SAMPLE POINT SAMPLE DEPTH (feet)		01 V0.0'	01 V3.0'	01 D3.0'	02 V0.0'	02 V3.04
PARAMETER	UNITS	RESULT	RESULT	RESULT	RESULT	RESULI
Phenol	ug/kg	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2-Methylphenol	ug/kg	ND	ND	ND	ND	ND
3-Methylphenol	ug/kg	ND	ND	ND	ND	ND
4-Methylphenol	ug/kg	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND
Naphthalene	ug/kg	ND	3500	2500	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	1900	1500	ND	ND
Diethyl phthalate	ug/kg	ND	ND	1700	ND.	ND
Phenanthrene	ug/kg	ND	9200	5400	ND	ND
Anthracene	ug/kg	ND	520	ND	ND	ND
Di-n-butyl Phthalate	ug/kg	530	1300	1300	97 0	ND
Flouranthene	ug/kg	ND	630	ND	ND	SÐ
Pyrene	ug/kg	ND	1500	1200	260	ND
Butyl benzyl phthalate	ug/kg	ND	NÐ	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	4600	1700	ND	ND
Bis(2-ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND
Senzo(b)flouranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(k)flouranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	\$50	ND	ND	ND
Dibenzo(a,h)anthracene	ug/kg	ND	ND	ND	GR	ND
Dibenzo(a,j)acridine	ug/kg	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)anthracene	ug/kg	ND	ND	ND	ND	ND
Indene	ug/kg	ND	ND	ND	ND	ND
Methylchrysene	ug/kg	ND	ND	ND	ND	ND
Pyridine	ug/kg	ND	ND	ND	ND	ND
Quinoline	ug/kg	ND	ND	ND	ND	ND
Benzenethiol	ug/kg	ND	ND	ND	ND	NÐ
1-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ЯÐ

RFI WORKPLAN

PHASE III 1992

May 4, 1992

Training 8:00 - 4:15 Load Equipment SWMU Site Tour

<u>May 5, 1992</u>

SWMU #4

Burn Pit 9 Samples

<u>May 6, 1992</u>

SWMU #3 Empty Container Storage 12 Samples

<u>May 7, 1992</u>

SWMU #7	Fire Training Area	12 Samples
SWMU #11	Secondary Oil Skimmer	4 Samples

May 8, 1992

SWMU #5	Land Fill Area	48 Samples
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May 11, 1992

Continue SWMU #5 48 Samples

May 12, 1992

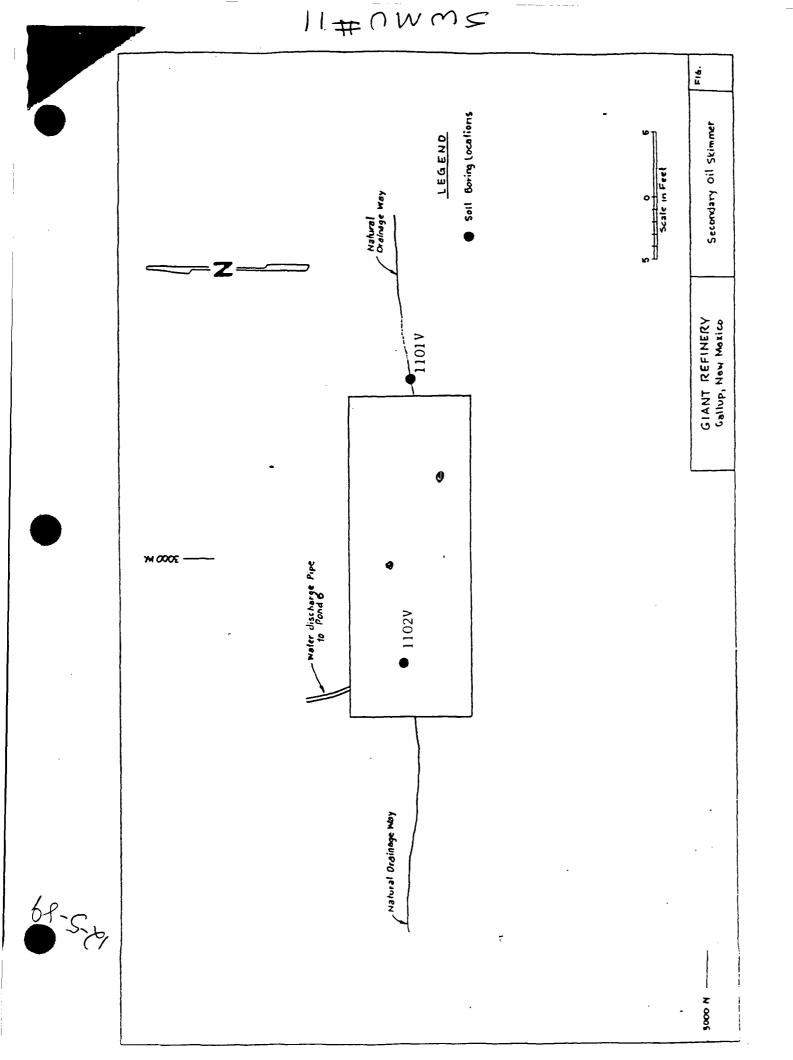
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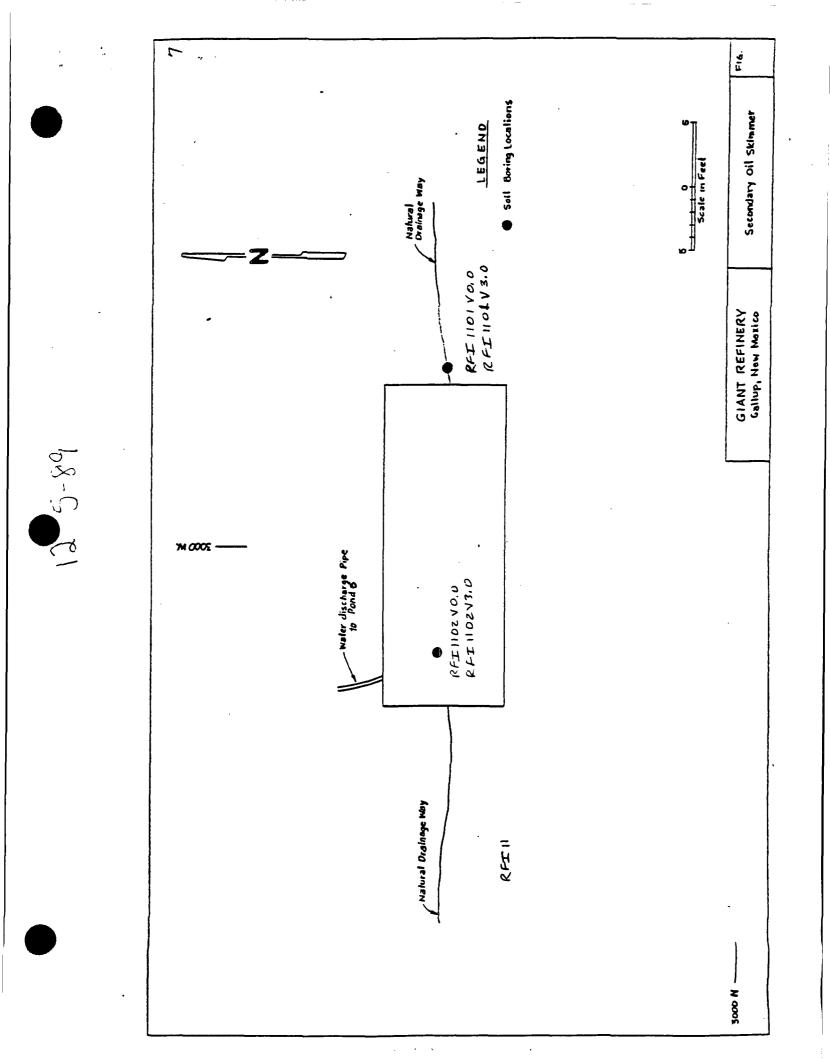
May 13, 1992

Begin set-up for sewer line inspection Expect one week to complete

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Sept. 14, 1989

. Applied Earth Sciences

RELEASE VERIFICATION

SWMU:

Secondary Oil Skimmer and Associated Drainage

LOCATION: Figure 1, No. 39

Ditch

Release verification was accomplished by a complete review of the facility records to determine if a release has occurred. In addition, plant personnel were interviewed and the area was inspected to check for a release. No oil has been found in the Drainage Ditch. At the Secondary Oil skimmer no known release has occurred.

APPLIED EARTH SCIENCES

UNIT AREA CHARACTERISTICS

TYPE OF UNIT: Secondary Oil Skimmer and associated Drainage Ditch

LOCATION OF UNIT: Figure 1, No. 39

DESIGN FEATURES:

A 6 x 12 foot steel skimmer unit was installed in 1968 to process storm water runoff.

OPERATING PRACTICES (PAST AND PRESENT):

Storm water runoff from a ditch which drains the western side of the process area is collected. Water is routed to Pond #6, while any oil which may be present in the runoff is stored. Periodically, sediment and any collected oil is transported to the land treatment areas.

PERIOD OF OPERATION: 1968 - Present

AGE OF UNIT:

>20 years

GENERAL PHYSICAL CONDITIONS:

Inadequate for high storm flow rates.

METHOD USED TO CLOSE THE UNIT:

Operational

APPLIED EARTH SCIENCES

WASTE CHARACTERIZATION

TYPE OF UNIT: Secondary Oil Skimmer and associated Drainage Ditch

LOCATION OF UNIT: Figure 1, No. 39

TYPE OF WASTE PLACED IN UNIT:

Oily waste that may be present in storm water runoff from the western portion of the process area.

APPROXIMATE QUANTITY MANAGED:

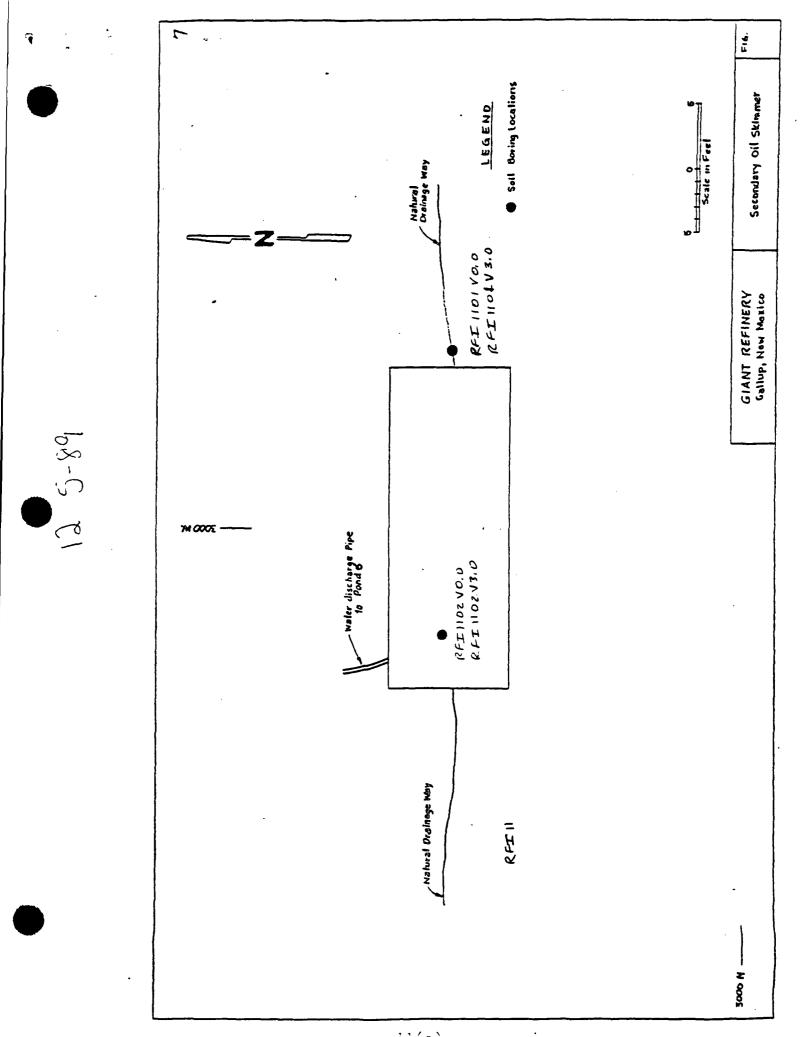
Unknown

PHYSICAL AND CHEMICAL CHARACTERISTICS:

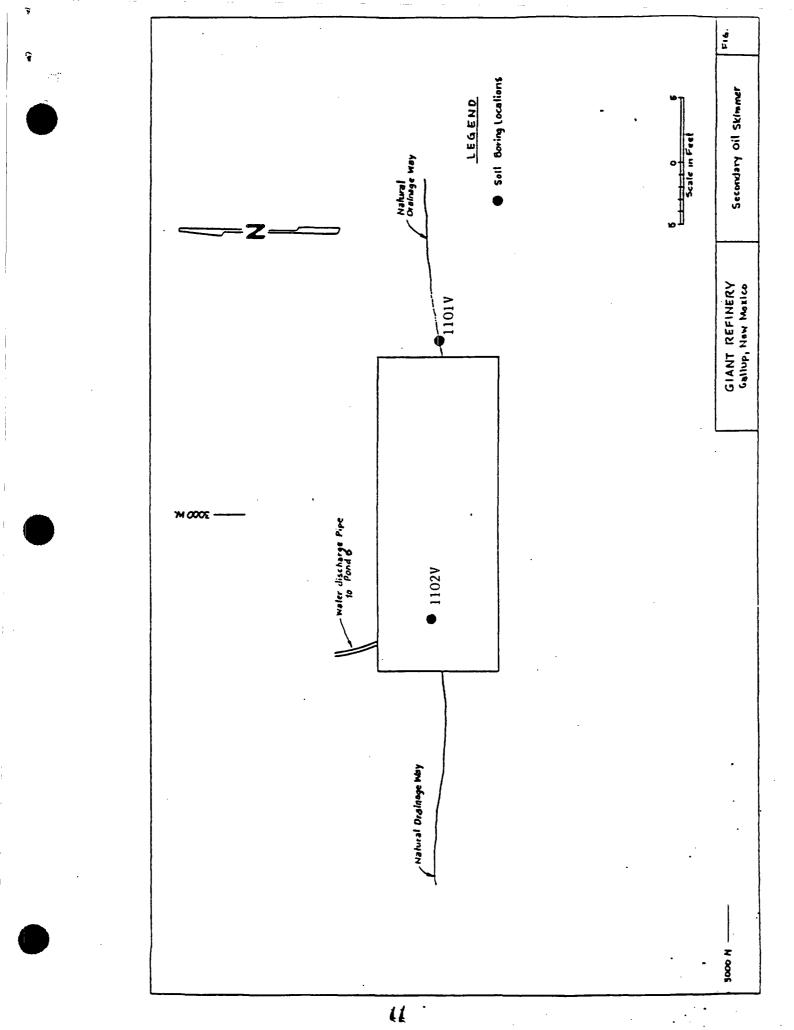
Oils adsorbed onto sediment

MIGRATION AND DISPERSAL CHARACTERISTICS:

Sediment transport during storm events.



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PHASE III, RFI 1992 GIANT REFINING CINIZA

SOLID WASTE MANAGEMENT UNIT #11-*01d Skimmer*

8260 - Volatile Organics

SAMPLE POINT		01	01	01	Û2	02	02
SAMPLE DEPTH (feet)		V0.0'	¥3.0'	D3.0'	۷Ú.Ŭ'	V3.0'	E3.0'
PARAMETER	UNITS	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
1,2-Dichloroethane	ug/kg	ND	DK	ND	ND	ND	ND
Benzene	ug/kg	ND	540	270	ND	ND	SÐ
Chlorobenzene	ug/kg	ND	NÐ	ND	ND	ND	ND
Ethylbenzene	ug/kg	DK	15000	19000	ND	ND	ND
Methyl Ethyl Ketone	ug/kg	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	dr	830	280	ND	ND	ND
Toluene	ug/kg	ND	100	130	ND	ND	ЯD
Chloroethylviyl Ether	ug/kg	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ug/kg	ND	ND	NO	ND	NÐ	ND
(,4-Dioxane	ug/kg	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/kg	ND	98000	74Ŭ	70	ND	ND.
1,2-Dibromoethane (EDS)	ug/kg	ND	ND	ND	ND	ND	ND



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PHASE III, RFI 1992 GIANT REFINING CINIZA

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SOLID WASTE MANAGEMENT UNIT #11-"Old Skimmer"

8270 - Semi-Volatile Organics

SAMPLE POINT SAMPLE DEPTH (feet)		01 VO.O'	01 V3.0'	01 D3.0'	02 V0.07	02 V3.04
PARAMETER	UNITS	RESULT	RESULT	RESULT	RESULT	RESULT
Phenol	ug/kg	ND	ND	ND	ND	SD
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	NÐ	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	5D
1,2-Dichlorobenzene	ug/kg	ND	DK	ND	ND	ND
2-Methylphenol	ug/kg	ND	ND	ND	ND	ND
3-Methylphenol	ug/kg	ND	ND	ND	ND	ND
4-Methylphenol	ug/kg	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND
Naphthalene	ug/kg	ND	3500	2500	ND	ND
Dimethyl phthalate	ug/kg	ĦD	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	NÐ	ND	ND	ND
4-Nitrophenol	ug/kg	ND	1900	1500	ND	ND
Diethyl phthalate	ug/kg	ND	ND	1700	ND	ND
Phenanthrene	ug/kg	ND	9200	5400	ND	ND
Anthracene	ug/kg	DM	520	ND	ND	ND
Di-n-butyl Phthalate	ug/kg	530	1300	1300	970	ND
louranthene	ug/kg	ND	630	ND	ND	XÐ
Pyrene	ug/kg	ND	1500	1200	260	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND
lenzo(a)anthracene	ug/kg	ND	4600	1700	ND	ND
is(2-ethylhexyl) phthalate	ug/kg	ND	DK	ND	ND	ND
hrysene	ug/kg	ND	SC	ND	ND	ND
i-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND
lenzo(b)flouranthene	ug/kg	ND	ND	ND	ND	ND
enzo(k)flouranthene	ug/kg	ND	DK	ND	ND	ND -
enzo(a)pyrene	ug/kg	ND	\$50	ND	ND	NÐ
ibenzo(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND
ibenzo(a,j)acridine	ug/kg	ND	8D	ND	ND	ND
,12-Dimethylbenz(a)anthracene	ug/kg	NC:	ND	ND	ND	ND
ndene	ug/kg	ND	ND	ND	ND	8D
ethylchrysene	ug/kg	ND	ND	ND	NO	NÐ.
yridine	ug/kg	ND	NÐ	ND	ND	ND
vinoline	ug/kg	30	ND	ND	ND	30
enzenethiol	ug/kg	ND	ND	ND	ND	NÐ
-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ND

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SWMU # 3 - EMPTY CONTAINER STORAGE AREA PARAMETERS - 3240 PRIORITY POLLUTANTS IZ SAMPLES

SWMU # 4- BURN PIT

PARAMETERS - pH SILINNER LIST ORGANICS BACK GROUND METALS

9 SAMPLES

SWMU #5- FOUR LAND FILLS PARAMETERS - 8240 PRIORITY POLLUTANTS BACKGROUND METALS PH

48 SAMPLES

SWMU #7 - FIRE TRAINING AREA PARAMETERS - TPH OIL V GREASE

12 SAMPLES

SWMV # 11 - SECONDARY OIL SKIMMER & ASSC. DITCH PARAMETERS - SKINNER LIST (CONSTITUENTS) 4 SAMPLES

S5 INDIVIDUAL SAMPLES

DATA MANAGEMENT

2

Sample Location: <u>SWMU #11</u> Sample Date: <u>5-7-92</u>
Sample Type:
Team Leader: SHELTON
Sample Personnel: <u>MBARNEY TROGERS</u>
Sampling Method:
Sample No. <u>RFF//C/VA</u> OSample Time/Description: <u>Z:07</u> <u>WET Soil</u> <u>PID - Ø</u>
Sample No. <u><i>RFE</i>//0/V</u> , O Sample Time/Description: <u>2:45 Pm</u> <u>WET SOIL</u> <u>PID - 4.2</u>
Sample No. <u>LET 110103</u> , Sample Time/Description: <u>Z':45-PM</u> WET SOIL PID & Z
Sample No Sample Time/Description:
Sample No Sample Time/Description:
Surface Terrain: WET AREA IN BOTTOM OF ORIGINAL DRAINAGE DITCH
Weather Conditions: <u>Linuar</u> , wsw Comph, 65°F
General Field Observations:
· · · · · · · · · · · · · · · · · · ·
Boring Lithology: <u>0-1' MIXEN CLAY & SAND, 1' +0 3.5'</u> BLACK LAYER, SMELLS LIKE SENAGE, VERY WET.

DATA MANAGEMENT

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Sample Location: <u>Swnv #11</u> Sample	Date: <u>5-7-92</u>
Sample Type:	
Team Leader:SHEUTON	
Sample Personnel: <u>MBARNEY, TROGERS</u>	
·	
•	
Sampling Method:	
Sample No. <u>RFF//02 VO</u> . OSample Time/Description: <u>2:10 PM</u>	10-00 - 001L
- Sample No <u>LFT//02VI</u> JSample Time/Description: <u>2!25PN</u> P/	
Sample No. <u><i>FFII02E3</i></u> OSample Time/Description: <u>2</u> ;35 PM	WATER
Sample No Sample Time/Description:	
Sample No Sample Time/Description:	
Surface Terrain: <u>RENEATH DRIGINAL SKIMM</u>	ER - VERYMELS
Weather Conditions: <u>CLOUNY</u> , WSW @ 5 mp	H, 650F
General Field Observations:	
	······
Boring Lithology: <u>0-41</u> <u>RED</u> <u>GRAY CLAY</u> <u>SOME WHITE SPECKLING</u>	MIX WITH

Revision Date 12/15/89

TABLE 2

Field Equipment Checklist Soil and Sludge Sampling

ITEM

REMARKS Calibrated

PID Meter Site Specific SWMU Work Plan Generic Sampling Plan Site Map With Sample Locations Sample Bottles Ice Chests Trip Blanks Methanol PROPANOL Deionized Water Squeeze Bottles Personal Protective Equipment Chain of Custody and Sample Record Forms Plastic Bags (To provide clean surfaces) Disposable Gloves Paper Towels Tape (For labels and dispenser) Sharpie, Pens, Pencils Blue Ice or Ice Zip-Lock Bags, 1 Gallon

5-7-92 225

SWMU No. 12, Contact Wastewater Collection System

2 The contact wastewater collection system (CWWCS) was identified as a solid waste management unit 3 (SWMU) and designated as SWMU No. 12 during a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) conducted at the Giant Refining Company – Ciniza Refinery (Ciniza) in the 4 early 1990s. A Vactor system was used to clean the sewer boxes and underground lines. Once cleaned, 5 the lines were inspected by inserting video cameras inside the pipe and video taping the inside of the 6 lines. The inspection showed evidence of pitting and corrosion throughout the CWWCS; however, it did 7 not show any evidence of leaks or exfiltration of hydrocarbons into the surrounding soil. Ciniza 8 recommended no further action (NFA) for the CWWCS in the Phase I RFI report. The U.S. 9 10 Environmental Protection Agency (EPA) rejected the NFA recommendation and required inspection of 11 the CWWCS every five years, beginning in calendar year 1996. The inspection was to be identical to the one performed in the RFI unless better technologies are proposed by Ciniza and approved by EPA. 12

The CWWCS is also regulated by the New Mexico Oil Conservation Division (OCD), pursuant to the Clean Water Act (G10-32-Part A). Because the CWWCS is a closed loop system connected to a permitted unit, it is exempt from the Hazardous and Solid Waste Amendments. Correspondence from the New Mexico Environment Department (NMED) to Ciniza confirms that SWMU No. 12 falls under the jurisdiction of OCD and is regulated under the facility OCD Discharge Plan (GW-032).

18 12.1 Site Description and Operational History

SWMU No. 12, Contact Wastewater Collection System (Figure 12-1) is a component of the refinery wastewater treatment system. It consists of a network of underground piping and catch basins that are located beneath various refinery processing units and are used to collect process wastewater. This wastewater flows by gravity through the system to the API oil/water separator. Photographs of the CWWCS, taken during the site inspection performed by Practical Environmental Services, Inc. (PES) in 1998, are provided in the SWMU No. 12 Summary Report.

The CWWCS was installed in 1957 when the refinery was constructed and has operated continuously since that time.

27 12.2 Land Use

1

The stormwater collection system within the refinery was replaced in 1997. The land will continue under
the ownership of Ciniza.

- 12.3 Investigation Activities 1
- No sampling and analytical activities were conducted at this site. 2
- 3 12.4 Site Conceptual Model
- There is no impact on the environmental fate of the land. 4
- 5 12.5 Site Assessments
- Cook Construction Company conducted a comprehensive video surveillance of the CWWCS during 6
- 7 1992. All underground piping and catch basins were examined. No indications of leakage were detected.
- As a result of the investigation, no further action was recommended for this SWMU. Results and 8 9 recommendations were reported to the EPA in 1992. In 1994, the EPA requested that inspections be 10 performed every five years.
- During the week of March 23, 1998, PES performed an on-site inspection. Observations are as follows: 11
 - The piping component of the CWWCS is located below grade and cannot be directly viewed. A representative number of catch basins were opened and inspected. No signs of waste accumulation, deterioration, or leakage were evident.
- Local soil in the vicinity of the contact wastewater system is bentonitic clays and silts. 15 Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 16 10^{-7} cm/sec.
- 18 PES did not perform any sampling or analysis during this site inspection. The inspection was limited only 19 to visual observations.
- 20 12.6 NFA Proposal
- 21 Ciniza is proposing that no further action is required for SWMU No. 12 based on the following criteria:
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- ٠ The SWMU is characterized and managed under another authority, OCD, which adequately addresses RCRA corrective action. (NFA Criterion 4)
- The SWMU has been characterized in accordance with current applicable state regulations and the available data indicate that contaminants pose an acceptable level of risk under current and projected future land use. (NFA Criterion 5).
- 27 The rationale is based on the following:

- Routine surveillance of the wastewater collection system is conducted as a condition of OCD Discharge Plan GW-032.
- In 1992, a video camera inspection of the underground piping and catch basins was conducted. No indications of leakage were detected.

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SWMU No. 12 Contact Wastewater Collection System

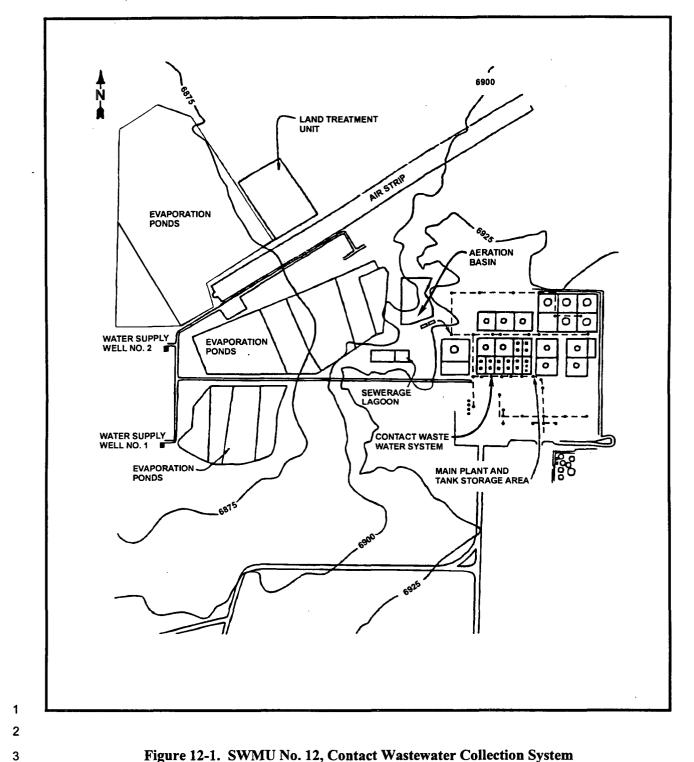
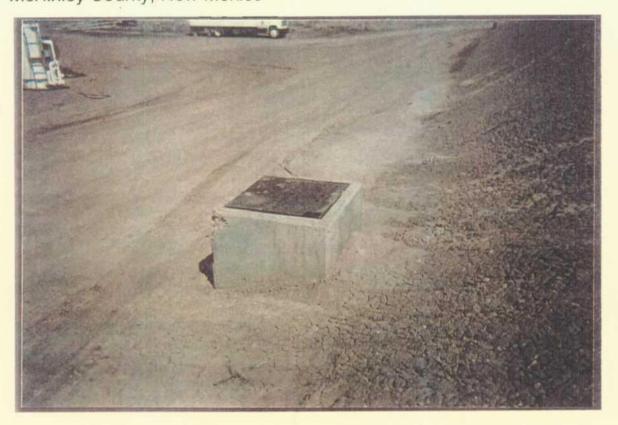


Figure 12-1. SWMU No. 12, Contact Wastewater Collection System

SWMU #12 Summary Report

Contact Wastewater Collection System Ciniza Refinery McKinley County, New Mexico



Prepared for:

Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Prepared by:

Practical Environmental Services, Inc. 1444 Wazee Street, Suite 225 Denver, Colorado 80202

Job No. 98-205-03

April 23, 1998

1.0 EXECUTIVE SUMMARY

Practical Environmental Services, Inc. (PES) has been retained by Giant–Ciniza Refinery (Ciniza) to perform a visual inspection, data evaluation, and status assessment for the contact wastewater collection system located within the Ciniza Refinery, in McKinley County, New Mexico.

The contact wastewater collection system was identified as a Solid Waste Management Unit (SWMU), and designated as SWMU #12, during a RCRA Facility Investigation (RFI) conducted at the refinery in the early 1990's. This investigation included a visual inspection of underground piping and catch basins, determined that no leakage had occurred, and recommended no further action (NFA).

In 1994, the Environmental Protection Agency Region VI Office (EPA) requested that inspections be performed every five years.

This summary report for SWMU #12 has been prepared in conjunction with submittal of a Resource Conservation and Recovery Act (RCRA) Part B permit application covering post closure care of the Ciniza Refinery Land Treatment Unit. This assessment is summarized as follows.

- ⇒ In 1992, a video camera inspection of the underground piping and catch basins was conducted. No indications of leakage were detected.
- ⇒ The stormwater collection system within the refinery was replaced in 1997. The process wastewater collection system is scheduled to be replaced during 1999.
- ⇒ Routine surveillance of the wastewater collection system is mandated as a condition of New Mexico Oil Conservation Division (NMOCD) Discharge Plan GW-032.

2.0 BACKGROUND

During 1987, a RCRA Facility Assessment was conducted at the Ciniza Refinery. This assessment identified various "units of concern" and recommended further evaluation. A RCRA Facility Investigation was subsequently conducted and the contact wastewater system was identified as SWMU #12.

Cook Construction Company conducted a comprehensive video surveillance of the contact wastewater collection system during 1992. All underground piping and catch basins were examined. No indications of leakage were detected.

As a result of the investigation, no further action was recommended for this SWMU. Results and recommendations were reported to the EPA in 1992. In 1994, the EPA requested that inspections be performed every five years.

3.0 SITE LOCATION AND DESCRIPTION

SWMU #12 is located within the Ciniza Refinery's property boundary. This refinery is located on the north side of Interstate 40, approximately 17 miles east of Gallup, New Mexico. Within the refinery, SWMU #12 is located predominantly within the process unit area and includes a main trunk line running to the API Separator. See Figure No. 1 for location details.

The contact wastewater collection system is a component of the refinery wastewater treatment system. It consists of a network of underground piping and catch basins which are located beneath various refinery processing units and used to collect process wastewater. This wastewater flows by gravity through the system and to the API separator.

This system was installed in 1957 when the refinery was constructed and has operated continuously since that time.

4.0 SITE INSPECTION

During the week of March 23, 1998, an on-site inspection was performed. Observations are noted as follows:

- The piping component of the contact wastewater collection system is located below grade and cannot be directly viewed. A representative number of catch basins were opened and inspected. No signs of waste accumulation, deterioration, or leakage were evident.
- Local soil in the vicinity of the contact wastewater system presents as bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.

5.0 DATA REVIEW

Soil sampling and analysis was not performed at this site.

6.0 ASSESSMENT

Based on the site inspection and data review, the railroad rack lagoon area is assessed as follows.

• The contact wastewater collection system is scheduled for replacement in 1999. At that time, subsurface soil will be exposed for inspection. If contaminated soil is detected, it should excavated and removed prior to installation of the new piping and catch basins.

7.0 PROFESSIONAL ENGINEER'S CERTIFICATION

This summary report for SWMU #12 has been prepared under the direct supervision and control of a Registered Professional Engineer.

Client: Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Job No.: 98-205-03

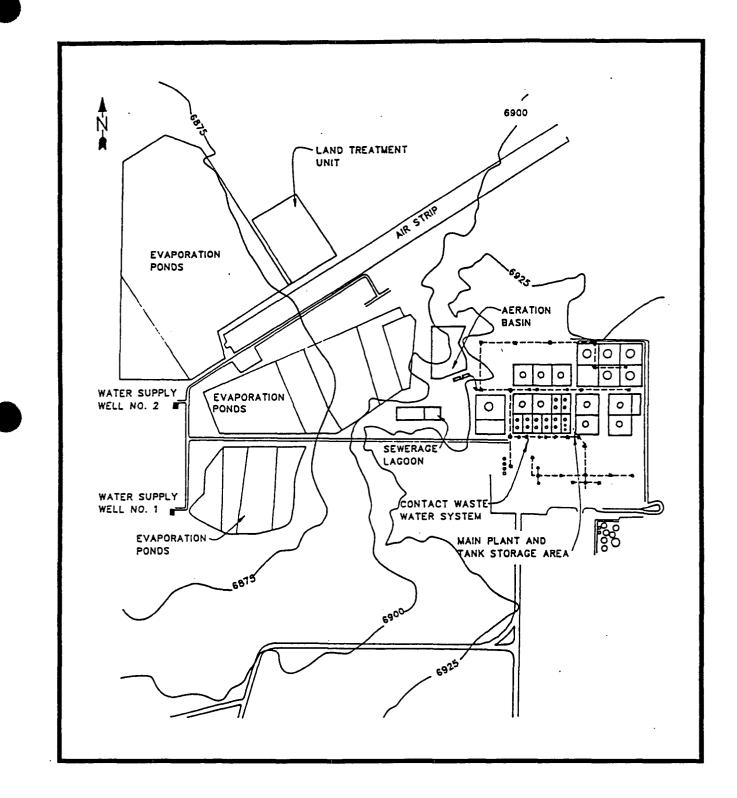
Date: April 23, 1998

Prepared and Certified by:

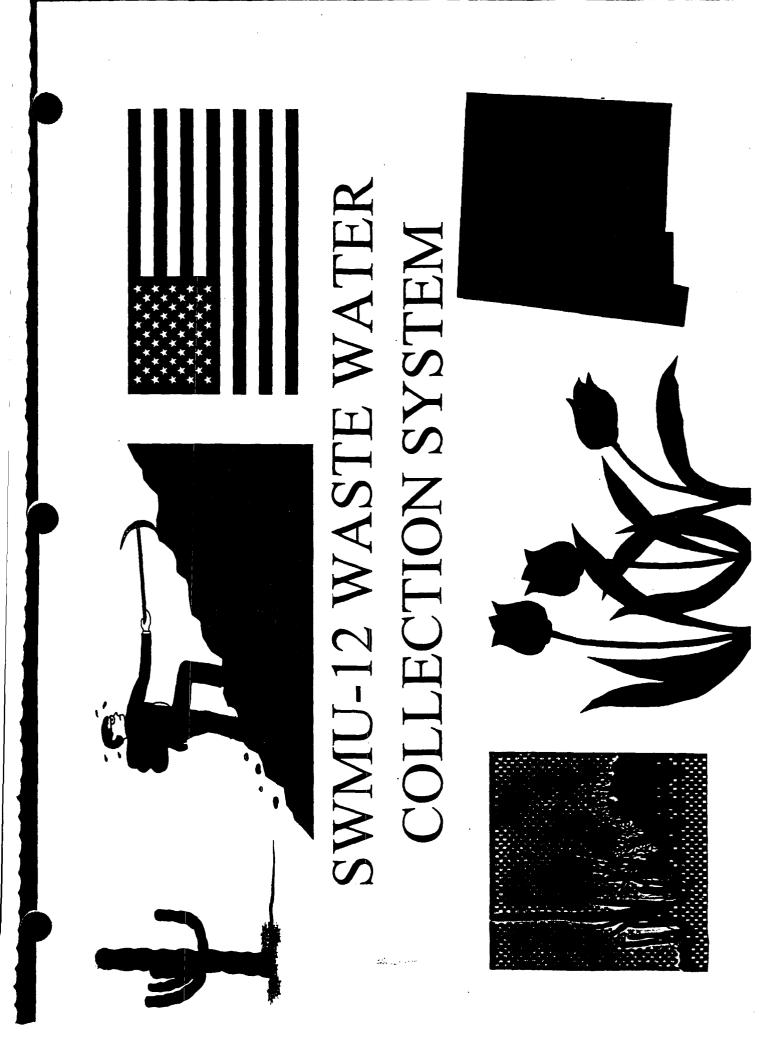
Thomas D. Atwood, P.E. Colorado Registration No. 22866

SWMU #12 Summary Report

Figure No. 1 Contact Wastewater Collection System



SWMU #12 Summary Report



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UNITED	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 6 1445 ROSS AVENUE DALLAS, TELAS 75202-2733 MULTIMEDIA PERMITTING AND PLANNING DIVISION NEW MEXICO AND FEDERAL FACILITIES SECTION							
	PLEASE PRINT IN BLACK INE ONLY							
TO: Ed Horst, Environ	amental Manager - Ciant Refining Com	pany, Ciniza						
MACHINE NUMBER: 505.722.0210	VERINCATION NUMBER 505.722.8227	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩						
FROM: James A. Harris, Jr., RCRA Facili	ty Manager/Ceologist							
PHONE: (214) 665-8302	Mail Coder 6PD-N							
OFFICE: New Maxice/Federal Facilities S	OFFICE: New Matthew/Federal Facilities Section PAGES, INCLUDING COVER SHERT							
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EQUIPMENT:	FACSIMILE NUMBER:	VERIFICATION NUMBER:						
PANAFAX UF-766	(214) 665-6762	(214) 645-6769						
COMMENTS Ed. Here's what I have been using to track Giunt, Cintra Thanx, JATVES	's corrective acting progress. Plause review and he	's discuss it next week. Tiere a good one.						

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pered	11:		5:	4:	3:	13:	12:	••	1:
Prepered by: James A. Henris, Jr. Volkyk as at March 13, V	Secondary Oil Skimmer (11)	Fire Training Area (4)	Landfill Àreas (7)	Old Burn Pit (8)	Empty Container Storage Area (5)	The Drainage Ditch between APIs Evaporation Ponds and the Neutralization Tank Evaporation Ponds (14)	Contact Waste Water Collection System (CWWCS)	The Evaporation Ponds (2)	The Aeration Basin (1)
1944	3	2	3	3	Phase III	2	-	3	Phase II
	Under VCA	Under VCA	a Voluntary Corrective Action (VCA) Plan to cap the "Landfill Areas" was submitted in March 1993.			soil and groundwater sampling every five years	Inspection every 5 years beginning 1996	*	soil and groundwater sampling every five years
	discolored soil is the natural color; there is no hydrocarbon staining or odors detected; reference to "black fill" sand is actually "back fill"		EPA approved the VCA Plan on January 5, 1994 but required that additional soil borings be completed prior to Giant proceeding with the capping activities		Ξ	Survey Plat submitted; closure certification must be submitted prior to initiating Class III Permit Mod process		Burvey and closure certification must be submitted prior to initiating Class III Permit Mod process	RFI PHII RPT APP 1/94 w/modifications; Survey Plat submitted; closure certification must be submitted prior to initiating Class III Permit Mod process

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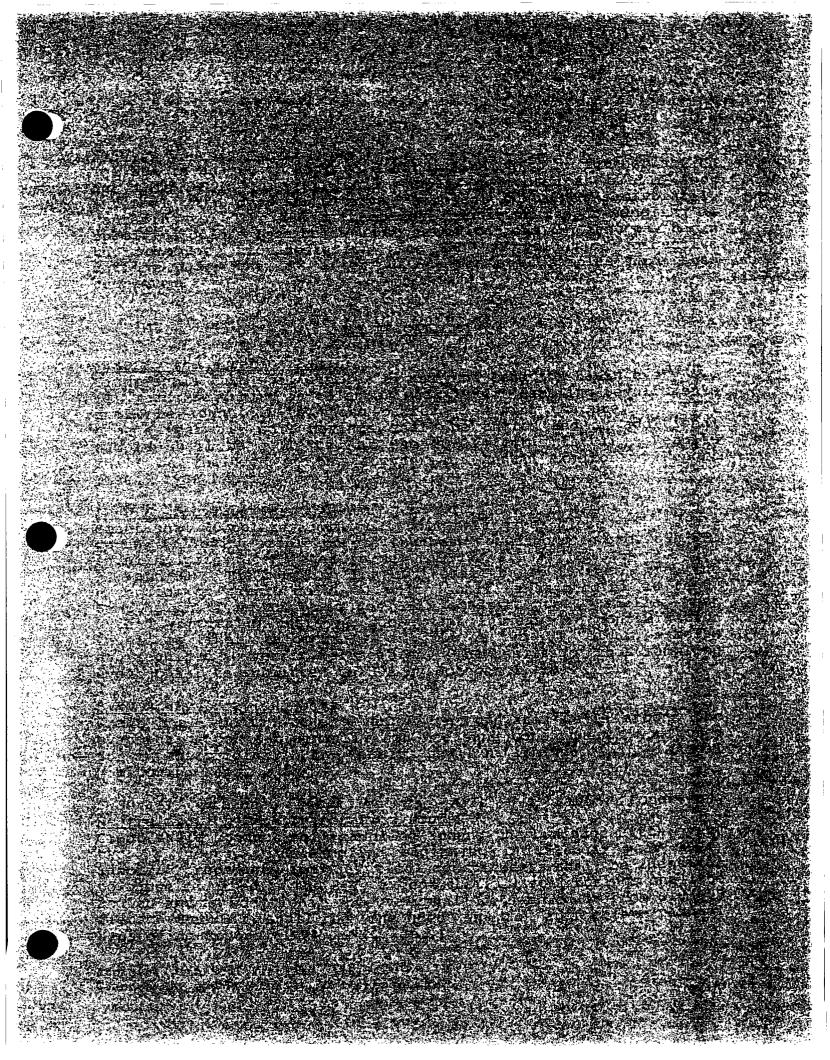
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SENT BY:

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Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

August 2, 1994

Allyn M. Davis United States Environmental Protection Agency Region VI 1445 Ross Avenue Suite 1200 Dallas, Texas 75202-2733

Re: Additional RFI Sampling

Dear Mr. Davis:

In the letter from you dated January 7, 1994 (copy enclosed), Giant Refining Company - Ciniza (Giant) received EPA's approval of Giant's recommendation of "No Further Action" on SWMU #1, the Aeration Basin; SWMU #2, the Evaporation Pond; and SWMU #13, the Drainage Ditch. The agency's approval of the "No Further Action" recommendations was accompanied with several additional requirements.

The additional requirements were to repeat the sampling protocol set forth in the approved RFI Sampling Plan (May, 1990) biennially. This additional sampling is intended to monitor potential migration of hazardous constituents from these SWMUs during the duration of their active service.

Giant understands the logic of continued sampling to document potential migration but has some reservations about the frequency of sampling and the true potential for migration of hazardous constituents.

It was determined in the RFI sampling (1990-1992) that migration of hazardous constituents had not occurred in any of the previously mentioned SWMUs and that water saturation had not occurred below five feet. This observation, coupled with the fact that hazardous constituents are not released to the three SWMUs, indicates that future contamination due to migration of hazardous constituents is virtually impossible.

Based on this knowledge, Giant proposes to sample SWMUs #1, #2, and #13, using the protocol set forth in the approved RFI Sampling Plan, every five years, beginning in 1995, with annual reports due on December 31 of the sample year. This sampling will adequately demonstrate migration, if any, of hazardous constituents. Giant appreciates your prompt attention to this proposal, as this will expedite completion of any responsibilities of Giant to fully characterize and monitor SWMUs #1, #2, and #13.

If you require additional information, please contact me at (505) 722-0227.

Sincerely, m

Lynn Shelton Senior Environmental Coordinator Giant Refining Company

TLS:sp

cc w/attachment: David C. Pavlich, Giant Kim Bullerdick, Giant Rich Mayer, USEPA Kathleen Cisneros, NMED

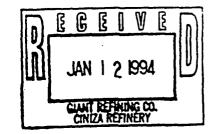


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

JAN 0 7 1994



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CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I and Phase II Supplemental Reports and Voluntary Corrective Action Plan Giant Refining Co. <u>NMD000333211</u>

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) hereby approves your RCRA Facility Investigation (RFI) Phase I Supplemental Report, dated October 21, 1991, with the enclosed list of modifications. Your Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad Rack Lagoon, submitted in November and December, 1992, respectfully, are also approved with the enclosed list of modifications.

The EPA is requiring that additional monitoring be completed at several sites. An annual report detailing the monitoring results shall be submitted to the EPA by December 31, 1994, and each year thereafter. The EPA is also requiring that additional soil sampling be completed at the Sludge Pits and the Tank Farm. Sampling results shall be submitted to the EPA by October 1, 1994. Further information concerning the additional monitoring and sampling requirements may be found in the attached list of modifications.

If you have any further questions or need additional information, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

allyn m Davo

Allyn M. Davis, Director Hazardous Waste Management Division (6H)

Enclosure

cc: Kathleen Sisneros, NMED

APPROVAL WITH MODIFICATIONS RFI PHASE I SUPPLEMENTARY REPORT RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS

The Environmental Protection Agency (EPA) has completed a technical review of Giant Refining's RCRA Facility Investigation (RFI) Phase I Supplementary Report; RFI Phase II Report; and voluntary Corrective Action Plan (CAP) for the Sludge Pits and Railroad Rack Lagoon. The subject reports are hereby approved with the following comments and modifications.

GENERAL COMMENTS

SWHU 1, The Aeration Basin; SWMU 2, The Evaporation Pond; and SWMU 13, The Drainage Ditch

The EPA agrees with the finding of no further action for Solid Waste Management Units (SWMUs) 1, 2 and 13. The EPA is, however, requiring periodic monitoring of these SWMUs (see below under Modifications). However, this approval is contingent upon the completion of a survey plat for these SWMUs. The survey plats shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit copies of the completed survey plats to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for these SWMUs.

SWMU 6, The Tank Farm

The EPA disagrees with Giant on their recommendation of no further action. Sampling results indicate that 9 of the 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 8, The Railroad Rack Lagoon, Overflow Ditch and Fan Out Area The EPA agrees with the finding of no further action for this SWMU. The EPA understands that Giant has elected to perform voluntary corrective measures at this unit which will include bioremediation of the wastes with periodic soil and waste monitoring. Giant's voluntary bioremediation should reduce the volume and toxicity of the wastes while continuing to periodically monitor the SWMU. The EPA will, however, require that additional monitoring be completed (see below under Modifications). The EPA is also requiring that a survey plat be completed for this SWMU. The survey plat shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit a copy of the completed survey plat to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for this SWMU.

SWMU 6, The Railroad Rack Lagoon

Giant shall take 5 soil borings within the lagoon after it has ceased receiving wastes. Three (3) of the five (5) borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Additionally, all six (6) borings required under the CAP closure (Section 5.0) must be sampled at the 5-6, 10-11, and 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Railroad Rack Lagoon has been initiated.

Continuation of SWMU 6, The Overflow Ditch

Giant shall complete three (3) soil borings in the Overflow Ditch after closing the Railroad Rack Lagoon. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. All results shall be included in the 1994 Annual Monitoring Report.

Continuation of SWMU 6, The Fan Out Area

Giant shall complete four (4) soil borings in the Fan Out Area after closure of the Railroad Rack Lagoon has been completed. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. Results shall be included in the 1994 Annual Monitoring Report.

SWMU #12, Contact Waste Water Collection System (CWWCS)

Giant shall perform an inspection of the CWWCS every five years beginning in calendar year 1996. The inspection shall be identical to the one performed in the previous RFI. If better technological equipment is developed, Giant may request that an alternative method be used. Results shall be included in the appropriate Annual Monitoring Report.

SWMU 9, The Sludge Pits

Giant shall complete soil borings as close as possible to sampling points 6 and 7 (numbers correspond to previous RFI sampling points, completed in May, 1991). Sampling intervals shall be at 18.0 -19.0 foot and 24.0 - 25.0 foot. Sampling procedures and analytical constituents shall be identical to those required in the previous

SWMU 9, The Sludge Pits

The EPA is unable to approve Giant's finding of no further action for this SWMU. Two (2) soil samples collected at the 15 foot interval (the deepest interval sampled) contained semivolatile contaminants. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications). Giant may begin the voluntary bioremediation (see SWMU #8 voluntary corrective action) under the CAP after the deeper soil samples have been completed.

MODIFICATIONS

SWMU 1, The Aeration Basin

Giant shall take soil samples around the Aeration Basin every two (2) years beginning in calendar year 1994. Sampling requirements shall be identical to those performed during the previous RFI, except that all soil borings shall be angled and an additional sample shall be collected at the 20-21 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

SWMU 6, The Tank Farm

Giant shall complete additional soil borings as close as possible to the following sample points (numbers correspond to previous RFI sampling points completed in May, 1991): 21, 22, 23, 25, 26, 27, 30, and 31. The sampling interval shall be at 16 feet, with the exception of sample point 31 which shall be sampled at 20 feet. Samples shall be analyzed for BTEX constituents. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to EPA by October 1, 1994.

SWMU 2, Evaporation Ponds

Giant shall monitor the seven (7) groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall be included in the Annual Monitoring Report.

SWMU 13, Drainage Ditch between APIs Evaporation Ponds and <u>Neutralization Tank Evaporation Ponds</u>

Giant shall conduct soil sampling around the Drainage Ditch every two (2) years, with sampling beginning in calendar year 1994. Sampling procedures and analytical constituents shall be identical to those required in the RFI, except that all soil borings shall be angled and an additional interval shall be sampled at from 6.0-6.5 feet. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

RFI. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to the EPA by October 1, 1994.

Before final closure of the West Pit under the CAP, all soil borings shall be sampled at the 18.0 - 19.0 and 24.0 - 25.0 foot intervals. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Four (4) soil borings shall also be completed (before closure) in the East Pit using the same requirements specified for the West Pit borings. Results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Sludge Pits has been initiated.

Soil Boring Logs: The EPA has included an example of a soil boring log to be used for all future borings.



Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

August 2, 1994

Allyn M. Davis United States Environmental Protection Agency Region VI 1445 Ross Avenue Suite 1200 Dallas, Texas 75202-2733

Re: Additional RFI Sampling

Dear Mr. Davis:

In the letter from you dated January 7, 1994 (copy enclosed), Giant Refining Company - Ciniza (Giant) received EPA's approval of Giant's recommendation of "No Further Action" on SWMU #1, the Aeration Basin; SWMU #2, the Evaporation Pond; and SWMU #13, the Drainage Ditch. The agency's approval of the "No Further Action" recommendations was accompanied with several additional requirements.

The additional requirements were to repeat the sampling protocol set forth in the approved RFI Sampling Plan (May, 1990) biennially. This additional sampling is intended to monitor potential migration of hazardous constituents from these SWMUs during the duration of their active service.

Giant understands the logic of continued sampling to document potential migration but has some reservations about the frequency of sampling and the true potential for migration of hazardous constituents.

It was determined in the RFI sampling (1990-1992) that migration of hazardous constituents had not occurred in any of the previously mentioned SWMUs and that water saturation had not occurred below five feet. This observation, coupled with the fact that hazardous constituents are not released to the three SWMUs, indicates that future contamination due to migration of hazardous constituents is virtually impossible.

Based on this knowledge, Giant proposes to sample SWMUs #1, #2, and #13, using the protocol set forth in the approved RFI Sampling Plan, every five years, beginning in 1995, with annual reports due on December 31 of the sample year. This sampling will adequately demonstrate migration, if any, of hazardous constituents. Giant appreciates your prompt attention to this proposal, as this will expedite completion of any responsibilities of Giant to fully characterize and monitor SWMUs #1, #2, and #13.

If you require additional information, please contact me at (505) 722-0227.

Sincerely,

Lynn Shelton Senior Environmental Coordinator Giant Refining Company

TLS:sp



CC	w/attachment:	David C
		Kim Bul
		Rich Ma

David C. Pavlich, Giant Kim Bullerdick, Giant Rich Mayer, USEPA Kathleen Cisneros, NMED

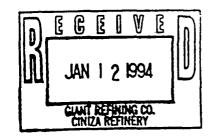


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

JAN 0 7 1994



CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I and Phase II Supplemental Reports and Voluntary Corrective Action Plan Giant Refining Co. NMD000333211

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) hereby approves your RCRA Facility Investigation (RFI) Phase I Supplemental Report, dated October 21, 1991, with the enclosed list of modifications. Your Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad December, Rack Lagoon, submitted in November and 1992, respectfully, are also approved with the enclosed list of modifications.

The EPA is requiring that additional monitoring be completed at several sites. An annual report detailing the monitoring results shall be submitted to the EPA by December 31, 1994, and each year thereafter. The EPA is also requiring that additional soil sampling be completed at the Sludge Pits and the Tank Farm. Sampling results shall be submitted to the EPA by October 1, 1994. Further information concerning the additional monitoring and sampling requirements may be found in the attached list of modifications.

If you have any further questions or need additional information, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

allyn m Davo

Allyn M. Davis, Director Hazardous Waste Management Division (6H)

Enclosure

cc: Kathleen Sisneros, NMED

APPROVAL WITH MODIFICATIONS RFI PHASE I SUPPLEMENTARY REPORT RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS

The Environmental Protection Agency (EPA) has completed a technical review of Giant Refining's RCRA Facility Investigation (RFI) Phase I Supplementary Report; RFI Phase II Report; and voluntary Corrective Action Plan (CAP) for the Sludge Pits and Railroad Rack Lagoon. The subject reports are hereby approved with the following comments and modifications.

GENERAL COMMENTS

SWMU 1, The Aeration Basin; SWMU 2, The Evaporation Pond; and SWMU 13, The Drainage Ditch

The EPA agrees with the finding of no further action for Solid Waste Management Units (SWMUs) 1, 2 and 13. The EPA is, however, requiring periodic monitoring of these SWMUs (see below under Modifications). However, this approval is contingent upon the completion of a survey plat for these SWMUs. The survey plats shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit copies of the completed survey plats to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for these SWMUs.

SWMU 6, The Tank Farm

The EPA disagrees with Giant on their recommendation of no further action. Sampling results indicate that 9 of the 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 8, The Railroad Rack Lagoon, Overflow Ditch and Fan Out Area The EPA agrees with the finding of no further action for this SWMU. The EPA understands that Giant has elected to perform voluntary corrective measures at this unit which will include bioremediation of the wastes with periodic soil and waste monitoring. Giant's voluntary bioremediation should reduce the volume and toxicity of the wastes while continuing to periodically monitor the SWMU. The EPA will, however, require that ddditional monitoring be completed (see below under Modifications). The EPA is also requiring that a survey plat be completed for this SWMU. The survey plat shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit a copy of the completed survey plat to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for this SWMU.

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Giant shall take 5 soil borings within the lagoon after it has ceased receiving wastes. Three (3) of the five (5) borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Additionally, all six (6) borings required under the CAP closure (Section 5.0) must be sampled at the 5-6, 10-11, and 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Railroad Rack Lagoon has been initiated.

Continuation of SWMU 6, The Overflow Ditch

Giant shall complete three (3) soil borings in the Overflow Ditch after closing the Railroad Rack Lagoon. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. All results shall be included in the 1994 Annual Monitoring Report.

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Giant shall complete four (4) soil borings in the Fan Out Area after closure of the Railroad Rack Lagoon has been completed. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. Results shall be included in the 1994 Annual Monitoring Report.

SWMU #12, Contact Waste Water Collection System (CWWCS)

Giant shall perform an inspection of the CWWCS every five years beginning in calendar year 1996. The inspection shall be identical to the one performed in the previous RFI. If better technological equipment is developed, Giant may request that an alternative method be used. Results shall be included in the appropriate Annual Monitoring Report.

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Giant shall complete soil borings as close as possible to sampling points 6 and 7 (numbers correspond to previous RFI sampling points, completed in May, 1991). Sampling intervals shall be at 18.0 -19.0 foot and 24.0 - 25.0 foot. Sampling procedures and analytical constituents shall be identical to those required in the previous

SWMU 9, The Sludge Pits

The EPA is unable to approve Giant's finding of no further action for this SWMU. Two (2) soil samples collected at the 15 foot interval (the deepest interval sampled) contained semivolatile contaminants. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications). Giant may begin the voluntary bioremediation (see SWMU #8 voluntary corrective action) under the CAP after the deeper soil samples have been completed.

MODIFICATIONS

SWMU 1, The Aeration Basin

Giant shall take soil samples around the Aeration Basin every two (2) years beginning in calendar year 1994. Sampling requirements shall be identical to those performed during the previous RFI, except that all soil borings shall be angled and an additional sample shall be collected at the 20-21 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

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Giant shall complete additional soil borings as close as possible to the following sample points (numbers correspond to previous RFI sampling points completed in May, 1991): 21, 22, 23, 25, 26, 27, 30, and 31. The sampling interval shall be at 16 feet, with the exception of sample point 31 which shall be sampled at 20 feet. Samples shall be analyzed for BTEX constituents. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to EPA by October 1, 1994.

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Giant shall monitor the seven (7) groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall be included in the Annual Monitoring Report.

SWMU 13, Drainage Ditch between APIs Evaporation Ponds and <u>Neutralization Tank Evaporation Ponds</u>

Giant shall conduct soil sampling around the Drainage Ditch every two (2) years, with sampling beginning in calendar year 1994. Sampling procedures and analytical constituents shall be identical to those required in the RFI, except that all soil borings shall be angled and an additional interval shall be sampled at from 6.0-6.5 feet. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

RFI. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to the EPA by October 1, 1994.

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Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Sludge Pits has been initiated.

Soil Boring Logs: The EPA has included an example of a soil boring log to be used for all future borings.

INTEROFFICE MEMORANDUM

DATE: February 3, 1994

TO: David Pavlich Kim Bullerdick

FROM: Lynn Shelton 745

SUBJECT: RCRA Facility Investigation - Additional Requirements

I. Introduction

Giant Refining Company - Ciniza (Giant) performed a RCRA Facility Investigation (RFI) in three phases (I, II, and III) over three years (1990, 1991, and 1992).

Using the analytical results of those three sampling events, Giant submitted four corrective action plans and eight "No Further Action" proposals to Region VI, United States Environmental Protection Agency (EPA).

Correspondence from the EPA (1-7-94) indicated approval of the corrective action plans (with additional requirements) for three Solid Waste Management Units (SWMUs), for RFI reports Phase I, II, and III and assigns a deadline for submittals of additional data.

The additional sampling and reporting requirements, some of which are redundant and unnecessary, are the focus of this correspondence. In the following pages, the scope and cost of the additional sampling requirements will be presented.

Some explanation of a potential problem is in order. The SWMU identification numbering sequence is inconsistent. In discussing the draft letters with Rich Mayer, of Region VI EPA, the discrepancy in reference to the SWMU numbers was mentioned. Mr. Mayer responded that the correct SWMU numbers were taken from the HSWA Permit (Section C, Corrective Actions for Continuing Releases, 5.(a)(1)). Giant had used the numbering sequence from the approved RFI Workplan (revised May 17, 1990). As shown in Table 1, there are discrepancies in all three sequences. Giant should propose to use the numbering sequence identified in the revised RFI Workplan to avoid confusion with the numbering sequence of SWMUs and sample numbers already reported.

Table 2 presents an overview of the status of the SWMUs.

TABLE 1

SWMU IDENTIFICATION

RFI	WORKPLAN	hswa	EPA	LETTER	swmu
	1	1		1	Aeration Basin
	2	2		2	Evaporation Ponds
	3	5		5	Empty Container Storage
	4	8		8	Burn Pit
	5	7		7	Four Landfills
	6	3		6	Tank Farm
	7	4		4	Fire Training Area
	8	6		8	Railroad Rack Lagoon
	9	10 & 13		-	Inactive Land Treatment
	10	9		9	Two Sludge Pits
	11	11		11	Secondary Oil Skimmer
	12	14		13	Wastewater Collection
	13	14		13	Drainage Ditch

TABLE 2

STATUS - INDIVIDUAL SWMU

Caps:

- * Railrack Lagoon
- * Sludge Pits
- Fire Training Area
- * Landfills

No Further Action:

- ** Aeration Basin
- ** Evaporation Ponds
- ** Drainage Ditch Tank Farm
- ** Empty Container Storage Old Burn Pit Secondary Oil Skimmer
- Inactive Land Treatment ***

* Accepted by EPA with Additional Requirements ** "No Further Action" Approved by USEPA *** Not Addressed in Correspondence

II. Discussion

A discussion of additional requirements, by SWMU, follows. Included, as Figures 1 to 12, are drawings of the SWMUs with individual sample points.

<u>SWMU #1</u> - Aeration Lagoon

EPA approved Giant's proposal for "No Further Action". Although Giant demonstrated that no significant migration of hazardous constituents had taken place, EPA requires biennial sampling that duplicates the original RFI sampling. This is redundant and expensive. Giant should propose either a five year sampling rotation or a phased-in plan (of six sample locations, sample two biennially until all samples are taken, then start again). These sampling plans will diminish the costs considerably and still provide documentation that migration has not occurred.

EPA also requires a survey plat of the SWMU. Giant agrees that this is a reasonable requirement.

<u>SWMU #2</u> - Evaporation Ponds

EPA has also approved Giant's proposal for "No Further Action" of this SWMU. EPA requires that Giant sample the seven groundwater wells (MW-4, OW-1, OW-2, OW-5, OW-7, OW-9 and OW-10) biennially for the same constituents as monitored for in the RFI sampling event. Giant may wish to propose a five year sampling rotation.

<u>SWMU 13</u> - Empty Container Storage Area

EPA approved Giant's proposal for "No Further Action" for the SWMU, requiring only that Giant provide a survey plat.

SWMU #4 - Old Burn Pit

EPA does not approve Giant's proposal for "No Further Action". Three borings at six and ten feet will be required to characterize constituent migration in this SWMU.

<u>SWMU #5</u> - Landfill Areas

EPA requires that additional borings, at eleven, sixteen and twenty feet to fully characterize contamination.

<u>SWMU #6</u> - Tank Farm

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. EPA requires seven additional borings to sixteen feet and one additional boring to twenty feet to fully characterize contamination. When Giant performed supplemental sampling of this SWMU in 1991, it was anticipated that further sampling would be required.

<u>SWMU #7</u> - Fire Training

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. Two additional angle borings to seven and eleven vertical feet are required. Additional sampling was anticipated when this SWMU was sampled in 1992, although I question why we now have to analyze for the Skinner List constituents. Samples from this SWMU were originally analyzed for TPH and oil & grease only.

<u>SWMU #8</u> - Railroad Rack Lagoon

EPA has approved Giant's corrective action plan for this SWMU, with additional requirements. After piping modifications at the railroad loading rack are complete and the railroad rack lagoon no longer receives waste, sampling is required within the footprint of the lagoon (five borings) and around the periphery of the lagoon (six borings). Sampling is also required in the overflow ditch (three borings to seven feet) and the fan out area (four borings to seven feet). Some sampling will be required during remediation of the lagoon to document completion of the corrective action plan.

A survey plat of the SWMU, after remediation, must be submitted to the EPA.

<u>SWMU #9</u> - Inactive Land Treatment Area

Although Giant had provided data and proposed no further action, this SWMU was not addressed in the correspondence with the EPA. It needs to be determined if EPA accepts our proposal or has additional requirements.

<u>SWMU #10</u> - Sludge Pits

EPA is requiring additional sampling to 25' in this SWMU (seven borings) to fully characterize any contamination. Monitoring will be required during remediation to document completion of the corrective action plan. It is reasonable to expect that EPA will require a survey plat of this SWMU after closure.

SWMU #11 - Secondary Oil Skimmer

EPA does not approve Giant's proposal for "No Further Action" and is requiring additional sampling to ten feet (two borings). This is a reasonable request.

<u>SWMU #12</u> - Contact Wastewater System

Although onerous, the requirement to inspect the wastewater system every five years is acceptable in that we were not sure if we could get any kind of "Buy In" from EPA. Costs of monitoring this SWMU are therefore significantly less than anticipated.

<u>SWMU #13</u> - Drainage Ditch

Although EPA approves Giant's proposal of "No Further Action", additional requirements have been added. Complete resampling is required biennially. This is redundant and expensive. Even though this SWMU continues to be exposed to wastewater, Giant does not believe there is a significant possibility of migration. Giant should propose a five year sampling schedule or a "Phased-In" rotation of sampling.

A survey plat will be required for this SWMU.

III. Estimation of Expenses

Not normally a consideration of the regulatory community, expense is an indicator to industry of the scope and complexity of regulatory requirements. In providing a cost estimate, we are able to judge the economic impact for our company and determine the extent to which we are willing to contest the requirements issued to us.

The following tables (Tables 3, 4, and 5) illustrate the estimated costs per SWMU (for 1994 and biennially).

Table 3

1994 Analytical Costs

SWMU #	SAMPLES <u>REQUIRED</u>	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
4	6	8240 8270 Metals pH	1,800 2,970 2,250 60
5	21	8240 8270 Metals	6,300 10,395 4,830
6	8	BTEX	1,000
7	4	TPH Oil & Grease	200 200
8	50	8240 8270	15,000 24,750
10	18	8240 8270 Metals	5,400 8,910 4,140
11	4	8240 8270	1,200 1,980
13	12	8240 8270	3,600 5,940

Total Analytical Cost 1994 Only

<u>\$119,245</u>

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TABLE 4

BIENNIAL ANALYTICAL COST

SWMU #	SAMPLES <u>REQUIRED</u>	ANALYSIS	COST
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2	7	8240 8270 Metals pH	1,750 2,765 1, 43 5 70
13	12	8240 8270	8,600 5,940

Total Biennial Analytical Cost <u>\$46,310</u>

TABLE 5

TOTAL COST OF 1994 SAMPLING (ESTIMATE)

SWMU #	ANALYTICAL COST	LABOR *	COST
1	\$ 30,750	\$12,600	\$ 43,350
2	6,020	1,100	7,120
4	7,080	3,000	10,080
5	21,525	14,000	35,525
6	1,000	13,200	14,200
7	400	2,200	2,600
8	39,750	21,400	61,160
10	18,450	22,500	40,950
11	3,180	2,000	5,180
13	9,540	2,600	12,140
	<u>\$119,245</u>	<u>\$94,600</u>	<u>\$213,845</u>

* Including Drilling Rig

IV. Conclusions

The additional requirements to fully characterize SWMUs #4, 5, 6, 7, 8, 10 and 11 are reasonable. Although expensive, full characterization of potential pollution is the thrust of an RFI project and is Giant's objective.

The biennial sampling requirements for SWMUs #1, 2, and 13 are, in effect, a repeat of the original RFI project every two years. This is redundant, expensive and, in my opinion, unwarranted. In completing the original RFI work, it was demonstrated that SWMUs #1, 2, and 13 pose no threat to human health or the environment. Additional sampling is probably justified, because these SWMUs continue to handle wastewater, but on a smaller scale. I recommend that we propose to do additional sampling every five years on one-third of the sample points, or something of that magnitude. This should be enough sampling to document that there is no contamination.

It is important that we act now to minimize sampling requirements in that we can reasonably assume that as other SWMUs are characterized, additional long term sampling requirements for those SWMUs will be requested. This could be an expensive task that provides minimal protection to the environment.

The actual sampling process should be fairly straight forward. Sampling protocol will be identical to past projects and can be accomplished by refinery personnel. The sampling process needs to be modified to using a drilling rig to take core samples in place of backhoe and hand auger. This change is due to the increased depths of samples, the sheer number of samples to be collected, analyzed and reported during 1994, and the requirement to use more appropriate soil boring logs. Using a drilling contractor will provide the necessary speed of sampling and the lithologic observations necessary to complete this project in a timely and efficient manner.

It is in the best interest of Giant that we develop the proper response to these new requirements. I recommend that we carefully analyze our options in this matter and schedule a meeting with the RCRA staff at EPA to discuss this issue.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

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Enclosure

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DEC-17-1993 08:48

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I Supplemental and RFI Phase II Reports - Giant Refining Co. - NMD000333211

Dear Mr. Stokes:

We hereby approve your Phase I Supplemental Report dated August 21, 1991 and the RFI Phase II Report dated October 21, 1991, with the enclosed modifications. The Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad Rack Lagoon (submitted November and December 1992, respectfully) are also approved, with the enclosed modifications.

The Annual Monitoring (see enclosure for SWMUs requiring monitoring) Report is due to EPA by December 31, 1994, and each year thereafter. The additional soil sampling results for the Sludge Pits and the Tank Farm are due to EPA by June 1, 1994. If you have any further questions pertaining to the above discussed items, please contact Nancy Morlock or Richard Mayer of my staff at (214) 655-6650.

Sincerely yours,

Allyn M. Davis, Director Hazardous Waste Management Division

Enclosure

cc: Kathleen Sisneros, NMED

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6h-pn 6h-p 6h Neleigh Honker Morisato

APPROVAL OF THE RFI PHASE I SUPPLEMENTARY REPORT, RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS (CAP), WITH MODIFICATIONS, FOR GIANT REFINING COMPANY

Below are EPA's general comments and modifications pertaining to Giant's RFI Reports and the voluntary CAP for the Sludge Pits and the Railroad Rack Lagoon. Under general comments, there is a discussion describing the RFI status of each SWMU and the remaining RFI process/requirements for each SWMU. The modifications consist of SWMU specific monitoring or investigations required by EPA.

General Comment: EPA agrees with the finding of no further action for the following SWMUs: SWMU #1, the Aeration Basin; SWMU #2, the Evaporation Ponds; and, SWMU #13, the Drainage Ditch. Even though EPA is not requiring further investigations/remediation (no further action determination), periodic monitoring of the above mentioned SWMUs will be required (see below under modifications).

On SWMU #6, the Tank Farm, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, 9 out of 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #9, the Sludge Pits, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, two samples at the 15'interval (the deepest interval sampled) contained semivolatiles. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

EPA agrees with the finding of no further action for SWMU #6, the Railroad Rack Lagoon, Overflow Ditch and Fan Out Area. Even though EPA is not requiring further investigations/remediation (no further action determination), periodic monitoring of the above mentioned SWMU will be required. Giant has decided to perform voluntary corrective measures (bioremediation of the wastes) on the above mention SWMU and will perform periodic monitoring on the SWMU while bioremediation is occurring. Giant's voluntary bioremediation should reduce the volume and toxicity of the waste contained in the SWMUs while continuing periodic monitoring of the SWMUs (which satisfies EPA's monitoring requirements). Also, EPA included some additional monitoring requirements besides those included by Giant in the CAP (see below under modifications).

Also, EPA will require one administrative control for all SWMUs which EPA has tententively approved a no further action determination. It is the following: A survey plat of each SWMU, according to the procedures required in 40 CFR 264.116. Once Giant has sent documentation to EPA verifying completion of the administrative control (for each SWMU), then Giant can submit a Class III permit modification to terminate the RFI/CMS process for a particular SWMU.

Ξ

Modifications

SWMU #1, the Aeration Basin: Giant shall take soil samples around the Aeration Basin every 2 years, with sampling beginning in calender year 1994 . Sampling requirements shall be identical to what was performed in the previous RFI, except, that all soil borings shall be angled and that an additional interval be sampled appropriate Annual Monitoring Report (1994, 1996, etc.). Results shall be included in the SWNU #6, the Tank Farm: Giant shall take soil borings as close as possible to the following sample points (numbers are from previous RFI sampling points, done 5/6 & 5/7/91): number's 21, 22, 23, 25, 26, 27, 30, and 31. Sampling intervals shall be at 16', except for #31, which shall be taken at 20'. Samples shall be analyzed for

BIEX Constituents. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by June 1, 1994.

swmu #2, Evaporation Ponds: Giant shall monitor the seven groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall WHICH WELLS be included in the Annual Monitoring Report.

SWMU #13, Drainage Ditch between APIs Evaporation Ponds and Neutralisation Tank Evaporation Fonds: Giant shall take soil samples around the Drainage Ditch every 2 years, with sampling beginning in calendar year 1994. Sampling procedures and constituents to be analyzed shall be identical to those required in the RFI, except, that all soil borings shall be angled and that an additional interval be sampled at the 6-6.5 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

swhu no, Railroad Rack Lagoon: Giant shall take 5 soil borings within the lagoon after it has stopped receiving wastes and it is practicable to sample. Three of the five borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot Sampling procedures and constituents to be analyzed interval. shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Also, all six borings required under the CAP closure (Section 5.0) must be sampled at the 5-6', the 10-11' interval, and the 14-15'. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Continuation of SWMU #6, the Overflow Ditch: Giant shall take 3 soil borings in the Overflow Ditch after closure (stop receiving liquid wastes) of the Railroad Rack Lagoon. Sampling procedures and constituents to be analyzed shall be identical to those

required in the previous RFI. Soil borings shall be taken at the 3-4' interval and at the 6.5-7' interval. Results shall be included in the 1994 Annual Monitoring Report.

Continuation of SWMU #6, the Pan Out Area: Giant shall take 4 soil borings in the Fan Out Area after closure (stop receiving liquid wastes) of the Railroad Rack Lagoon. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Soil samples shall be taken at the 3-4' interval and at the 6.5' to 7' interval. Results shall be included in the 1994 Annual Monitoring Report.

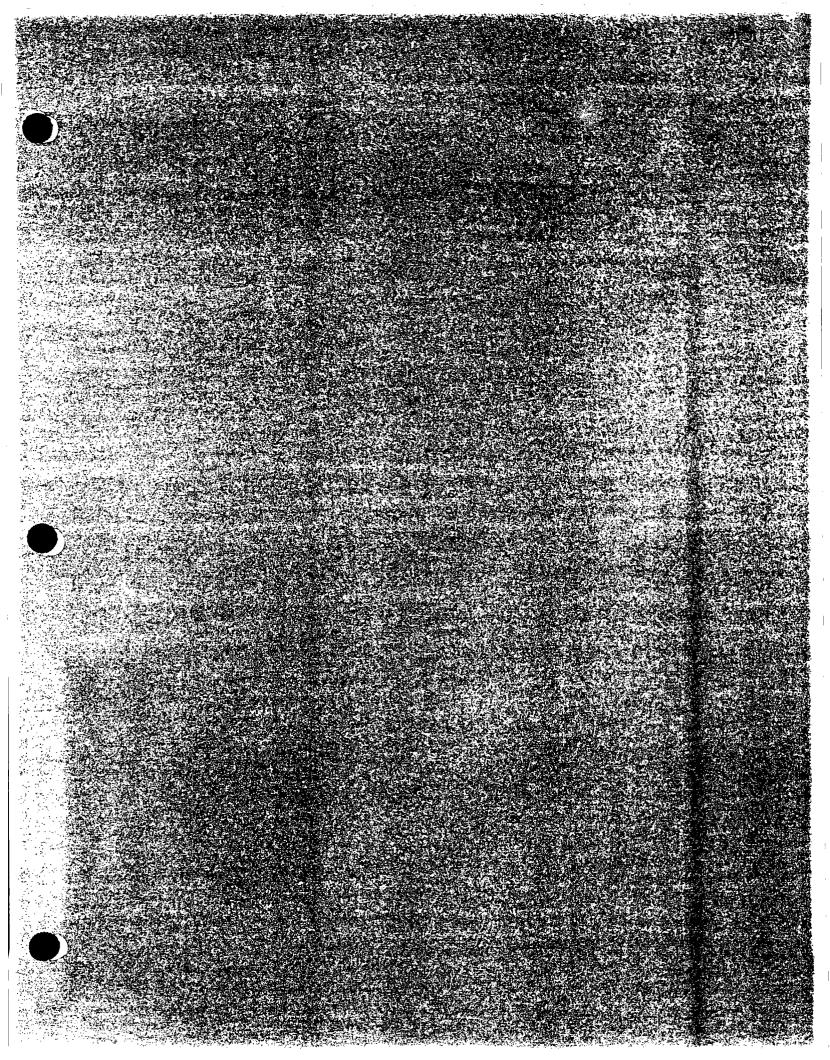
SWMU #12, Contact Waste Water Collection System (CWWCS): Giant shall perform an inspection of the CWWCS every five years (the next inspection will be in 1996) and shall be identical to the one performed in the RFI (if better technological equipment is developed, then Giant may request that an alternative method be used). Results shall be included in the appropriate Annual Monitoring Report.

STATE 75, Sludge Pits: Giant shall take soil borings as close as possible to sampling points (numbers are from previous RFI sampling points, done 5/6 & 5/7/91) 6 and 7. Sampling intervals shall be at 18-19'and 24-25'. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by June 1, 1994.

Before <u>final closure of the West pit</u> under the CAP, all soil borings shall have samples taken at the 18-19' and 24-25' intervals. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Three soil borings shall also be taken (before closure) from the east pit using the same requirements specified for the West Pit borings. Results shall be included in the appropriate Annual Monitoring Report.

Boil Boring Logs: EPA has included an example of a soil boring log which they would like Giant to use in all future borings.

-





505 722-3833

September 4, 1992

Milton Simon P.O. Box 616 Florence, AZ 85232

RE: Process Sewer Inspection

Dear Mr. Simon:

Pursuant to our phone conversation this morning, Giant is submitting a drawing of our process wastewater system. In accordance with our approved RFI workplan with the EPA, Giant is required to inspect the two main sections of the process wastewater system (those sections older than 25 years) and may randomly select lateral lines that are representative of our wastewater system. The lines that may be inspected have been highlighted on the drawing.

Giant requests a formal, written proposal for the estimated cost of hydroblasting and video inspection of the process wastewater system. This proposal may be submitted as cost per foot.

Giant also requests verification of your catastrophic insurance coverage and a list of references of firms who have used your video services.

Giant feels that it may be mutually beneficial if you or a representative of your firm could visit our facility to establish if there will be any problems associated with this video inspection.

It is hoped that the video inspection of the wastewater system will be accomplished in late September. Giant appreciates your prompt attention to this proposal.

If you require additional information, please contact me at (505)722-0227.

Sincerely,

Lynn Shelton Environmental Assistant Giant Refining Co. - Ciniza Refinery

TLS:smb

tools and equipment, Complete project. (c perthour Trata nt Usual inspection of process Wastemater lines. 3 assessment of (iniea Retinery Giant Refining Com DESCRIPTION SIMON SEWER MAINTENANCE Florence, Arizona 85232 ieeden +0 27869 N. Felix Rd. ٦ Date 201 Your P.O. Number 4252 4 300. %+ CHARGES - 19 22



505 722-3833

August 11, 1992

Daniel W. Cook Cook Construction Company, Inc. 506 Carmony Lane, Northeast Albuquerque, New Mexico 87107

Re: Process Wastewater Line Inspection

Dear Mr. Cook:

Giant Refining Company - Ciniza (GRC) is required by the EPA to complete the inspection of the remainder of the process wastewater system in 1992.

GRC solicits a proposal from your company to accomplish this task. We would appreciate a per foot cost and an estimate for total cost of the inspection and a time frame in which GRC can reasonably expect this inspection to be accomplished.

Enclosed are two drawings that show the drains to be inspected. Please note that there is a reduced amount of footage to be inspected as compared to 1990, but that there will be considerably more moving and set-up time.

The inspection will involve two main lines and numerous lateral lines off the main lines. The laterals will be 4" or 6" steel lines.

Total footage to be inspected will be approximately:

Lateral - 4" & 6" - 2550.0 ft Main - 8" & 10" - 1155.0 ft

Both the U.S. EPA and GRC were pleased with the performance and quality of the inspection performed by your company in 1990. GRC anticipates another successful project with Cook Construction and appreciates your timely attention to this proposal.

If you require additional information, please contact me at (505) 722-0227.

Sincerly, Jum +

Lynn Shelton Environmental Assistant Giant Refining Company

TLS:sp



505 722-3833

August 11, 1992

Barbara Driscoll U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: Quarterly Progress Report

Dear Mr. Driscoll:

Giant Refining Company - Ciniza (GRC) is submitting this quarterly progress report as required by the May 31, 1990 RFI Workplan approval letter and HSWA Permit Condition C.4., Page 11.

GRC finished soil sampling of SWMU's #3, 4, 5, 7, and 11 on May 15, 1992. All samples were sent to Westech Laboratories for analysis. Hard copy of analytical results has been received and tabulated and is currently having statistical analysis done by Mr. Mark Wilson of the University of New Mexico.

The inspection of the remaining process wastewater system (that part not inspected in 1990) is being organized. Please refer to the attached drawings for lines that may be inspected. The lines were identified using the drawings included in the approved Workplan and RFI Ъу using a corrected drawing from а hydroblasting project completed in 1988. Only lines marked in blue may be inspected and will represent what GRC believes will reasonably demonstrate the integrity of the process wastewater system. Some lines may not be inspected due to safety or process considerations.

This inspection is tentatively scheduled to take place in late August, 1992.

If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

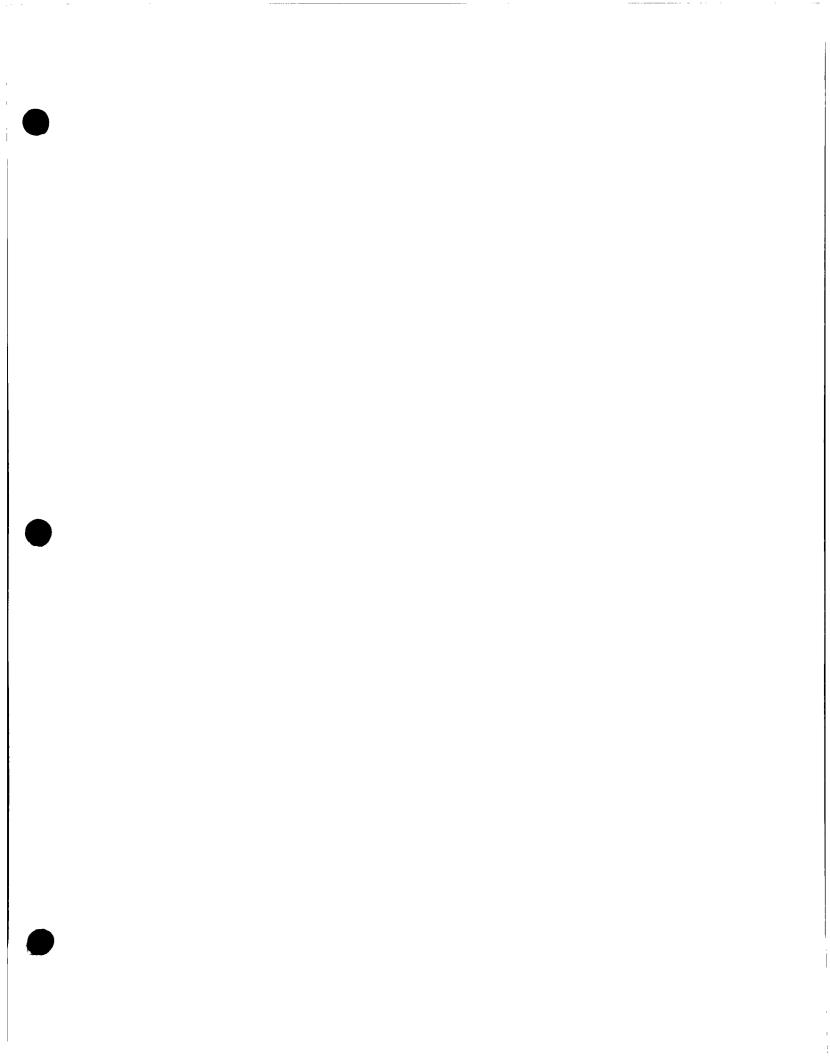
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely,

John Stokes Refinery Manager Ciniza Refinery

JJS/TLS:sp

cc: Kim Bullerdick - Corporate Counsel Giant Industries Arizona, Inc.





State of New Mexico ENVIRONMENT DEPARTMENT Hazardous & Badioactive Materials Bureau 525 Camino De Los Marquez P.O. Boz 26110 Santa Fe, New Mexico 87502 (505) 827-4358 Fax (505) 827-4389

MARK E. WEIDLER SECRETARY

EDGAR T. THORNTON, III DEPUTY SECRETARY

GARY E. JOHNSON GOVERNOR

CERTIFIED MAIL RETURN RECEIPT REQUESTED

August 14, 1995

1~

Mr. David Pavlich Health, Safety and Environmental Manager Giant Refinery-Ciniza Route 3, Box 7 Gallup, New Mexico 87301

Dear Mr. Pavlich,

RE: Request to amend Giant's Part A Permit.

The New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) is in receipt of the Giant Refining Company (Giant) letters to HRMB dated July 24 and 28, 1995. In the July 24 letter Giant agrees to HRMB's request (dated July 13, 1995) for Giant to request removal from their RCRA Part A. Permit of the following items;

- the API separator
 - the benzene strippers.

In the July 28 letter Giant adds the hazardous waste drum storage area to the removal request.

The API separator and benzene strippers are part of the process wastewater treatment system and thus are exempt from RCRA permitting requirements. Further, these units are regulated by NMED Oil Conservation Division (OCD). The hazardous waste drum storage area has not been constructed, and Giant has no plans to construct it, thus there is no need for it to be on the Part A Permit.

HRMB hereby approves Giant's request for removal of the aforementioned items from their Part A Permit. Giant must now submit to HRMB within two (2) weeks of receipt of this letter a revised Part A excluding these units.





July 28, 1995

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Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

Mr. Ed Kelley, Director Water and Waste Management Division New Mexico Environment Department 525 Camino De Los Marquez Santa Fe, New Mexico 87502

Dear Mr. Kelley:

Earlier this week, I sent you a letter (copy attached) at the direction of Benito Garcia of the Hazardous and Radioactive Materials Bureau (HRMB) requesting your approval to remove several listed items from Giant Refining's Part A RCRA permit. Those items are the API separator and the benzene stripping units. In subsequent discussions with HRMB staff, an additional item was identified as being a good candidate for removal from the Part A Permit. This item is a small hazardous waste drum storage area. Since this area was never constructed and Giant does not foresee a need for it in the near future, its removal from the Part A Permit is appropriate.

Therefore, in addition to the items listed in Giant's letter of July 24, 1995, Giant also requests approval for the removal of the hazardous waste container storage area from its Part A Permit. Upon receipt of your approval, Giant will submit an application for permit modification to the HRMB.

Thank you for your assistance in this matter.

Sincerely,

David C. Parlich.

David C. Pavlich Health, Safety, and Environmental Manager

cc:

Roger Anderson, OCD Michael Chacon, HRMB Ron Kern, HRMB Lynn Shelton, Giant

[SRP\WPDOCS\FAV\NMED.728]

A Division of Giant Industries, Inc.

TO SEHUL PTHINI KEL TUTUR CO.



505 722-3833

July 24, 1995

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Mr. Ed Kelley, Director Water and Waste Management Division New Mexico Environment Department 525 Camino De Los Marquez Santa Fe, New Mexico 87502

Dear Mr. Kelley,

Giant Refining recently requested a modification to its Part A RCRA Permit. In reviewing this modification request, the Hazardous & Radioactive Materials Bureau (HRMB) staff determined that several items listed on Giant's Part A Permit (the API separator and benzene stripping units) should not have been included in the permit since they are part of a process wastewater treatment system and are regulated by the Oil Conservation Division.

Therefore, at the request of the HRMB, Giant hereby requests removal of the abovementioned API separator and benzene stripping units from its Part A Permit. Upon your approval of this request, Giant will submit to the HRMB a revised Part A Permit excluding these units.

Enclosed with this letter is a copy of HRMB Chief Benito Garcia's letter detailing the HRMB staff's findings and his request that Giant seek removal of these units from its Part A Permit.

Should you or your staff have any questions regarding the above, please do not hesitate to contact me or Mr. Lynn Shelton at (505) 722-3833. Thank you for your assistance in this matter.

Sincerely,

Sauit C. Paulick

David C. Pavlich Health, Safety, and Environmental Manager

cc w/enclosure:

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Lynn Shelton, Giant

cc w/o enclosure:

c 1 J

Roger Anderson, OCD Bureau Chief Michael Chacón, HRMB, RCRA Permits Ron Kern, HRMB Program Manager



GARY É. JOHNSON GOVERNOR State of New Mexico ENVIRONMENT DEPARTMENT Hazardous & Radioactive Materials Bureau 525 Camino De Los Marquez P.O. Box 26110 Santa Fe, New Mexico 87502 (505) 827-4358 Fax (505) 827-4389

MARK E. WEIDLER SECRETARY

EDGAR T. THORNTON, III DEPUTY SECRETARY

CERTIFIED MAIL RETURN RECEIPT REQUESTED

July 13, 1995

John Stokes, Refinery Manager Giant Refining Company Ciniza Refinery Route 3, Box 7 Gallup, New Mexico 87301

Dear Mr. Stokes,

RE: Part A Permit Revision

On March 10, 1995, the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) received a copy of the Giant Refining Company-Ciniza (Giant) Part A Permit Modification request dated March 6, 1995, and sent to the Environmental Protection Agency (EPA). Giant is hereby notified that because the Permit Modification request concerns RCRA units, NMED and not EPA has the lead. The modification requested is a 337% increase in both API tank treatment capacity (API) and benzene stripping capacity.

The API and benzene stripping units appear on Giant's Part A Permit. However, they should not have been included on the Part A Permit as they are part of the process wastewater treatment system and are exempt from RCRA regulation. Also, evidence shows that the API and benzene strippers are regulated by the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department (EMNRD). OCD's Groundwater Discharge Permit #32 (GW 32), covers all discharges by the facility, including the API, benzene strippers and the aeration lagoons into which they discharge.

Required by the OCD is biennial groundwater monitoring which includes all approved RCRA constituents, to the standards of the New Mexico Water Quality Control Commission. Also required is annual monitoring of the API, benzene stripper and aeration lagoon effluents. Although the API and benzene stripper effluents are not monitored for RCRA constituents, the aeration lagoon into which they discharge are monitored for RCRA metals, and volatile and semi-volatile organics.

SUTURI JEN LUNCO

John Stokes July 13, 1995 Page 2 of 2

Further, Giant has submitted to OCD a modification request identical to the March 6, 1995 request for modification of their RCRA Part A Permit. As per OCD's March 15, 1995 letter to Giant, approval of this modification request is conditional upon Giant's submittal of a closure plan for the existing API. This is analogous to RCRA requirements and further demonstrates that OCD requirements for the API and benzene strippers are protective of human health and the environment.

Therefore, HRMB requests that Giant submit a request for removal of the aforementioned units from Giant's Part A Permit to the Director of NMED Water and Waste Management Division (WWD) for his approval. If the Director approves the request, Giant will be required to submit a revised Part A Permit which excludes the API oil/water separator and the benzene strippers.

If there are any questions on this matter, you may contact Mr. Michael Chacón at (505) 827-4308.

Sincerely, Benito J. Garcia

Chief, Hazardous and Radioactive Materials Bureau

cc: Roger Anderson, OCD Ron Kern, HRMB Program Manager Michael Chacón, RCRA Permits David Neleigh, EPA File-Red 95 File-Reading

SWMU No. 13, Drainage Ditch Between API Ponds and Neutralization Tank Evaporator Ponds

The drainage ditch area was identified as a solid waste management unit (SWMU) and designated as 3 SWMU No. 13 during a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) 4 conducted at the Giant Refining Company - Ciniza Refinery (Ciniza) in the early 1990s. This 5 investigation included soil sampling and analysis, which indicated the absence of organics and the 6 presence of trace metals. Based on the results of soil collected on the perimeter of the pond and beside the 7 ditch, Ciniza recommended no further action (NFA) for this SWMU. In 1994, the U.S. Environmental 8 Protection Agency (EPA) concurred with this recommendation and approved cessation of the 9 investigative process; however, they required soil sample collection around the drainage ditch every five 10 years beginning in 1995, with analysis identical to that required in the RFI. Ciniza submitted a survey plat 11 of the site in July 1995. Ciniza conducted the first sampling event in October 1996 and submitted results 12 to the New Mexico Oil Conservation Division (OCD) in their Quarterly Progress Report for fourth-13 14 quarter 1996.

SWMU No. 13 is also regulated by OCD, pursuant to the Clean Water Act (G10-32-Part A). Because the drainage ditch area is a component of the wastewater treatment system, it is exempt from the Hazardous and Solid Waste Amendments. Correspondence from the New Mexico Environment Department (NMED) to Ciniza Refinery confirms that the drainage ditch area falls under the jurisdiction of OCD and is regulated under the facility OCD Discharge Plan (GW-032).

20 13.1 Site Description and Operational History

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21 SWMU No. 13, Drainage Ditch Between API Ponds and Neutralization Tank Evaporator Ponds 22 (Figures 13-1, 13-2, 13-3) consists of the small overflow lagoon, known as Pond No. 10, and its 23 associated drainage ditch. The referenced drainage ditch is a component of the refinery wastewater 24 treatment system. Effluent water from Evaporation Pond No. 10 is conveyed along the ditch and 25 distributed to north area evaporation ponds. SWMU No. 13 consists of a man-made earthen channel 26 measuring approximately 20 feet wide by 120 feet long. Nominal water depth ranges from 1 to 4 feet. 27 Total hydraulic holding capacity is approximately 50,000 gallons. Photographs of the drainage ditch, 28 taken during the site inspection performed by Practical Environmental Services, Inc. (PES) in 1998, are 29 provided in the SWMU No. 13 Summary Report.

30 This drainage ditch was constructed in 1970s and has been in continuous operation since that time.

1 13.2 Land Use

The drainage ditch located at the evaporation ponds continues in active service conveying wastewater to
north area evaporation ponds.

4 13.3 Investigation Activities

Applied Earth Sciences (AES) investigated the Drainage Ditch Between API Ponds and Neutralization 5 Tank Evaporator Ponds in 1991, and in 1996 Giant Refining Company - Ciniza Refinery (Ciniza) 6 investigated the same area. Soil samples from around the perimeter of the drainage ditch site were 7 collected and analyzed during the initial site investigation and a subsequent monitoring assessment. 8 Samples were collected at multiple locations and depths. Angled borings were made during the 9 monitoring assessment to obtain samples from beneath the ditch. No volatile organic compounds (VOCs) 10 11 or semivolatile organic compounds (SVOCs) were detected in the samples. Trace metals were detected in 12 all of the samples.

13 13.3.1 Investigation #1

During the initial site investigation in 1991, AES collected and analyzed soil samples from four locations and depths of 2 and 4 feet below ground surface. Analysis found no detection of VOCs or SVOCs in any sample. Trace metals were detected in all samples, all of which indicated levels within ambient background concentration.

18 13.3.2 Investigation #2

19 In 1996, Ciniza collected monitoring samples at three locations at a depth of 6 feet below ground surface.

20 As with the previous investigation, VOCs and SVOCs were not detected in any sample. Trace metals

21 were detected in all samples, all of which indicated levels within ambient background concentration.

22 13.4 Site Conceptual Model

23 There is no impact on the environmental fate of the land.

- 24 13.5 Site Assessments
- 25 During the week of March 23, 1998, PES performed an on-site inspection. Observations are as follows:

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- The referenced drainage ditch was observed in active service conveying wastewater to north area evaporation ponds.
- Ditch sidewalls were visually inspected and found to be intact and stable. No erosion, damage, or sign of containment failure was observed.

- Native shrubs and grasses were observed growing around the perimeter of the ditch. No signs of distress were evident.
- Local soil in the vicinity of the drainage ditch is bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.
- 5 PES did not perform any sampling or analysis during this site inspection. The inspection was limited only
- 6 to visual observations. Based on this assessment, PES determined that the NFA proposal recommended
- 7 by Ciniza and approved by the EPA is appropriate for this site.

8 13.6 NFA Proposal

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- 9 Ciniza is proposing that no further action is required for SWMU No. 13 based on the following criterion:
- The SWMU is characterized and managed under another authority, OCD, which adequately addresses RCRA corrective action. (NFA Criterion 4)

The SWMU has been characterized in accordance with current applicable state regulations. The available data indicate that no significant environmental impact or migration has occurred from the contaminants (i.e., the contaminants pose an acceptable level of risk under current and projected future land use). (NFA Criterion 5)

- 16 The following is the basis for this proposal:
- The drainage ditch is located in a geologic setting in which the underlying bentonitic soil has a very low hydraulic conductivity, which effectively serves as an aquiclude.
- The soil sampling and analysis conducted during an initial site investigation and subsequent monitoring assessment did not detect any organic contaminants in any sample. Trace metals were detected within ambient background concentration.
- The site was recommended for NFA and approved by the EPA.

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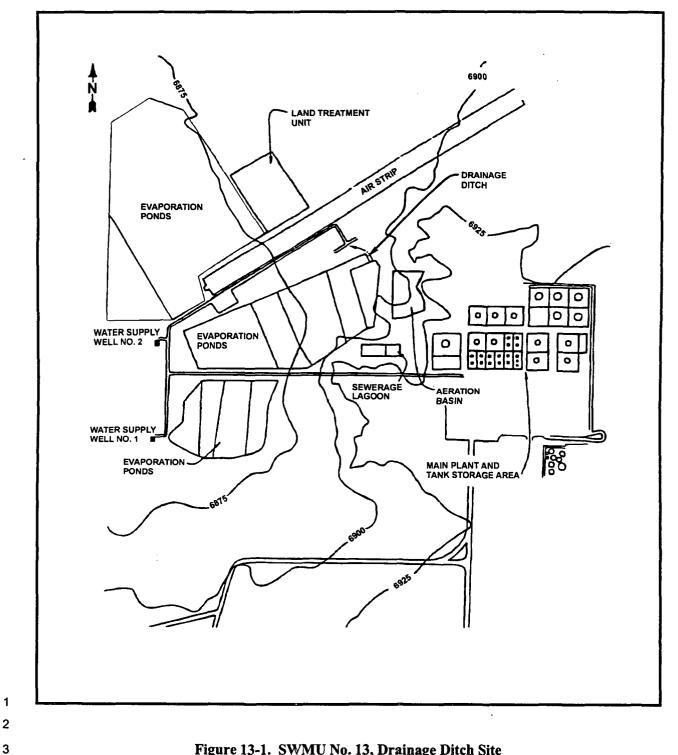








Figure 13-2. SWMU No. 13, Drainage Ditch Between North and South Ponds



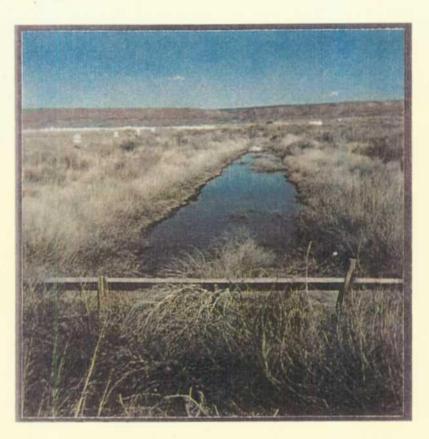




Figure 13-3. SWMU No. 13, Drainage Ditch Between North and South Ponds

SWMU # 13 Summary Report

Drainage Ditch at Evaporation Ponds Ciniza Refinery McKinley County, New Mexico



Prepared for:

Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Prepared by:

Practical Environmental Services, Inc. 1444 Wazee Street, Suite 225 Denver, Colorado 80202

Job No. 98-205-03

April 23, 1998

1.0 EXECUTIVE SUMMARY

Practical Environmental Services, Inc. (PES) has been retained by Giant-Ciniza Refinery (Ciniza) to perform a visual inspection, data evaluation, and status assessment for the drainage ditch located at the evaporation ponds within the Ciniza Refinery, in McKinley County, New Mexico.

This drainage ditch site was identified as a Solid Waste Management Unit (SWMU), and designated as SWMU #13, during a RCRA Facility Investigation conducted at the refinery in the early 1990's. This investigation included soil sampling and analysis, determined that no significant impact had occurred, and recommended no further action (NFA).

In 1994, the Environmental Protection Agency Region VI Office (EPA) concurred in this finding, approved cessation of the investigative process, and requested follow-up soil monitoring. Monitoring samples were collected and analyzed in 1996, and the results confirmed that no significant impact has occurred.

This summary report for SWMU #13 has been prepared in conjunction with submittal of a Resource Conservation and Recovery Act (RCRA) Part B permit application covering post closure care of the Ciniza Refinery Land Treatment Unit. All investigative activities for SWMU #13 have been completed. This assessment is summarized as follows.

- ⇒ The drainage ditch located at the evaporation ponds continues in active service conveying wastewater to north area evaporation ponds.
- ⇒ Local soil underlying the drainage ditch predominantly consists of bentonitic clays and silts having a very low hydraulic conductivity.
- ⇒ Soil sampling and analysis was conducted during an initial site investigation and subsequent monitoring assessment. No organic contaminants were detected in any sample. Trace metals were detected within ambient background concentration. The site was recommended for NFA and approved by the EPA.
- ⇒ SWMU #13 has been characterized in accordance with current applicable state and federal regulations, and the available data indicate that no significant environmental impact or migration has occurred.

2.0 BACKGROUND

During 1987, a RCRA Facility Assessment was conducted at the Ciniza Refinery. This assessment identified various "units of concern" and recommended further evaluation. A RCRA Facility Investigation (RFI) was subsequently conducted and this drainage ditch site was identified as SWMU #13.

Applied Earth Sciences (AES) investigated this drainage ditch site during the early 1990s. Soil samples were collected and analyzed. No organic contaminants were detected in any sample. Trace metals were detected in all samples; all of which indicated levels within the range of ambient background concentration.

As a result of the investigation, AES recommended no further action for this SWMU. Results and recommendations were reported to the EPA in 1991. The EPA approved the NFA finding in 1994, with the added provision that on-going soil monitoring be performed every five years.

3.0 SITE LOCATION AND DESCRIPTION

SWMU #13 is located within the Ciniza Refinery's property boundary. This refinery is located on the north side of Interstate 40, approximately 17 miles east of Gallup, New Mexico. Within the refinery, SWMU #13 is located within the evaporation pond area and north of Evaporation Pond No. 2. See Figure No. 1 for location details.

The referenced drainage ditch is a component of the refinery wastewater treatment system. Effluent water from Evaporation Pond No. 10 is conveyed along the ditch and distributed to north area evaporation ponds.

SWMU #13 consists of a man-made earthen channel measuring approximately 20 feet wide by 120 feet long. Nominal water depth ranges from 1 to 4 feet. Total hydraulic holding capacity is approximately 50,000 gallons.

This drainage ditch was constructed in 1970's and has been in continuous operation since that time.

4.0 SITE INSPECTION

During the week of March 23, 1998, an on-site inspection was performed. Observations are noted as follows:

- The referenced drainage ditch was observed in active service conveying wastewater to north area evaporation ponds.
- Ditch sidewalls were visually inspected and found to be intact and stable. No erosion, damage, or sign of containment failure was observed.
- Native shrubs and grasses were observed growing around the perimeter of the ditch. No signs of distress were evident.
- Local soil in the vicinity of the drainage ditch presented as bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10⁻⁷ cm/sec.

5.0 DATA REVIEW

Soil samples from around the perimeter of the drainage ditch site were collected and analyzed during the initial site investigation and a subsequent monitoring assessment. Samples were collected at multiple locations and depths. Angled borings were made during the monitoring assessment to obtain samples from beneath the ditch.

In 1991, the initial site investigation collected samples from four locations and depths of 2 and 4 feet below ground surface. Analysis found no detection of VOCs or SVOCs in any sample. Trace metals were detected in all samples; all of which indicated levels within ambient background concentration.

In 1996, monitoring samples were collected at three locations at a depth of 6 feet below ground surface. As with the previous investigation, analysis found no detection of VOCs or SVOCs in any sample. Trace metals were detected in all samples; all of which indicated levels within ambient background concentration

6.0 ASSESSMENT

Based on the site inspection and data review, the aeration basins site is assessed as follows.

- The drainage ditch remains in active service conveying and distributing wastewater to north area evaporation ponds.
- The drainage ditch is located in a geologic setting in which the underlying bentonitic soil has a very low hydraulic conductivity which effectively serves as an aquiclude.
- The no further action finding that was recommended by AES and approved by the EPA is appropriate for this site.
- The next soil monitoring event is scheduled for 2001. If this sampling and analysis confirms previous findings, further monitoring is unnecessary and should be discontinued.



7.0 PROFESSIONAL ENGINEER'S CERTIFICATION

This summary report for SWMU #13 has been prepared under the direct supervision and control of a Registered Professional Engineer.

Client: Ciniza Refinery Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

Job No.: 98-205-03

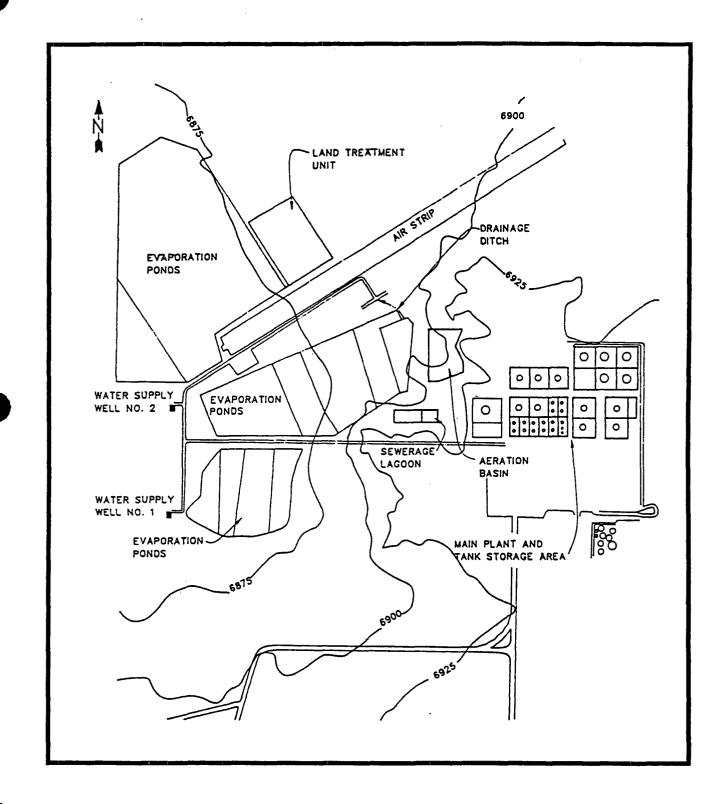
Date: April 23, 1998

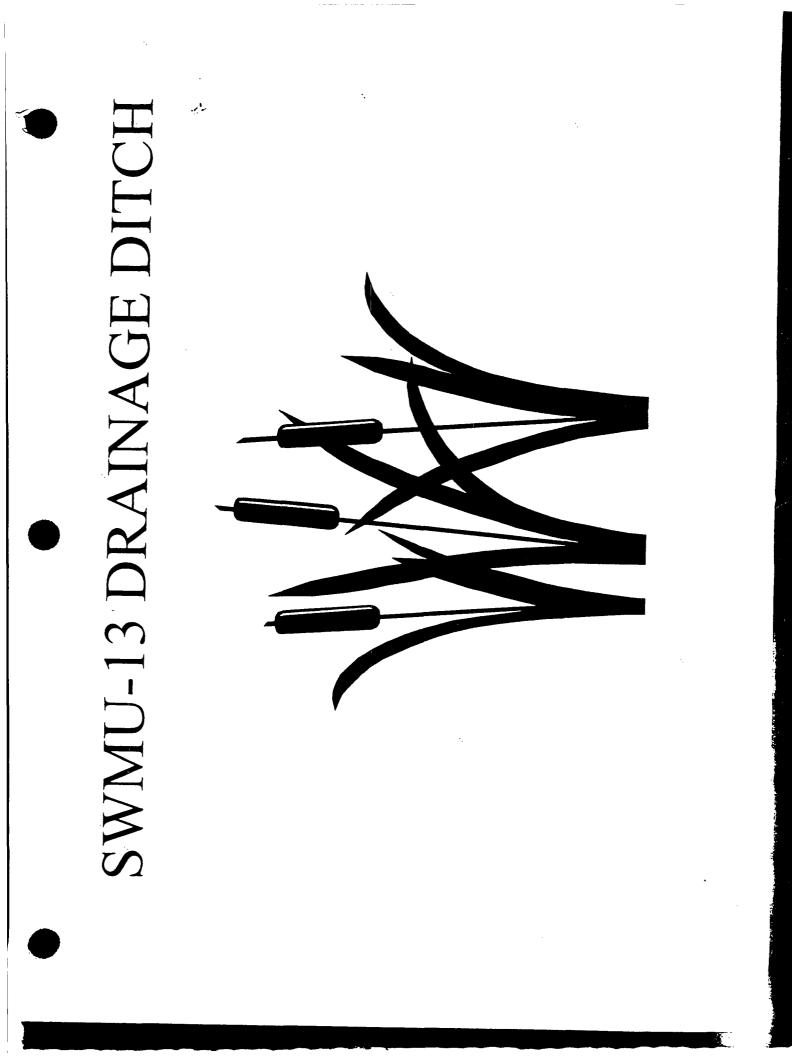
Prepared and Certified by:

Thomas D. Atwood, P.E. Colorado Registration No. 22866

SWMU #13 Summary Report

Figure No. 13 Drainage Ditch Site







505. 722.3833

March 20, 1997

Mr. Benito Garcia, Bureau Chief New Mexico Environment Department Hazardous and Radioactive Materials Bureau 2044 Galisteo P. O. Box 26110 Santa Fe, New Mexico 87502

SUBJECT: QUARTERLY PROGRESS REPORT - 4th Quarter, 1996 and 1" Quarter, 1997

Dear Mr. Garcia:

Pursuant to Giant's <u>HSWA Permit Condition C.4., Page 11</u> and the May 31, 1990, <u>RFI</u> <u>Workplan Approval</u>, Giant Refining Company is submitting information for the fourth Quarter of 1996 and the first Quarter of 1997.

SWMU 6 - Tank Farm / Tank 569 :

A letter was submitted to Mr. Patricio Sanchez of the Oil Conservation Division (OCD) on November 25, 1996. The office of the HRMB was copied on this correspondence which addressed the borings completed between 8/22/96 and 9/9/96. Submitted with that letter were the following items: Boring Logs for borings 0643 through 0650, Well Installation Diagrams for OW-29 and OW-30, analytical results from soil and groundwater samples, and a site map indicating all borings done to date.

Free product and groundwater recovery from the Tank 569 area has begun. The boring originally identified as B-2 was completed as a well and designated as OW-27. This well is now called RW-1.

Giant has received verbal permission from the owner to do soil borings and sample groundwater on his property. This project is now in the planning stage. Boring Logs and analytical results will be forwarded to your office as soon as they are available.

SWMU1 - Aeration Lagoons :

As reported in the Quarterly Progress Report submitted 9/10/96, several samples taken at the perimeter of the Aeration Lagoons showed the possible presence of some volatile organic compounds. Confirmatory samples were taken on 2/18/97. The analytical results are provided with this report. One sample showed a small amount of ethylbenzene (below NM Groundwater Standards). All other results were Not Detected (ND).

SWMU 13 - Drainage Ditch :

As part of the "No Further Action" Approval with Modifications for SWMU -13 (Drainage Ditch), the EPA, in it's 8/24/94 correspondence to Giant, directed that additional sampling be performed every 5 years. The required samples were to be drilled at an angle with soil from the $6 - 6 \frac{1}{2}$ foot depth sent for analysis. Volatile Organic Compounds, Semi-Volatile Compounds, and metals were analyzed on the three samples taken. Enclosed are the analytical results for the first 5 year sampling event, which was performed 10/23/96. A diagram indicating the sample points is also enclosed. No volatile or semi-volatile compounds were detected. Metal results are comparable (or lower) that those found in the original RFI work.

If you have questions or concerns regarding this report, please do not hesitate to call me at (505) 722-0217 or Dorinda Mancini at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely

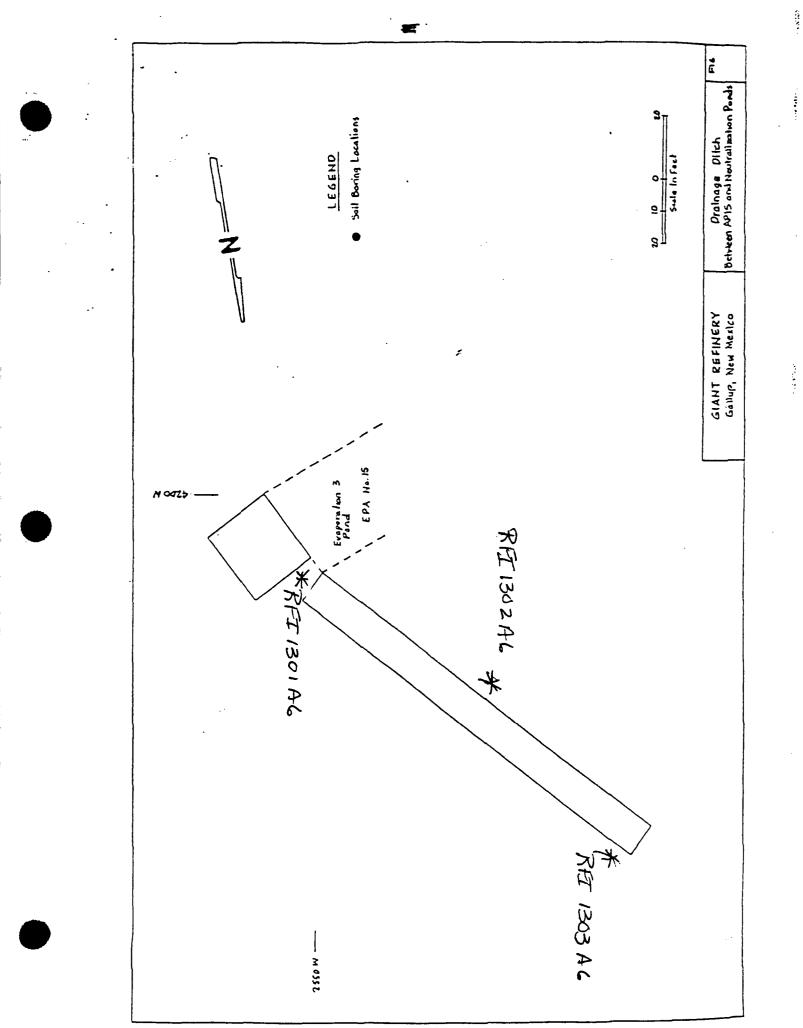
David Pavlich, HSE Manager Giant Refining Company

cc: Kim Bullerdick, Corporate Counsel, Giant Industries Arizona, Inc. Dick Platt, General Manager, Ciniza Refinery Dorinda Mancini, Environmental Manager, Ciniza Refinery Steve Morris, Environmental Specialist, Ciniza Refinery Patricio Sanchez, Petroleum Engineer, OCD

RFI1Q97

ANALYTICAL RESULTS SWMU-13 DRAINAGE DIT REFINING CO.

QUARTERLY PROGRESS REPOR 4TH QTR. 96, 1ST QTR 97



2506 W. Main Street Farmington, New Mexico 87401

TRACE METAL CONCENTRATION

Client:Giant Refining CompanyProject:Ciniza RefinerySample ID:RFI 1301 A6Matrix:SoilCondition:IntactLab ID:0396G02343

Date Reported:	11/14/96
Date Sampled:	10/24/96
Date Received:	10/25/96

ectedion Result باست Parameter (meilke) (meilke) کاریکا

Arsenic	< 0.25	0.25	SW-846-7000
Barium	119	0.50	SW-846 6010
Cadmium	< 0.05	0.05	SW-846 6010
Chromium	4.45	0.50	SW-846 6010
Cobalt	2.25	0.50	SW-846 6010
Copper	2.05	0.50	SW-846 6010
Selenium	< 0.250	0.250	SW-846-7000
Lead	4.60	2.50	SW-846-6010
Mercury	< 0.050	0.050	SW-846 7171A
Nickel	4.05	0.50	SW-846 6010
Antimony	<0.250	0.250	SW-846 6010
Vanadium	6.90	0.50	SW-846 6010
Zinc	6.40	2.50	SW-846 6010
Beryllium	4.750	0.200	SW-846 6010
	•		

References:

Method 3050: Acid Digestion for Sediments, Sludges, and Soil, SW-846, Rev. 1, July 1992.

Reported By: 6

Reviewed By: 03

2506 W. Main Street Farmington, New Mexico 87401

TRACE METAL CONCENTRATION

Client: Project: Sample ID: Matrix: Condition: Lab ID: Giant Refining Company Ciniza Refinery RFI 1302 A6 Soil Intact 0396G02344

Date Reported:	11/14/96
Date Sampled:	10/24/96
Date Received:	10/25/96

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	Result		TULL	
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Parameter	(malka)	- Innoll	301	Methodes
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Arsenic	< 0.25	0.25	SW-846-7000
Barium	84.5	0.50	SW-846 6010
Cadmium	< 0.05	0.05	SW-846 6010
Chromium	5.15	0.50	SW-846 6010
Cobalt	2.60	0.50	SW-846 6010
Copper	2.30	0.50	SW-846 6010
Selenium	< 0.250	0.250	SW-846-7000
Lead	5.55	2.50	Sw-846-6010
Mercury	< 0.050	0.050	SW-846 7171A
Nickel	4.60	0.50	SW-846 6010
Antimony	<0.250	0.250	SW-846 6010
Vanadium	8.05	0.50	SW-846 6010
Zinc	7.30	2.50	SW-846 6010
Beryllium	6.00	0.200	SW-846 6010

References:

Method 3050: Acid Digestion for Sediments, Sludges, and Soil, SW-846, Rev. 1, July 1992.

Reported By:

Inter-Mountain Laboratories, Inc.

2506 W. Main Street Farmington, New Mexico 87401

TRACE METAL CONCENTRATION

Client: Project: Sample ID: Matrix: Condition: Lab ID: Giant Refining Company Ciniza Refinery RFI 1303 A6 Soil Intact 0396G02345

Date Reported:	11/14/96
Date Sampled:	10/24/96
Date Received:	10/25/96

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Arsenic	< 0.25	0.25	SW-846-7000
Barium	93.5	0.50	SW-846 6010
Cadmium	< 0.05	0.05	SW-846 6010
Chromium	4.90	0.50	SW-846 6010
Cobalt	2.55	0.50	SW-846 6010
Copper	2.55	0.50	SW-846 6010
Selenium	< 0.250	0.250	Sw-846-7000
Lead	5.00	2.50	SW-846-6010
Mercury	< 0.050	0.050	SW-846 7171A
Nickel	4.50	0.50	SW-846 6010
Antimony	<0.250	0.250	SW-846 6010
Vanadium	7.55	0.50	SW-846 6010
Zinc	7.30	2.50	SW-846 6010
Beryllium	0.590	0.200	SW-846 6010

References:

Method 3050: Acid Digestion for Sediments, Sludges, and Soil, SVV-846, Rev. 1, July 1992.

Reported By:

Reviewed By:

Inter-Mountain Laboratories, Inc.

2506 W. Main Street Farmington, New Mexico 87401

Quality Control / Quality Assurance

Spike Analysis / Blank Analysis TOTAL METALS

Client: Project: Sample Matrix: Giant Refining Company Ciniza Refinery soil

 Date Reported:
 11/14/96

 Date Analyzed:
 11/13/96

 Date Received:
 10/25/96

	_	Spike Analysis		
.	Spike Result	Sample Result	Spike Added	Percent
Parameter	(mg/L)	(mg/L)	(mg/L)	Recovery
Antimony	0.506	0.500	0.500	101%
Arsenic*	•	•	•	•
Barium	0.55	0.50	0.50	98%
Cadium*	•	•	*	*
Chromium	0.53	0.50	0.50	106%
Lead	0.51	0.500	0.50	102%
Mercury	0.520	0.50	0.500	96%
Selenium	0.022	0.025	0.025	114%
Beryllium	0.52	0.50	0.50	104%
Cobalt	0.52	0.50	0.50	104%
Copper	0.52	0.50	0.50	104%
Nickel	0.50	0.50	0.50	101%
Vanadium	0.53	0.50	0.500	107%
Zinc	0.57	0.50	0.50	88%

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Antimony	ND	0.25	mg/L
Arsenic	· ND	0.25	mg/L
Barium	ND	0.50	mg/L
Cadmium	ND	0.25	mg/L
Chromium	ND	0.50	mg/L
Lead	ND	0.75	mg/L
Mercury	ND	0.05	mg/L
Selenium	ND	0.25	mg/L
Silver	ND	0.50	mg/L
Beryllium	ND	0.20	mg/L
Cobalt	ND	0.50	mg/L
Copper	ND	0.50	mg/L
Nickel	ND	0.5	mg/L
Vanadium	ND	0.50	mg/L

Reviewed by



Method 3050: Acid Digestion for Sediments, Sludges, and Soil SW-846, Rev. 1, July 1992.

Comments:

Reported by

*Spikes did not recover due to matrix interferences.

Inter-Mountain Laboratories, Inc.

2506 W. Main Street Farmington, New Mexico 87401

Quality Control / Quality Assurance--Known Analysis TOTAL METALS

Client: Project: Sample Matrix: Giant Refining Company Ciniza Refinery soil
 Date Reported:
 11/14/96

 Date Analyzed:
 11/13/96

 Date Received:
 10/25/96

		Known Analysis		
Parameter	Found Result	Known Result	Percent Recovery	Units
Antimony	1.06	1.00 -	106%	mg/L
Arsenic	0.010	0.010	100%	mg/L
Barium	1.07	1.00	107%	mg/L
Cadmium	1.08	1.00	108%	mg/L
Chromium	1.06	1.00	106%	mg/L
Lead	1.03	1.00	103%	mg/L
Mercury	0.004	0.004	103%	mg/L
Selenium	0.010	0.010	100%	mg/L
Silver	0.49	0.50	98%	mg/L
Beryllium	1.00	1.00	100%	mg/L
Cobalt	1.01	1.00	101%	mg/L
Copper	1.04	1.00	104%	mg/L
Nickel	0.99	1.00	99%	mg/L
Vanadium	1.00	1.00	100%	mg/L

References:

Method 3050: Acid Digestion for Sediments, Sludges, and Soil, SW-846, Rev. 1, July 1992.

Reported by

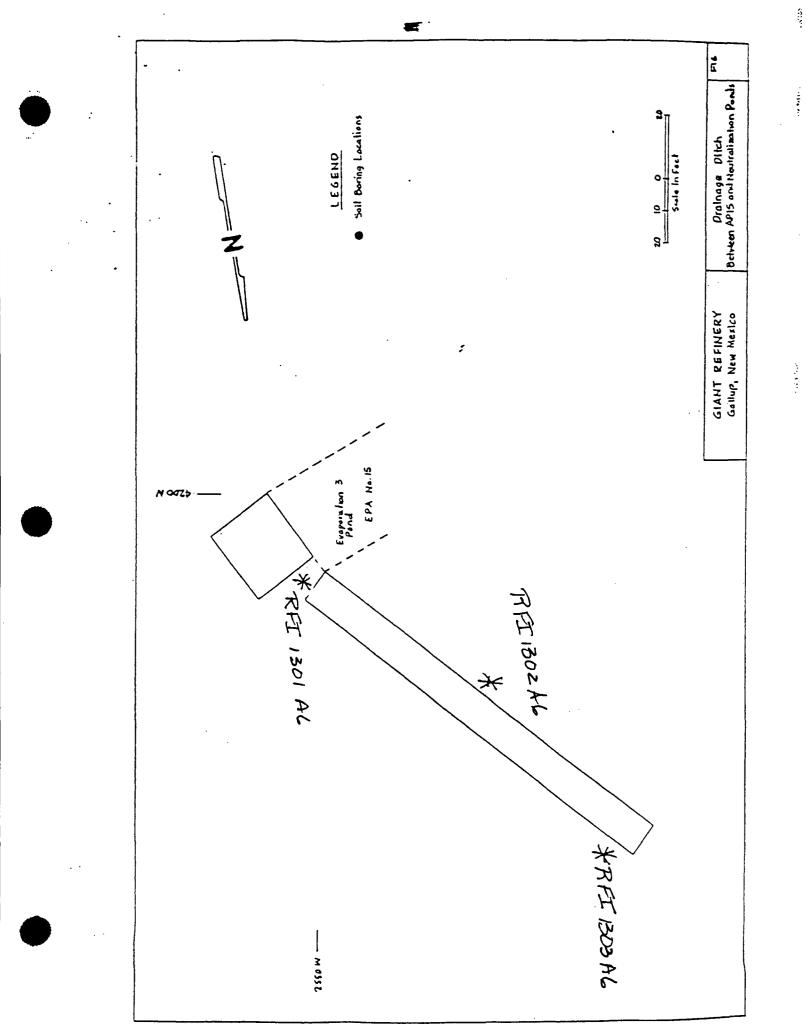
Reviewed by ______

<u>TABLE -1</u> BACKGROUND METALS

/____

Total Metals

Parameter	Analytical Method	Reporting Limit mg/kg	
Antimony	6010	ć.0	
Arsenic	7060	0.5	
Barium	6010	1.0	
Ber7llium	6010 .	0.2	
Cadmium	6010	0.5	
Chromium	6010	I.0	
Cobalt	6010	1.0	
Copper	6010	2.0	
Lead	6010	5.0	
Mercur7	7471	0.2	
Nickel	6010	4.0	
Pozzsilla not reques	ted 6010	500	
Selenium /	7740	0.5	
Vanadium	6010	. 1.0	
Zinc	6010	2.0	
		•	



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Inter Mountain Laboratories. Inc.

1160 Research Drive Bozeman, Montana 59715

EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

Sample ID: F Project ID: C Lab ID: E	GIANT REFINING COMP. RFI 1301 A6 Ciniza 8969762 Soil	ANY 0396G02343		Date Reported: Date Sampled: Date Received: Date Extracted: Date Analyzed:	11/07/96 10/23/96 10/29/96 11/04/96 11/05/96
Parameter	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	Resu	lt	PQL	Units
1,1,1,2-Tetrach	hloroethane	N	D	0.2	mg/kg
1,1,1-Trichloro	ethane	· N	D,	0.2	mg/kg
1,1,2,2-Tetrach	nloroethane	N	D	0.2	mg/kg
1,1,2-Trichloroe	ethane	N	D	0.2	mg/kg
1,1-Dichloroeth	ane	N	D	0.2	mg/kg
1,1-Dichloroeth	ene	N	D ·	0.2	mg/kg
1,1-Dichloropro	репе	N	D	0.2	mg/kg
1,2,3-Trichlorol	penzene	NI	D	0.2	mg/kg
1,2,3-Trichlorop	propane	N	D	0.2	mg/kg
1,2,4-Trichlorol	benzene	NI	D	0.2	mg/kg
2,4-Trimethyl	benzene	N	D	0.2	mg/kg
2-Dibromo-3-	chloropropane (DBCP)	N	D	0.2	mg/kg
1,2-Dibromoeth	iane (EDB)	N	D	0.2	mg/kg
1,2-Dichlorober	izene	N	D	0.2	mg/kg
1,2-Dichloroeth	ane	N	D	0.2	mg/kg
1,2-Dichloropro	pane	N	D	0.2	mg/kg
1,3,5-Trimethyl	benzene	NI	D	0.2	mg/kg
1,3-Dichlorober	izene	N	D	0.2	mg/kg
1,3-Dichloropro	pane	N	D	0.2	mg/kg
1,4-Dichlorober	nzene	N	D	0.2	mg/kg
2,2-Dichloropro	pane	N	D	0.2	mg/kg
2-Chlorotoluene	•	NI	D	0.2	mg/kg
4-Chlorotoluene	•	N	D	0.2	mg/kg
4-Isopropyitolue	ene	N	D	0.2	mg/kg
Benzene		N	C	0.2	mg/kg
Bromobenzene		N	D	0.2	mg/kg
Bromochiorome	thane	N	D	0.2	mg/kg
Bromodichlorom	nethane	N	D	0.2	mg/kg
Bromoform		N	D	0.2	mg/kg
Bromomethane		N	D	0.2	mg/kg

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EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING C	OMPANY		
Sample ID:	RFI 1301 A6		Date Reported:	11/07/96
Project ID:	Ciniza		Date Sampled:	10/23/96
Lab ID:	B969762	0396602343	Date Received:	10/29/96
Matrix:	Soil	Date Sampled: 969762 0396G02343 Date Received: Date Sampled: Date Received: Date Extracted: Date Analyzed: Result PQL oride ND 0.2 ethene ND 0.2 propene ND 0.2 ethane ND 0.2 ethane ND 0.2 idene ND 0.2 ide ND 0.2	11/04/96	
			Date Analyzed:	11/05/96
Parameter		Result	PQL	Units
Continued	·		· · · · · · · · · · · · · · · · · · ·	J
Carbon Tetra	ichloride	ND ,		mg/kg
Chlorobenzer	ne	ND	0.2	mg/kg
Chloroethane)	ND	0.2	mg/kg
Chloroform		ND	0.2	mg/kg
Chlorometha	ne	ND	0.2	mg/kg
cis-1,2-Dichle	oroethene	ND	0.2	mg/kg
cis-1,3-Dichle	oropropene	ND	0.2	mg/kg
Dibromochlo	romethane	ND	0.2	mg/kg
Dibromometh	nane	ND	0.2	mg/kg
chlorodiflue	oromethane	ND	0.2	mg/kg
hylbenzene	!	ND	0.2	mg/kg
Hexachlorobu	utadiene	ND	0.2	mg/kg
Isopropylben	zene	ND	0.2	mg/kg
m,p-Xylene		ND	0.2	mg/kg
Methylene ch	nloride	ND	1.0	mg/kg
n-Butylbenze	ne	ND	0.2	mg/kg
n-Propyibenz	ene	ND	0.2	mg/kg
Naphthalene		ND	0.2	mg/kg
o-Xylene		ND	0.2	mg/kg
sec-Butylben:	zene	· ND	0.2	mg/kg
Styrene		ND	0.2	mg/kg
tert-Butylben:	zene	ND	0.2	mg/kg
Tetrachloroet	hene (PCE)	ND	0.2	mg/kg
Toluene		ND	0.2	mg/kg
trans-1,2-Dic	hloroethene	ND	0.2	mg/kg
Trichloroethe	ne (TCE)	ND	0.2	mg/kg
Trichlorofluor	omethane	ND	0.2	mg/kg
Vinyl Chloride	e	ND	0.2	mg/kg
Xylenes (tota	1)	ND	0.2	mg/kg

EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

ontinued				
Parameter		Result	PQL	Units
			Date Analyzed:	11/05/96
Matrix:	Soil		Date Extracted:	11/04/96
Lab ID:	B969762	0396G02343	Date Received:	10/29/96
Project ID:	Ciniza		Date Sampled:	10/23/96
Sample ID:	RFI 1301 A6	• *	Date Reported:	11/07/96
Client:	GIANT REFINING C	OMPANY		

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	93	70 - 121
Bromofluorobenzene	100	74 - 121
Toluene-d8	104	81 - 117

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed

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EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS BASE/NEUTRAL/ACID EXTRACTABLES

Client: Sample ID: Project ID: Lab ID: Matrix:	GIANT REFINING COM RFI 1301 A6 Ciniza B969762 Soil	ИРАNY 0396G02343	Date Reported: Date Sampled: Date Received: Date Extracted: Date Analyzed:	11/08/96 10/23/96 10/29/96 11/04/96 11/05/96
Parameter		Result	PQL	Units
1,2,4-Trichlo	orobenzene	ND -	1.0	mg/kg
1,2-Dichloro	benzene	ND	1.0	mg/kg
1,3-Dichloro	benzene	ND	1.0	mg/kg
1,4-Dichloro	benzene	ND	1.0	mg/kg
2,4,5-Trichle	prophenol	ND	2.0	mg/kg
2,4,6-Trichle	prophenol	ND	2.0	mg/kg
2,4-Dichloro	phenol	ND	1.0	mg/kg
2,4-Dimethy	Iphenol	ND	1.0	mg/kg
2,4-Dinitropl	henol	ND	2.0	mg/kg
4-Dinitroto	oluene	ND	1.0	mg/kg
.,6-Dinitroto	oluene	ND	1.0	mg/kg
2-Chioronapi		ND	1.0	mg/kg
2-Chlorophe	nol	ND	1.0	mg/kg
2-Methylnap	hthalene	ND	1.0	mg/kg
2-Methylphe		ND	1.0	mg/kg
2-Nitroaniline		ND	5.0	mg/kg
2-Nitrophenc		ND ·	1.0	mg/kg
3,3'-Dichlord		ND	2.0	mg/kg
	nol/4-Methylphenol	ND	1.0	mg/kg
3-Nitroaniline		ND	5.0	mg/kg
4,6-Dinitro-2	-methylphenol	ND	5.0	mg/kg
	nyl-phenylether	ND	1.0	mg/kg
4-Chloro-3-m	· •	ND	2.0	mg/kg
4-Chloroanili		ND	2.0	mg/kg
	yl-phenylether	ND	1.0	mg/kg
4-Nitroaniline		ND	2.0	mg/kg
4-Nitropheno		ND	2.0	mg/kg
Acenaphthen	e	ND	1.0	mg/kg

.

EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS BASE/NEUTRAL/ACID EXTRACTABLES

Sample ID:RFI 1301 A6Date Reported:11/08/96Project ID:CinizaDate Sampled:10/23/96Lab ID:B9697620396G02343Date Received:10/29/96Matrix:SoilDate Extracted:11/04/96ParameterResultPQLUnits	Client:	GIANT REFINING CO	MPANY		
Project ID:Ciniza B963762Date Sampled: Date Sampled: 10/23/96Matrix:Soil0396G02343Date Received: Date Received: 11/04/96Matrix:SoilDate Sampled: Date Analyzed: 11/05/96ParameterResultPQLUnitsAcenaphtyleneND1.0mg/kgAnthraceneND1.0mg/kgBenzo(a)pyreneND1.0mg/kgBenzo(a)pyreneND1.0mg/kgBenzo(a)pyreneND1.0mg/kgBenzo(a)pyreneND1.0mg/kgBenzo(a)pyreneND1.0mg/kgBenzo(b)fluorantheneND1.0mg/kgBenzo(b)fluorantheneND1.0mg/kgBenzo(b)fluorantheneND1.0mg/kgBenzo(b)fluorantheneND1.0mg/kgBenzo(b)fluorantheneND1.0mg/kgbis12-Chloroethyx)methaneND1.0mg/kgbis12-Chloroethyk)methareND1.0mg/kgbis12-Chloroethyk)pthtalateND1.0mg/kgDi-n-Octyk)pthtalateND1.0mg/kgDi-n-Octyk)pthtalateND1.0mg/kgDi-n-Octyk)pthtalateND1.0mg/kgDi-n-Octyk)pthtalateND1.0mg/kgDi-n-Octyk)pthtalateND1.0mg/kgDi-n-Octyk)pthtalateND1.0mg/kgDiethylpthtalateND1.0mg/kgDiethylpthtalateND<	•			Date Reported:	11/08/96
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Matrix: Soil Date Extracted: Date Analyzed: 11/04/96 11/05/96 Parameter Result PQL Units Inninued ND 1.0 mg/kg Acenaphthylene ND 1.0 mg/kg Anthracene ND 1.0 mg/kg Benzo(a)anthracene ND 1.0 mg/kg Benzo(a)anthracene ND 1.0 mg/kg Benzo(a)anthracene ND 1.0 mg/kg Benzo(b/fuoranthene ND 1.0 mg/kg Benzo(k/fuoranthene ND 1.0 mg/kg Inzyl Alcohol ND 2.0 mg/kg Isi2-Chloroethoxylmethane ND 1.0 mg/kg Isi2-Chloroethoxylmethane ND 1.0 mg/kg Disi2-Chloroethoxylmethate ND 1.0 mg/kg Disi2-Chloroethoxylmethate ND 1.0 mg/kg Disi2-Chloroethoxylmethate ND 1.0 mg/kg Dir-n-Butylphthalate ND 1.0 mg	-		0396602343	Date Received:	10/29/96
Date Analyzed: 11/05/96 Parameter Result PQL Units continued Acenaphthylene ND 1.0 mg/kg Actenaphthylene ND 1.0 mg/kg Benzo(a)anthracene ND 1.0 mg/kg Benzo(a)anthracene ND 1.0 mg/kg Benzo(a)pyrene ND 1.0 mg/kg Benzo(a)pyrene ND 1.0 mg/kg Benzo(a)hilperylene ND 1.0 mg/kg Benzo(k)fluoranthene ND 1.0 mg/kg Benzo(k)fluoranthene ND 1.0 mg/kg Benzo(k)fluoranthene ND 1.0 mg/kg Inzyl Alcohol ND 2.0 mg/kg Inzyl Alcohol ND 1.0 mg/kg sisi2-Chloroethoxylmethane ND 1.0 mg/kg bisi2-Chloroethoxylphthalate ND 1.0 mg/kg Din-n-Burylphthalate ND 1.0 mg/kg Dibenzolnthalate </th <th></th> <th></th> <th>0000002040</th> <th>Date Extracted:</th> <th>11/04/96</th>			0000002040	Date Extracted:	11/04/96
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FluoreneND1.0mg/kgHexachlorobenzeneND2.0mg/kgHexachlorobutadieneND2.0mg/kgHexachlorocyclopentadieneND1.0mg/kgHexachloroethaneND2.0mg/kg	Dimethylpht	halate	ND	1.0	mg/kg
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Hexachloroethane ND 2.0 mg/kg	Hexachlorob	outadiene	ND	2.0	mg/kg
	Hexachloroc	cyclopentadiene	ND	1.0	mg/kg
Indeno(1,2,3-cd)pyrene ND 1.0 mg/kg	Hexachloroe	ethane	ND	2.0	mg/kg
	Indeno(1,2,3	3-cd)pyrene	ND	1.0	mg/kg

EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS **BASE/NEUTRAL/ACID EXTRACTABLES**

ContinuedIsophoroneND1.0mg/kN-Nitrosodi-n-propylamineND1.0mg/kN-NitrosodiphenylamineND1.0mg/kNaphthaleneND1.0mg/kNitrobenzeneND1.0mg/kPentachlorophenolND5.0mg/kPhenanthreneND1.0mg/kPhenolND1.0mg/k	Client:	GIANT REFINING COMPA	NY		
IndicationDate Bega762 Date Soil0396G02343Date Received:10/29/96 Date Extracted:11/04/96 Date Analyzed:ParameterResultPQLUnitsSontinuedIsophoroneND1.0mg/kIsophoroneND1.0mg/kN-Nitrosodi-n-propylamineND1.0mg/kN-NitrosodiphenylamineND1.0mg/kNaphthaleneND1.0mg/kNaphthaleneND1.0mg/kPentachlorophenolND1.0mg/kPhenolND1.0mg/kCUALITY CONTROL - Surrogate Recovery%CC Limits2,4,6-Tribromophenol5919 - 1222-Fluorobiphenyl5930 - 1152-Fluorobiphenyl5930 - 1152-Fluorobiphenyl5123 - 120Phenol-d67824 - 113	Sample ID:	RFI 1301 A6			11/08/96
Labor D.Doto D.Doto D.Matrix:SoilDate Extracted:11/04/96Date Extracted:11/05/96ParameterResultPQLUnitscontinuedND1.0mg/kN-Nitrosodi-n-propylamineND1.0mg/kN-NitrosodiphenylamineND1.0mg/kNaphthaleneND1.0mg/kNitrobenzeneND1.0mg/kPentachlorophenolND1.0mg/kPhenanthreneND1.0mg/kCUALITY CONTROL - Surrogate Recovery%QC Limits2.4.6-Tribromophenol5919 - 1222-Fluorobiphenyl5930 - 1152-Fluorobiphenyl5123 - 120Phenol-d67824 - 113	Project ID:	Ciniza		•	
Date Analyzed:11/05/96ParameterResultPQLUnitsSontinuedIsophoroneND1.0mg/sIsophoroneND1.0mg/sN-Nitrosodi-n-propylamineND1.0mg/sN-NitrosodiphenylamineND1.0mg/sNaphthaleneND1.0mg/sNitrobenzeneND1.0mg/sPentachlorophenolND1.0mg/sPhenolND1.0mg/sOUALITY CONTROL - Surrogate Recovery%QC Limits2,4,6-Tribromophenol5919 - 1222-Fluorobiphenyl5930 - 1152-Fluorobiphenyl5930 - 1152-Fluorobiphenyl5123 - 120Phenol-d67824 - 113	Lab ID:	B969762	0396G02343		10/29/96
ParameterResultPQLUnitsJontinuedIsophoroneND1.0mg/kN-Nitrosodi-n-propylamineND1.0mg/kN-NitrosodiphenylamineND1.0mg/kN-NitrosodiphenylamineND1.0mg/kNaphthaleneND1.0mg/kNitrobenzeneND1.0mg/kPhenatchlorophenolND5.0mg/kPhenolND1.0mg/kPhenolND1.0mg/kQUALITY CONTROL - Surrogate Recovery%QC Limits2, 4, 6-Tribromophenol5919 · 1222-Fluorobiphenyl5930 · 1152-Fluorobiphenyl5930 · 1152-Fluorophenol5123 · 120Phenol-d67824 - 113	Matrix:	Soil			
Isophorone ND 1.0 mg/k N-Nitrosodi-n-propylamine ND 1.0 mg/k N-Nitrosodiphenylamine ND 1.0 mg/k Naphthalene ND 1.0 mg/k Naphthalene ND 1.0 mg/k Nitrobenzene ND 1.0 mg/k Pentachlorophenol ND 5.0 mg/k Phenol ND 1.0 mg/k OUALITY CONTROL - Surrogate Recovery % QC Limits 2,4,6-Tribromophenol 59 19 - 122 2-Fluorobiphenyl 59 30 - 115 2-Fluorobiphenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113				Date Analyzed:	11/05/96
Isophorone ND 1.0 mg/k N-Nitrosodi-n-propylamine ND 1.0 mg/k N-Nitrosodiphenylamine ND 1.0 mg/k Naphthalene ND 1.0 mg/k Naphthalene ND 1.0 mg/k Nitrobenzene ND 1.0 mg/k Pentachlorophenol ND 5.0 mg/k Phenanthrene ND 1.0 mg/k Phenol ND 1.0 mg/k OUALITY CONTROL - Surrogate Recovery % QC Limits QC Limits 2.4.6-Tribromophenol 59 19 - 122 - 2.4.6-Tribromophenol 59 30 - 115 - 2.Fluorobiphenyl 59 30 - 115 - 2.Fluorobiphenol 62 25 - 121 - Nitrobenzene-d5 51 23 - 120 - Phenol-d6 78 24 - 113 -	Parameter		Result	PQL	Units
N-Nitrosodi-n-propylamine ND 1.0 mg/k N-Nitrosodiphenylamine ND 1.0 mg/k Naphthalene ND 1.0 mg/k Naphthalene ND 1.0 mg/k Nitrobenzene ND 1.0 mg/k Pentachlorophenol ND 5.0 mg/k Phenol ND 1.0 mg/k Phenol ND 1.0 mg/k QUALITY CONTROL - Surrogate Recovery % QC Limits 2.4,6-Tribromophenol 59 2.4,6-Tribromophenol 59 19 - 122 2-Fluorobiphenyl 59 30 - 115 2Fluorobiphenyl 59 30 - 115 2.5 121 Nitrobenzene-d5 51 23 - 120 2.5 Phenol-d6 78 24 - 113 1.0	Continued		· · · ·	······································	
N-Nitrosodiphenylamine ND 1.0 mg/k Naphthalene ND 1.0 mg/k Nitrobenzene ND 1.0 mg/k Pentachlorophenol ND 5.0 mg/k Phenanthrene ND 1.0 mg/k Phenol ND 1.0 mg/k OUALITY CONTROL - Surrogate Recovery % QC Limits Mg/k 2,4,6-Tribromophenol 59 19 - 122 15 2-Fluorobiphenyl 59 30 - 115 2-Fluorobiphenyl 2-Fluorobiphenyl 62 25 - 121 10 Nitrobenzene-d5 51 23 - 120 13	Isophorone		ND	1.0	mg/kg
Naphthalene ND 1.0 mg/k Nitrobenzene ND 1.0 mg/k Pentachlorophenol ND 5.0 mg/k Phenanthrene ND 1.0 mg/k Phenol ND 1.0 mg/k Prene ND 1.0 mg/k QUALITY CONTROL - Surrogate Recovery % QC Limits 2,4,6-Tribromophenol 59 19 - 122 2.4,6-Tribromophenol 59 30 - 115 2.4,6-Tribromophenol 59 30 - 115 2-Fluorobiphenyl 59 30 - 115 2-Fluorophenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	N-Nitrosodi-	n-propylamine	ND	1.0	mg/kg
Nitrobenzene ND 1.0 mg/k Pentachlorophenol ND 5.0 mg/k Phenanthrene ND 1.0 mg/k Phenol ND 1.0 mg/k OUALITY CONTROL - Surrogate Recovery % QC Limits 0 2.4,6-Tribromophenol 59 19 - 122 10 2.4,6-Tribromophenol 59 30 - 115 2 2-Fluorobiphenyl 59 30 - 115 10 2-Fluorophenol 62 25 - 121 10 Nitrobenzene-d5 51 23 - 120 120 Phenol-d6 78 24 - 113 13	N-Nitrosodir	phenylamine	ND	1.0	mg/kg
Pentachlorophenol ND 5.0 mg/k Phenanthrene ND 1.0 mg/k Phenol ND 1.0 mg/k OUALITY CONTROL - Surrogate Recovery % QC Limits 2,4,6-Tribromophenol 59 19 - 122 2-Fluorobiphenyl 59 30 - 115 2-Fluorobiphenyl 59 30 - 115 2-Fluorobiphenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	Naphthalene	9	ND	1.0	mg/kg
Phenanthrene ND 1.0 mg/k Phenol ND 1.0 mg/k irene ND 1.0 mg/k QUALITY CONTROL - Surrogate Recovery % QC Limits 2,4,6-Tribromophenol 59 19 - 122 2-Fluorobiphenyl 59 30 - 115 2-Fluorophenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	Nitrobenzen	e	ND	1.0	mg/kg
Phenol ND 1.0 mg/k irrene ND 1.0 mg/k QUALITY CONTROL - Surrogate Recovery % QC Limits 2,4,6-Tribromophenol 59 19 - 122 2-Fluorobiphenyl 59 30 - 115 2-Fluorophenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	Pentachloro	phenol	ND	5.0	mg/kg
ND 1.0 mg/k QUALITY CONTROL - Surrogate Recovery % QC Limits 2,4,6-Tribromophenol 59 19 - 122 2-Fluorobiphenyl 59 30 - 115 2-Fluorophenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	Phenanthrer	ne	ND	1.0	mg/kg
QUALITY CONTROL - Surrogate Recovery % QC Limits 2,4,6-Tribromophenol 59 19 - 122 2-Fluorobiphenyl 59 30 - 115 2-Fluorophenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	Phenol		ND	1.0	mg/kg
2,4,6-Tribromophenol5919 - 1222-Fluorobiphenyl5930 - 1152-Fluorophenol6225 - 121Nitrobenzene-d55123 - 120Phenol-d67824 - 113	rene		ND	1.0	mg/kg
2-Fluorobiphenyl 59 30 - 115 2-Fluorophenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	QUALITY CO	ONTROL - Surrogate Recover	y %	QC Limits	
2-Fluorophenol 62 25 - 121 Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	2,4,6-Tribro	mophenol	59	19 - 122	
Nitrobenzene-d5 51 23 - 120 Phenol-d6 78 24 - 113	2-Fluorobiph	nenyl	59	30 - 115	
Phenol-d6 78 24 - 113	2-Fluorophe	nol	62	25 - 121	
	Nitrobenzen	e-d5	51	23 - 120	
Terphenyl-d14 62 18 - 137	Phenol-d6		78	24 - 113	
	Terphenyl-d	14	62	18 - 137	

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst

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1160 Research Drive Bozeman, Montana 59715

EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

Client: Sample ID: Project ID: Lab ID: Matrix:	GIANT REFINING COMP RFI 1302 A6 Ciniza 8969763 Soil	ANY 0396G02344	Date Reported: Date Sampled: Date Received: Date Extracted: Date Analyzed:	11/07/96 10/23/96 10/29/96 11/04/96 11/05/96
Parameter		Result	PQL	Units
1,1,1,2-Tetr	achloroethane	ND	0.2	mg/kg
1,1,1-Trichle	proethane	ND -	0.2	mg/kg
1,1,2,2-Tetr	achloroethane	ND	0.2	mg/kg
1,1,2-Trichle	proethane	ŇD	0.2	mg/kg
1,1-Dichloro	ethane	ND	0.2	mg/kg
1,1-Dichloro	ethene	ND	0.2	mg/kg
1,1-Dichloro	propene	ND	0.2	mg/kg
1,2,3-Trichle	probenzene	ND	0.2	mg/kg
1,2,3-Trichle	propropane	ND	0.2	mg/kg
1,2,4-Trichle	probenzene	ND	0.2	mg/kg
2,4-Trimet	thylbenzene	ND	0.2	mg/kg
ı,2-Dibromo	-3-chioropropane (DBCP)	ND	0.2	mg/kg
1,2-Dibromo	ethane (EDB)	ND	0.2	mg/kg
1,2-Dichloro	benzene	ND	0.2	mg/kg
1,2-Dichloro	ethane	ND	0.2	mg/kg
1,2-Dichloro	propane	ND	0.2	mg/kg
1,3,5-Trimet	hylbenzene	ND	0.2	mg/kg
1,3-Dichloro	benzene	ND	0.2	mg/kg
1,3-Dichloro	propane	ND	0.2	mg/kg
1,4-Dichloro	benzene	ND	0.2	mg/kg
2,2-Dichloro	propane	ND	0.2	mg/kg
2-Chlorotolu	ene	ND	0.2	mg/kg
4-Chiorotolu	ene	ND	0.2	mg/kg
4-Isopropylte	pluene	ND	0.2	mg/kg
Benzene		ND	0.2	mg/kg
Bromobenze	ne	ND	0.2	mg/kg
Bromochioro	methane	ND	0.2	mg/kg
Bromodichlo	romethane	ND	0.2	mg/kg
Bromoform		ND	0.2	mg/kg
Bromometha	ine	ND	0.2	mg/kg



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EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING C	OMPANY		
Sample ID:	RFI 1302 A6		Date Reported:	11/07/96
Project ID:	Ciniza		Date Sampled:	10/23/96
Lab ID:	B969763	0396G02344	Date Received:	10/29/96
Matrix:	Soil	000000000	Date Extracted:	11/04/96
(Videli)			Date Analyzed:	11/05/96
Parameter		Result	PQL	Units
Continued		· · · · · · · · · · · · · · · · · · ·		
Carbon Tetra	chloride	ND	0.2	mg/kg
Chlorobenzen	e	ND	0.2	mg/kg
Chloroethane		ND	0.2	mg/kg
Chloroform		ND	0.2	mg/kg
Chloromethar	ne	ND	0.2	` mg/kg
cis-1,2-Dichlo	proethene	ND	0.2	mg/kg
cis-1,3-Dichlo	propropene	ND	0.2	mg/kg
Dibromochlor	omethane	ND	0.2	mg/kg
Dibromometh	ane	ND	0.2	mg/kg
Dichlorodifluc	promethane	ND	0.2	mg/kg
hylbenzene		ND	0.2	mg/kg
Hexachlorobu	itadiene	ND	0.2	mg/kg
Isopropylbenz	zene	ND	0.2	mg/kg
m,p-Xylene		ND	0.2	mg/kg
Methylene ch	loride	ND	1.0	mg/kg
n-Butylbenzer	ne	ND	0.2	_ mg/kg
n-Propylbenze	ene	ND	0.2	mg/kg
Naphthalene		ND	0.2	mg/kg
o-Xylene		ND	0.2	mg/kg
sec-Butylbenz	tene	ND	0.2	mg/kg
Styrene		ND	0.2	mg/kg
tert-Butylbenz	ene	ND	0.2	mg/kg
Tetrachloroet	hene (PCE)	ND	0.2	mg/kg
Toluene		ND	0.2	mg/kg
trans-1,2-Dick	nloroethene	ND	0.2	mg/kg
Trichloroether	ne (TCE)	ND	0.2	mg/kg
Trichlorofluor	omethane	ND	0.2	mg/kg
Vinyl Chloride	1	ND	0.2	mg/kg
Xylenes (total)	ND	0.2	mg/kg

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EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPAN	14		
Sample ID:	RFI 1302 A6	:	Date Reported:	11/07/96
Project ID:	Ciniza		Date Sampled:	10/23/96
Lab ID:	B969763	0396G02344	Date Received:	10/29/96
Matrix:	Soil		Date Extracted:	11/04/96
			Date Analyzed:	11/05/96
Parameter	r	Result	PQL	Units
ontinued				
QUALITY C	ONTROL - Surrogate Recovery	/ _ %	QC Limits	
1,2-Dichlord	oethane-d4	91	70 - 121	
Bromofluore	obenzene	100	74 - 121	
BIOMONUOIC	ODENZENE		7 - 121	

ND - Not Detected at Practical Quantitation Level (PQL)

Peference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst F.D.

Reviewed_

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EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS BASE/NEUTRAL/ACID EXTRACTABLES

Parameter		Besult	POL	Units
		·	Date Analyzed:	11/05/96
Matrix:	Soil		Date Extracted:	11/04/96
Lab ID:	B969763	0396G02 3 44	Date Received:	10/29/96
Project ID: Ciniza		Date Sampled:	10/23/96	
Sample ID:	RFI 1302 A6		Date Reported:	11/08/96
Client:	GIANT REFINING	COMPANY		

Parameter	Result	PUL	Units
1,2,4-Trichlorobenzene	ND -	1.0	mg/kg
1,2-Dichlorobenzene	ND	1.0	mg/kg
1,3-Dichlorobenzene	ND	1.0	mg/kg
1,4-Dichlorobenzene	ND	1.0	mg/kg
2,4,5-Trichlorophenol	ND	2.0	mg/kg
2,4,6-Trichlorophenol	ND	2.0	mg/kg
2,4-Dichlorophenol	ND	1.0	mg/kg
2,4-Dimethylphenol	ND	1.0	mg/kg
2,4-Dinitrophenol	ND	2.0	mg/kg
4-Dinitrotoluene	ND	1.0	mg/kg
6-Dinitrotoluene	ND	1.0	mg/kg
2-Chloronaphthalene	ND	1.0	mg/kg
2-Chlorophenol	ND	. 1.0	mg/kg
2-Methylnaphthalene	ND	1.0	mg/kg
2-Methylphenol	ND	1.0	mg/kg
2-Nitroaniline	ND	5.0	mg/kg
2-Nitrophenol	ND	1.0	mg/kg
3,3'-Dichlorobenzidine	ND	2.0	mg/kg
3-Methylphenol/4-Methylphenol	ND	1.0	mg/kg
3-Nitroaniline	· ND	5.0	mg/kg
4,6-Dinitro-2-methylphenol	ND	5.0	mg/kg
4-Bromophenyl-phenylether	ND	1.0	mg/kg
4-Chloro-3-methylphenol	ND	2.0	mg/kg
4-Chloroaniline	ND	2.0	mg/kg
4-Chlorophenyl-phenylether	ND	1.0	mg/kg
4-Nitroaniline	ND	2.0	mg/kg
I-Nitrophenol	ND	2.0	mg/kg
Acenaphthene	ND	1.0	. mg/kg

EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GIANT REFINING CO	OMPANY		
Sample ID:	RFI 1302 A6		Date Reported:	11/08/96
Project ID:	Ciniza		Date Sampled:	10/23/96
Lab ID:	B969763	0396G02344	Date Received:	10/29/96
Matrix:	Soil		Date Extracted:	11/04/96
			Date Analyzed:	11/05/96
Parameter		Result	PQL	Units
Continued		······································		<u> </u>
Acenaphthyle	ene	ND	1.0	mg/kg
Anthracene		ND	1.0	mg/kg
Benzo(a)anth		ND	1.0	mg/kg
Benzo(a)pyre		ND	1.0	mg/kg
Benzo(b)fluor		ND	1.0	mg/kg
Benzo(g,h,i)p		ND	1.0	mg/kg
Benzo(k)fluor		ND	1.0	mg/kg
Benzoic Acid		ND	5.0	mg/kg
Cenzyl Alcoh		ND	2.0	mg/kg
	ethoxy)methane	ND	1.0	mg/kg
bis(2-Chloroe		ND	1.0	mg/kg
	sopropyl)ether	ND	1.0	mg/kg
bis(2-Ethylhe		ND	5.0	mg/kg
Butylbenzylpl	hthalate	ND	1.0	mg/kg
Chrysene		ND	1.0	mg/kg
Di-n-Butylpht	halate	ND	5.0	mg/kg
Di-n-Octylpht	halate	ND	5.0	mg/kg
Dibenz(a,h)ar	nthracene	ND	1.0	mg/kg
Dibenzofuran		ND	1.0	mg/kg
Diethylphthal.	ate	ND	1.0	mg/kg
Dimethylphth	alate	ND	1.0	mg/kg
Fluoranthene		ND	1.0	mg/kg
Fluorene		ND	1.0	mg/kg
Hexachlorobe	nzene	ND	2.0	mg/kg
Hexachlorobu	Itadiene	ND	2.0	mg/kg
Hexachlorocy	clopentadiene	ND	1.0	mg/kg
Hexachloroeti	hane	ND	2.0	mg/kg
Indeno(1,2,3-	cd)pyrene	ND	1.0	mg/kg

EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS BASE/NEUTRAL/ACID EXTRACTABLES

Client: Sample ID:	GIANT REFINING COMPAN RFI 1302 A6	NY	Date Reported:	11/08/96
Project ID:	Ciniza		Date Sampled:	10/23/96
Lab ID:	B969763	0396G02344	Date Received:	10/29/96
Matrix:	Soil		Date Extracted:	11/04/96
			Date Analyzed:	11/05/96
Parameter		Result	PQL	Units
Continued				
Isophorone		ND	1.0	mg/kg
N-Nitrosodi-n	-propylamine	ND	1.0	mg/kg
N-Nitrosodiph	nenylamine	ND	1.0	mg/kg
Naphthalene		ND	1.0	_ mg/kg
Nitrobenzene		ND	1.0	mg/kg
Pentachioropi	henol	ND	5.0	mg/kg
Phenanthrene	9	ND	1.0	mg/kg
Phenol		ND	1.0	mg/kg
[°] yrene		ND	1.0	mg/kg
QUALITY CO	NTROL - Surrogate Recovery	/ %	QC Limits	
2,4,6-Tribrom	nophenol	59	19 - 122	
2-Fluorobiphe	enyl	58	30 - 115	
2-Fluorophen	oi	55	25 - 121	
Nitrobenzene	-d5	49	23 - 120	
Phenol-d6		69	24 - 113	
Terphenyl-d1	4	58	18 - 137	

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst_

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Bromomethane

1160 Research Drive Bozeman, Montana 59715

EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

Client: GIANT REFINING COMP Sample ID: RFI 1303 A6 Project ID: Ciniza Lab ID: B969764		Date Reported: Date Sampled: Date Received:	11/07/96 10/23/96 10/29/96
Lab ID: B969764 Matrix: Soil	0396G02345	Date Extracted:	11/04/96
		Date Analyzed:	11/05/96
Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	0.2	mg/kg
1,1,1-Trichloroethane	ND	0.2	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.2	mg/kg
1,1,2-Trichloroethane	ND	0.2	mg/kg
1,1-Dichloroethane	ND	0.2	mg/kg
1,1-Dichloroethene	ND	0.2	mg/kg
1,1-Dichloropropene	ND	0.2	mg/kg
1,2,3-Trichlorobenzene	ND	0.2	mg/kg
1,2,3-Trichloropropane	ND	0.2	mg/kg
1,2,4-Trichlorobenzene	ND	0.2	mg/kg
2,4-Trimethylbenzene	ND	0.2	mg/kg
.,2-Dibromo-3-chloropropane (DBCP)	ND	0.2	mg/kg
1,2-Dibromoethane (EDB)	ND	0.2	mg/kg
1,2-Dichlorobenzene	ND	0.2	mg/kg
1,2-Dichloroethane	ND	0.2	mg/kg
1,2-Dichloropropane	ND	0.2	mg/kg
1,3,5-Trimethylbenzene	ND	0.2	mg/kg
1,3-Dichlorobenzene	ND	0.2	mg/kg
1,3-Dichloropropane	ND	0.2	mg/kg
1,4-Dichlorobenzene	ND	0.2	mg/kg
2,2-Dichloropropane	ND	0.2	mg/kg
2-Chlorotoluene	ND	0.2	mg/kg
4-Chlorotoluene	ND	0.2	mg/kg
4-Isopropyltoluene	ND	0.2	mg/kg
Benzene	ND	0.2	mg/kg
Bromobenzene	ND	0.2	mg/kg
Bromochloromethane	ND	0.2	mg/kg
Bromodichloromethane	ND	0.2	mg/kg
Bromoform	ND	0.2	mg/kg
•			

ND

mg/kg

0.2

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EPA METHOD 8260 VOLATILE ORGANIC COMPOUNDS

Sample ID: R	I <mark>ANT REFINING (</mark> Fl 1303 A6 iniza	COMPANY	Date Reported: Date Sampled:	11/07/96 10/23/96
	969764	0396G02345	Date Received:	10/29/96
· · · · · · · · · · · · · · · · · · ·	oil		Date Extracted:	11/04/96
	•		Date Analyzed:	11/05/96
Parameter		Result	PQL	Units
Continued		· · · · · · · · · · · · · · · · · · ·	<u> </u>	
Carbon Tetrachl	oride	ND	0.2	mg/kg
Chlorobenzene		ND	0.2	mg/kg
Chloroethane		ND	0.2	mg/kg
Chloroform		ND	0.2	mg/kg
Chloromethane		ND	0.2	mg/kg
cis-1,2-Dichloro		ND	0.2	mg/kg
cis-1,3-Dichloro		ND	0.2	mg/kg
Dibromochlorom		ND	0.2	mg/kg
Dibromomethan		ND	0.2	mg/kg
chlorodifluoro	methane	ND	0.2	mg/kg
iylbenzene		ND	0.2	mg/kg
Hexachlorobutad		ND	0.2	mg/kg
lsopropylbenzen	e	ND	0.2	mg/kg
m,p-Xylene		ND	0.2	mg/kg
Methylene chlor	ide	ND	1.0	mg/kg
n-Butylbenzene		ND	0.2	mg/kg
n-Propylbenzene	, ,	ND	0.2	mg/kg
Naphthalene		ND	0.2	mg/kg
o-Xylene		ND	0.2	mg/kg
sec-Butylbenzen	e	ND	0.2	mg/kg
Styrene		ND	0.2	mg/kg
tert-Butylbenzen		ND	0.2	mg/kg
Tetrachloroether	ne (PCE)	ND	0.2	mg/kg
Toluene		ND	0.2	mg/kg
trans-1,2-Dichlor		ND	0.2	mg/kg
Trichloroethene		ND	0.2	mg/kg
Trichlorofluorom	ethane	ND	0.2	mg/kg
Vinyl Chloride		ND	0.2	mg/kg
Xylenes (total)		ND	0.2	mg/kg

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EPA METHOD 8260 **VOLATILE ORGANIC COMPOUNDS**

Client: Sample ID: Project ID: Lab ID: Matrix:	GIANT REFINING COMPAN RFI 1303 A6 Ciniza B969764 Soil	NY 0396G02345	Date Reported: Date Sampled: Date Received: Date Extracted: Date Analyzed:	11/07/96 10/23/96 10/29/96 11/04/96 11/05/96
Parameter	r	Result	PQL	Units
Continued QUALITY C	ONTROL - Surrogate Recovery	. %	QC Limits	
1,2-Dichloro		95 104		
Toluene-d8		116	81 - 117	

ND - Not Detected at Practical Quantitation Level (PQL)

sference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D



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EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GIANT REFINING	COMPANY		
Sample ID:	RFI 1303 A6		Date Reported:	11/08/96
Project ID:	•		Date Sampled:	10/23/96
Lab ID:	B969764	0396G02345	Date Received:	10/29/96
Matrix:	Soil		Date Extracted:	11/04/96
			Date Analyzed:	11/05/96
Parameter		Result	PQL	Units
1,2,4-Trichl	orobenzene	ND	1.0	mg/kg
1,2-Dichloro	obenzene	ND	1.0	mg/kg

1,2-Dichlorobenzene	ND	1.0	mg/kg
1,3-Dichlorobenzene	ND	1.0	mg/kg
1,4-Dichlorobenzene	ND	1.0	mg/kg
2,4,5-Trichlorophenol	ND	2.0	mg/kg
2,4,6-Trichlorophenol	ND	2.0	mg/kg
2,4-Dichlorophenol	ND	1.0	mg/kg
2,4-Dimethylphenol	ND	1.0 .	mg/kg
2,4-Dinitrophenol	ND	2.0	mg/kg
1-Dinitrotoluene	ND	1.0	mg/kg
2,6-Dinitrotoluene	ND	1.0	mg/kg
2-Chloronaphthalene	ND	1.0	mg/kg
2-Chlorophenol	ND	1.0	mg/kg
2-Methylnaphthalene	ND	1.0	mg/kg
2-Methylphenol	ND	1.0	mg/kg
2-Nitroaniline	ND	5.0 .	mg/kg
2-Nitrophenol	ND	• 1.0	mg/kg
3,3'-Dichlorobenzidine	ND	2.0	mg/kg
3-Methylphenol/4-Methylphenol	ND	1.0	mg/kg
3-Nitroaniline	[,] ND	5.0	mg/kg
4,6-Dinitro-2-methylphenol	ND	5.0	mg/kg
4-Bromophenyl-phenylether	ND	1.0	mg/kg
4-Chloro-3-methylphenol	ND	2.0	mg/kg
4-Chloroaniline	ND	2.0	mg/kg
4-Chlorophenyl-phenylether	ND	1.0	mg/kg
4-Nitroaniline	ND	2.0	mg/kg
4-Nitrophenol	ND	2.0	mg/kg
Acenaphthene	ND	1.0	mg/kg

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EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS BASE/NEUTRAL/ACID EXTRACTABLES

Client: Sample ID: Project ID: Lab ID: Matrix:	GIANT REFINING C RFI 1303 A6 Ciniza B969764 Soil	OMPANY 0396G02345	Date Reported: Date Sampled: Date Received: Date Extracted: Date Analyzed:	11/08/96 10/23/96 10/29/96 11/04/96 11/05/96
Parameter	<u></u>	Result	PQL	Units
ontinued	<u></u>			
Acenaphthyl	ene	ND	1.0	mg/kg
Anthracene		ND	1.0	mg/kg
Benzo(a)anth	iracene	ND	1.0	mg/kg
Benzo(a)pyre	ene	ND	1.0	mg/kg
Benzo(b)fluor	ranthene	ND	1.0	mg/kg
Benzo(g,h,i)p	perylene	ND	1.0	mg/kg
Benzo(k)fluor	ranthene	ND	1.0	mg/kg
Benzoic Acid	l	ND	5.0	mg/kg
nzyl Alcoh	ol	ND	2.0	mg/kg
2-Chloroe)،	ethoxy)methane	ND	1.0	mg/kg
bis(2-Chloroe	ethyl)ether	ND	1.0	mg/kg
bis(2-Chloroi	sopropyl)ether	ND	1.0	mg/kg
bis(2-Ethylhe	xyl)phthalate	ND	5.0	mg/kg
Butylbenzylpi	hthalate	ND	1.0	mg/kg
Chrysene		ND	1.0	mg/kg
Di-n-Butylpht	thalate	ND	5.0	mg/kg
Di-n-Octylphi	thalate	ND	5.0	mg/kg
Dibenz(a,h)ar	nthracene	ND	1.0	mg/kg
Dibenzofuran	I	ND	1.0	mg/kg
Diethylphthal	ate	ND	1.0	mg/kg
Dimethylphth	alate	ND	1.0	mg/kg
Fluoranthene		ND	1.0	mg/kg
Fluorene		ND	1.0	mg/kg
Hexachlorobe	enzene	ND	2.0	mg/kg
Hexachlorobu	utadiene	ND	2.0	mg/kg
Hexachlorocy	clopentadiene	ND	1.0	mg/kg
Hexachloroet	•	ND	2.0	mg/kg
Indeno(1,2,3	-cd)pyrene	ND	1.0	mg/kg

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EPA METHOD 8270 HSL SEMI-VOLATILE COMPOUNDS **BASE/NEUTRAL/ACID EXTRACTABLES**

Client: GIANT REFINING COM Sample ID: RFI 1303 A6 Project ID: Ciniza Lab ID: B969764 Matrix: Soil	PANY 0396G02345	Date Reported: Date Sampled: Date Received: Date Extracted: Date Analyzed:	11/08/96 10/23/96 10/29/96 11/04/96 11/05/96
Parameter	Result	PQL	Units
Continued	- <u></u>	· · · · · · · · · · · · · · · · · · ·]
Isophorone	ND	1.0	mg/kg
N-Nitrosodi-n-propylamine	ND	1.0	mg/kg
N-Nitrosodiphenylamine	ND	1.0	mg/kg
Naphthalene	ND	1.0	mg/kg
Nitrobenzene	ND	1.0	mg/kg
Pentachlorophenol	ND	5.0	mg/kg
Phenanthrene	ND	1.0	mg/kg
Phenol	ND	1.0	mg/kg
rene	ND	1.0	mg/kg
QUALITY CONTROL - Surrogate Reco	very %	QC Limits	
2,4,6-Tribromophenol	62	19 - 122	
2-Fluorobiphenyl	59	30 - 115	
2-Fluorophenol	58	25 - 121	
Nitrobenzene-d5	53	23 - 120	
Phenol-d6	72	24 - 113	
Terphenyl-d14	64	18 - 137	

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst

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LAB QA/QC EPA METHOD 8260 INSTRUMENT BLANK

Date Analyzed:11/04/96Lab ID:IBS96309AMatrix:Water

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND -	0.2	mg/kg
1,1,1-Trichloroethane	ND	0.2	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.2	mg/kg
1,1,2-Trichloroethane	ND	0.2	mg/kg
1,1-Dichloroethane	ND	0.2	mg/kg
1,1-Dichloroethene	ND	0.2	mg/kg
1,1-Dichloropropene	ND	0.2	mg/kg
1,2,3-Trichlorobenzene	ND	0.2	mg/kg
1,2,3-Trichloropropane	ND	0.2	mg/kg
1,2,4-Trichlorobenzene	ND	0.2	mg/kg
1,2,4-Trimethylbenzene	ND	0.2	mg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.2	mg/kg
1,2-Dibromoethane (EDB)	ND	0.2	mg/kg
1,2-Dichlorobenzene	ND	0.2	mg/kg
1,2-Dichloroethane	ND	0.2	mg/kg
1,2-Dichloropropane	ND	0.2	mg/kg
1,3,5-Trimethylbenzene	ND	0.2	mg/kg
1,3-Dichlorobenzene	ND	0.2	mg/kg
1,3-Dichloropropane	ND	0.2	mg/kg
1,4-Dichlorobenzene	. ND	0.2	mg/kg
2,2-Dichloropropane	ND	0.2	mg/kg
2-Chlorotoluene	ND	0.2	mg/kg
4-Chlorotoluene	ND	0.2	mg/kg
4-isopropyitoluene	ND	0.2	mg/kg
Benzene	ND	0.2	mg/kg
Bromobenzene	ND	0.2	mg/kg
Bromochloromethane	ND	0.2	mg/kg
Bromodichloromethane	ND	0.2	mg/kg
Bromoform	ND	0.2	mg/kg
Bromomethane	ND	0.2	mg/kg
Carbon Tetrachloride	ND	0.2	mg/kg
Chlorobenzene	ND	0.2	mg/kg
Chioroethane	ND	0.2	mg/kg

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LAB QA/QC EPA METHOD 8260 INSTRUMENT BLANK

Date Analyzed: 11/04/96 Lab ID: IBS96309A Matrix: Water

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Parameter	Result	PQL	Units
ontinued	· · · · · · · · · · · · · · · · · · ·		
Chloroform	ND	0.2	mg/kg
Chioromethane	ND	0.2	mg/kg
cis-1,2-Dichloroethene	ND	0.2	mg/kg
cis-1,3-Dichloropropene	ND	0.2	mg/kg
Dibromochloromethane	ND	0.2	mg/kg
Dibromomethane	ND	0.2	mg/kg
Dichlorodifluoromethane	ND	0.2	mg/kg
Ethylbenzene	ND	0.2	mg/kg
Hexachlorobutadiene	ND	0.2	mg/kg
Isopropylbenzene	ND	0.2	mg/kg
m,p-Xylene	ND	0.2	mg/kg
Methylene chloride	ND	1.0	mg/kg
n-Butylbenzene	ND	0.2	mg/kg
n-Propylbenzene	ND	0.2	mg/kg
Naphthalene	ND	0.2	mg/kg
o-Xylene	ND	0.2	mg/kg
sec-Butylbenzene	ND	0,2	mg/kg
Styrene	ND	0.2	mg/kg
tert-Butylbenzene	ND	0.2	mg/kg
Tetrachloroethene (PCE)	ND	0.2	mg/kg
Toluene	ND	0.2	mg/kg
trans-1,2-Dichloroethene	ND	0.2	mg/kg
Trichloroethene (TCE)	ND	0.2	mg/kg
Trichlorofluoromethane	ND	0.2	mg/kg
Vinyl Chloride	ND	0.2	mg/kg
Xylenes (total)	ND	0.2	mg/kg

LAB QA/QC EPA METHOD 8260 INSTRUMENT BLANK

Date Analyzed:11/04/96Lab ID:IBS96309AMatrix:Water

Parameter	Result	PQL	Units
Continued			
QUALITY CONTROL - Surrogate Recovery	%	QC Limits	
1,2-Dichloroethane-d4	89	80 - 120	
Bromofiuorobenzene	103	74 - 121	
Toluene-d8	115	81 - 117	

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst <u>E.O.</u>

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LAB QA/QC EPA METHOD 8260 METHOD BLANK

Date Analyzed:	11/05/96		
Lab ID:	MBS96309		
Matrix:	Soil		
Date Extracted:	11/04/96		

Parameter	Result PQL		Units	
1,1,1,2-Tetrachloroethane	ND -	0.2	mg/k	
1,1,1-Trichloroethane	ND	0.2	mg/kg	
1,1,2,2-Tetrachloroethane	ND	0.2	mg/k	
1,1,2-Trichloroethane	ND	0.2	mg/k	
1,1-Dichloroethane	ND	0.2	· mg/k	
1,1-Dichloroethene	ND	0.2	mg/k	
1,1-Dichloropropene	ND	0.2	mg/k	
1,2,3-Trichlorobenzene	ND	• 0.2	mg/k	
1,2,3-Trichloropropane	ND	0.2	mg/k	
1,2,4-Trichlorobenzene	ND	0.2	mg/k	
1,2,4-Trimethylbenzene	ND	0.2	mg/k	
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.2	mg/k	
1,2-Dibromoethane (EDB)	ND	0.2	mg/k	
1,2-Dichlorobenzene	ND	0.2	· mg/kg	
1,2-Dichloroethane	ND	0.2	mg/k	
1,2-Dichloropropane	ND	0.2	mg/kg	
1,3,5-Trimethylbenzene	ND	0.2	mg/k	
1,3-Dichlorobenzene	ND	0.2	mg/k	
1,3-Dichloropropane	ND	0.2	mg/kg	
1,4-Dichlorobenzene	ND	0.2	mg/kg	
2,2-Dichloropropane	ND	0.2	mg/kg	
2-Butanone (MEK)	ND	2.0	mg/kg	
2-Chiorotoluene	ND	0.2	mg/kg	
1-Chlorotoluene	ND	0.2	mg/kg	
1-isopropyltoluene	ND	0.2	mg/kg	
Benzene	ND	0.2	mg/kg	
Bromobenzene	ND	0.2	mg/kg	
Bromochloromethane	ND	0.2	mg/kg	
Bromodichloromethane	ND	0.2	mg/kg	
Bromoform	ND	0.2	mg/kg	
Bromomethane	ND	0.2	mg/kg	
Carbon Tetrachloride	ND	0.2	mg/kg	
Chlorobenzene	ND	0.2	mg/kg	

LAB QA/QC EPA METHOD 8260 METHOD BLANK

Date Analyzed:11/05/96Lab ID:MBS96309Matrix:SoilDate Extracted:11/04/96

Parameter	Result	PQL	Units
ontinued			
Chloroethane	ND	0.2	mg/kg
Chloroform	ND	0.2	mg/kg
Chloromethane	ND	0.2	mg/kg
cis-1,2-Dichloroethene	ND	0.2	mg/kg
cis-1,3-Dichloropropene	ND	0.2	mg/kg
Dibromochloromethane	ND	0.2	mg/kg
Dibromomethane	ND	0.2	mg/kg
Dichlorodifluoromethane	ND	0.2	mg/kg
Ethylbenzene	ND	0.2	mg/kg
Hexachlorobutadiene	ND	0.2	mg/kg
Isopropylbenzene	ND	0.2	mg/k
m,p-Xylene	ND	0.2	mg/kg
Methylene chloride	ND	1.0	mg/kg
n-Butylbenzene	ND	0.2	mg/kg
n-Propylbenzene	ND	0.2	mg/kg
Naphthalene	ND	0.2	mg/kg
o-Xylene	ND	0.2	mg/kg
sec-Butylbenzene	ND	0.2	mg/kg
Styrene	ND	0.2	mg/kg
tert-Butylbenzene	ND	0.2	mg/kg
Tetrachloroethene (PCE)	ND	0.2	mg/k
Toluene	ND	0.2	mg/k
trans-1,2-Dichloroethene	ND	0.2	mg/k
Trichloroethene (TCE)	ND	0.2	mg/k
Trichlorofluoromethane	ND	0.2	mg/k
Vinyl Chloride	ND	0.2	mg/k
Xylenes (total)	ND	0.2	mg/k



AB QA/QC EPA METHOD 8260 METHOD BLANK

Date Analyzed:11/05/96Lab ID:MBS96309Matrix:.SoilDate Extracted:11/04/96

Parameter	Result	PQL	Units	
Continued				
QUALITY CONTROL - Surrogate Recovery	· % · ·	QC Limits		
1,2-Dichloroethane-d4	99	80 - 120		
Bromofluorobenzene	107	74 - 121		
Toluene-d8	111	81 - 117		

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.D.

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LAB QA/QC EPA METHOD 8270 METHOD BLANK

Date Analyzed:11/05/96Lab ID:MBS96308Matrix:SoilDate Extracted:11/05/96

Parameter	eter Result PQL		Units
1,2,4-Trichlorobenzene	ND 🔹	1.0	mg/kg
1,2-Dichlorobenzene	ND	1.0	mg/kg
1,3-Dichlorobenzene	ND	1.0	mg/kg
1,4-Dichlorobenzene	ND	1.0	mg/kg
2,4,5-Trichlorophenol	ND	2.0	mg/kg
2,4,6-Trichlorophenol	ND	2.0	mg/kg
2,4-Dichlorophenol	ND	1.0	mg/kg
2,4-Dimethylphenol	ND	1.0	mg/kg
2,4-Dinitrophenol	ND	2.0	mg/kg
2,4-Dinitrotoluene	ND	1.0	mg/kg
2,6-Dinitrotoluene	ND	1.0	mg/kg
2-Chloronaphthalene	ND	1.0	mg/kg
2-Chlorophenol	ND	1.0	mg/kg
2-Methylnaphthalene	ND	1.0	mg/kg
2-Methylphenol	ND	1.0	mg/kg
2-Nitroaniline	ND	5.0	mg/kg
2-Nitrophenol	ND	1.0	mg/kg
3,3'-Dichlorobenzidine	ND	2.0	mg/kg
3-Methylphenol/4-Methylphenol	ND	1.0	mg/kg
3-Nitroaniline	· ND	5.0	mg/kg
4,6-Dinitro-2-methylphenol	ND	5.0	mg/kg
4-Bromophenyl-phenylether	ND	1.0	mg/kg
4-Chloro-3-methylphenol	ND	2.0	mg/kg
4-Chloroaniline	ND	2.0	mg/kg
4-Chlorophenyl-phenylether	ND	1.0	mg/kg
4-Nitroaniline	ND	2.0	mg/kg
1-Nitrophenol	ND	2.0	mg/kg
Acenaphthene	ND	1.0	mg/kg
	ND	1.0	mg/kg
Anthracene	ND	1.0	mg/kg
Benzo(a)anthracene	ND	1.0	mg/kg
Benzo(a)pyrene	ND	1.0	mg/kg
Benzo(b)fluoranthene	ND	1.0	mg/kg

LAB QA/QC EPA METHOD 8270

METHOD BLANK

Date Analyzed:11/05/96Lab ID:MBS96308Matrix:SoilDate Extracted:11/05/96

Parameter	Result	PQL	Units
ontinued	······································		
Benzo(g,h,i)perylene	ND	1.0	mg/kg
Benzo(k)fluoranthene	ND	1.0	mg/kg
Benzoic Acid	ND	5.0	mg/kg
Benzyl Alcohol	ND	2.0	mg/kg
bis(2-Chloroethoxy)methane	ND	1.0	mg/kg
bis(2-Chloroethyl)ether	ND	1.0	mg/kg
bis(2-Chloroisopropyl)ether	ND	1.0	mg/kg
bis(2-Ethylhexyl)phthalate	ND	5.0	mg/kg
Butylbenzylphthalate	ND	1.0	mg/kg
Chrysene	ND	1.0	mg/kg
Di-n-Butylphthalate	ND	5.0	mg/kg
Di-n-Octylphthalate	ND	5.0	mg/kg
Dibenz(a,h)anthracene	ND	1.0	mg/kg
Dibenzofuran	ND	1.0	mg/kg
Diethylphthalate	ND	1.0	mg/kg
Dimethylphthalate	ND	1.0	mg/kg
Fluoranthene	ND	1.0	mg/kg
Fluorene	ND	1.0	mg/kg
dexachlorobenzene	· ND	2.0	mg/kg
Hexachlorobutadiene	ND	2.0	mg/kg
Hexachlorocyclopentadiene	ND	1.0	mg/kg
Hexachloroethane	ND	2.0	mg/kg
ndeno(1,2,3-cd)pyrene	ND	1.0	mg/kg
sophorone	ND	1.0	mg/kg
N-Nitrosodi-n-propylamine	ND	1.0	mg/kg
N-Nitrosodiphenylamine	ND	1.0	mg/kg
Naphthalene	ND	1.0	. mg/kg
litrobenzene	ND	1.0	mg/kg
Pentachlorophenol	ND	5.0	mg/kg
Phenanthrene	ND	1.0	mg/kg
Phenol	ND	1.0	mg/kg
Pyrene	ND	1.0	mg/kg

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LAB QA/QC EPA METHOD 8270 METHOD BLANK

Date Analyzed:11/05/96Lab ID:MBS96308Matrix:SoilDate Extracted:11/05/96

Parameter	Result	PQL	Units
Continued	·		
QUALITY CONTROL - Surrogate Recovery	%	QC Limits	
2,4,6-Tribromophenol	73	19 - 122	
2-Fluorobiphenyl	88	30 - 115	
2-Fluorophenol	70	25 - 121	
Nitrobenzene-d5	75	23 - 120	
Phenol-d6	74	24 - 113	
Ferphenyl-d14	132	. 18 - 137	

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst_

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LAB QA/QC EPA METHOD 8260 MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed:	11/05/96
Lab ID:	0596H09764
Matrix:	Soil
Date Extracted:	11/04/96

Original Sample Parameters

Parameter	Spike Added (mg/kg)	Sample Result (mg/kg)	Spike Result (mg/kg)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	12.5	0	8.0	64 *	75 .145
Benzene	12.5	0	11	88	71 .120
Chlorobenzene	12.5	0-	11	88	76 .127
Toluene	12.5	· 0	14	112	71 .127
Trichloroethene (TCE)	12.5	0	9.7	78	75 .130
Duplicate Sample Parameters	•				

	Spike Added	MSD Result	MSD Recovery	RPD		QC Limit:	
Parameter	(mg/kg)	(mg/kg)	%	%		RPD	Rec.
1,1-Dichloroethene	12.5	6.7	54 *	18		22	75.145
Benzene	12.5	8.8	70 *	22		24	71 .120
Chlorobenzene	12.5	8.7	70 *	23	*	21	76.127
Toluene	12.5	10	80	33	*	21	71 .127
Trichloroethene (TCE)	12.5	8.1	65 *	18		21	75 .130

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery:	5 out of	10	outside QC limits.
RPD:	2 out of	5	outside QC limits.

Analyst F.D.

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LAB QA/QC EPA METHOD 8270 MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

 Date Analyzed:
 11/05/96

 Lab ID:
 0596H09868

 Matrix:
 0ate Extracted:

 Date Extracted:
 11/04/96

Original Sample Parameters

Parameter	Spike Added (mg/kg)	Sample Result (mg/kg)	Spike Result (mg/kg)	MS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	10	0	5.2	52	38 - 107
1,4-Dichlorobenzene	10	0	4.6	46	28 - 104
2,4-Dinitrotoluene	10	0-	4.1	41	28 - 89
2-Chlorophenol	20	. 0	9.8	49	25 - 102
4-Chloro-3-methylphenol	20	0	10	50	26 -103
4-Nitrophenol	20	0	5.1	26	11 - 114
Acenaphthene	10	0	6.0	60	31 -137
N-Nitrosodi-n-propylamine	10	0	5.5	55	41 -126
Pentachlorophenol	20	0	5.6	28	17.109
Phenol	20	0	10.5	53	26 - 90
Pyrene	10	0	5.0	50	35 -142

Duplicate Sample Parameters

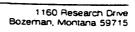
	Spike Added	MSD Result	MSD Recovery	RPD	QC Limits			
Parameter	(mg/kg)	(mg/kg)	%	%	RPD	Rec.		
1,2,4-Trichlorobenzene	10	5.4	54	4	23	38.107		
1,4-Dichlorobenzene	10	4.5	45	2	27	28 .104		
2,4-Dinitrotoluene	10	4.5	45	9	47	28 - 89		
2-Chlorophenol	20	9.9	50	1	-50	25 .102		
4-Chloro-3-methylphenol	20	9.6	48	4	33	26 -103		
4-Nitrophenol	20	5.2	26	2	50	11 .114		
Acenaphthene	10	6.0	60	0	19	31 -137		
N-Nitrosodi-n-propylamine	10	5.0	50	10	38	41 -126		
Pentachlorophenol	20	6.2	31	10	47	17 -109		
Phenol	20	10.4	52	1	35	26 - 90		
Pyrene	10	4.7	47	6	36	35 .142		

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery:	0 out of 22	outside QC limits.
RPD:	0 out of 11	outside QC limits.

Analyst

Reviewed CB





Date Analyzed:	11/05/96
Lab ID:	LCS96309A
Matrix:	Soil
Date Extracted	11/04/96

Parameter	Spike Added (mg/kg)	Sample Result (mg/kg)	LCS Result (mg/kg)	LCS Recovery %	QC Limits Rec.
1,1,2-Trichloroethane	2.0	. 0	2.5	125	. 70 -130
1,2-Dibromoethane (EDB)	2.0	0	1.9	95	70 -130
1,2-Dichloroethane	2.0	0	2.2	110	70 -130
1,2-Dichloropropane	2.0	0	2.2	110	70 -130
1,4-Dichlorobenzene	2.0	0	2.5	125	70 -130
Benzene	2.0	. 0	2.3	115	70 -130
Bromoform	2.0	0	2.0	100	70 -130
n Tetrachloride	2.0	0	1.9	95	70 -130
.,3-Dichloropropene	2.0	0	2.1	105	70 -130
Tetrachloroethene (PCE)	2.0	0	2.0	100	70 -130
Trichloroethene (TCE)	2.0	0	1.9	95	70 -130
Vinyl Chloride	2.0	0	1.5	75	70 -130

QUALITY CONTROL - Surrogate Recovery	QC Limits				
1,2-Dichloroethane-d4 Bromofluorobenzene Toluene-d8	70 -130 74 -121 81 -117				

Spike Recovery:	0 out of 12	outside QC limits.
Surrogates:	Surrogate Re	coveries within QC Limits.

Analyst E.D.

Reviewed_

LAB QA/QC EPA METHOD 8270 BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed:	11/05/96
Lab ID:	BSS96308
Matrix:	Soil
Date Extracted:	11/04/96

Original Sample Parameters

Parameter	Spike Added (mg/kg)	Sample Result (mg/kg)	Spike Result (mg/kg)	BS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	10	0	. 6.6	66	38 - 107
1,4-Dichlorobenzene	10	0	6.5	65	28 - 104
2,4-Dinitrotoluene	10	σ	8.5	85	28 - 89
2-Chiorophenol	20	· 0	14.4	72	25 - 102
4-Chloro-3-methylphenol	20	0	15.7	79	26 - 103
4-Nitrophenol	20	0	15.8	79	11 - 114
Acenaphthene	10	0	7.4	74	31 -137
N-Nitrosodi-n-propylamine	10	0	7.3	73	41 -126
Pentachlorophenol	20	0	13.6	68	17 -109
Phenol	20	0	12.9	65	26 - 90
Pyrene	10	0	13.6	136	35 -142

Duplicate Sample Parameters

	Spike Added	BSD Result	BSD Recovery	RPD	۵۵	C Limits
Parameter	(mg/kg)	(mg/kg)	%	%	RPD	Rec.
1,2,4-Trichlorobenzene	10	7.0	70	6	23	38 .107
1,4-Dichlorobenzene	10	6.8	68	5	27	28.104
2,4-Dinitrotoluene	10	8.5	85	0	47	28 - 89
2-Chlorophenoi	20	15.4	77	7	50	25 .102
4-Chloro-3-methylphenol	20	17.4	87	10	33	26.103
4-Nitrophenol	20	17.4	87	10	50	11 .114
Acenaphthene	10	8.0	80	8	19	31 - 137
N-Nitrosodi-n-propylamine	10	7.6	76	4	38	41 -126
Pentachlorophenol	20	15.3	77	12	47	17 - 109
Phenol	20	13.1	66	2	35	26 - 90
Pyrene	10	13.4	134	1	36	35 -142

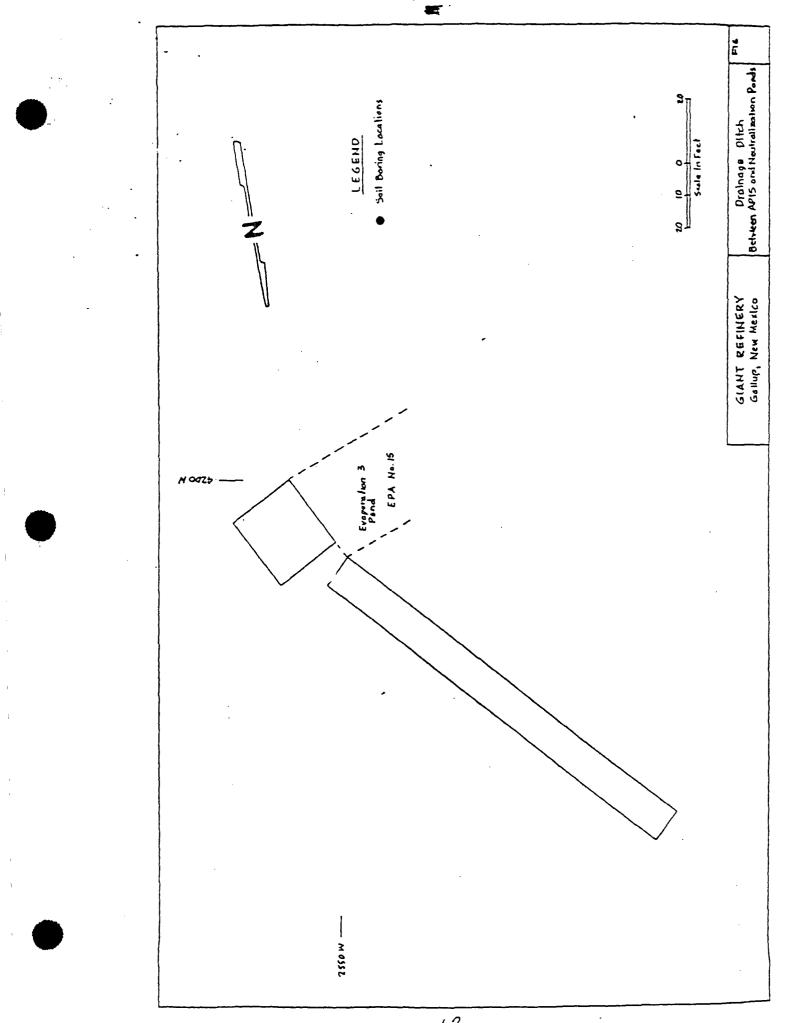
Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

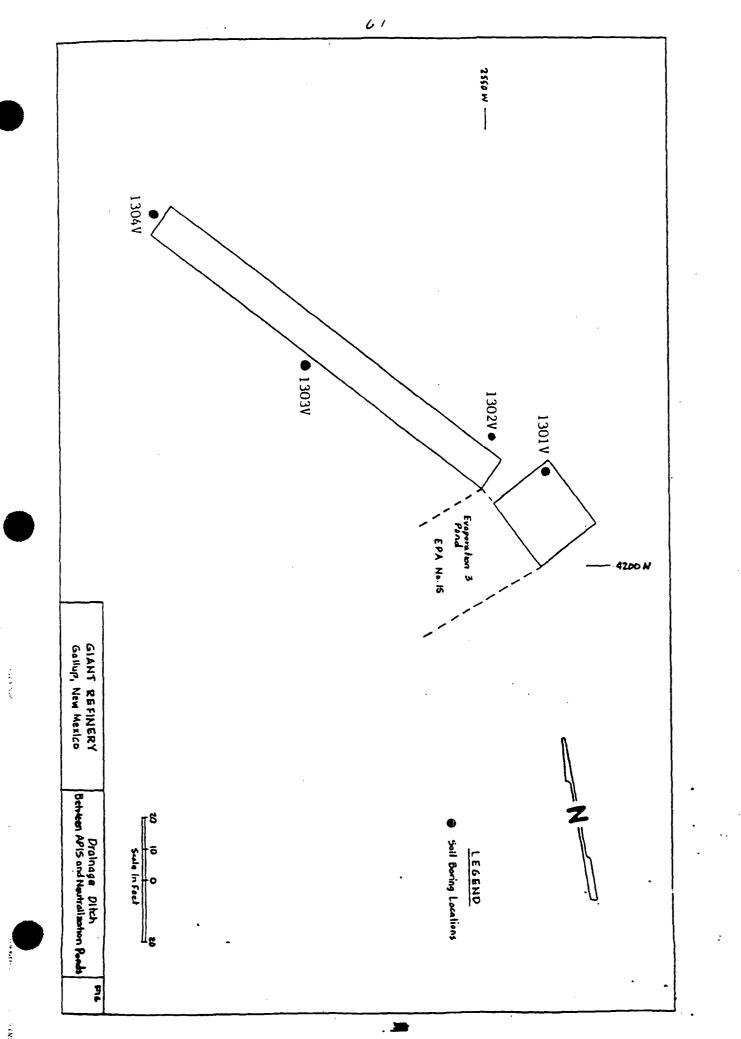
Spike Recovery:0 out of 22outside QC limits.RPD:0 out of 11outside QC limits.

Analyst

Reviewed

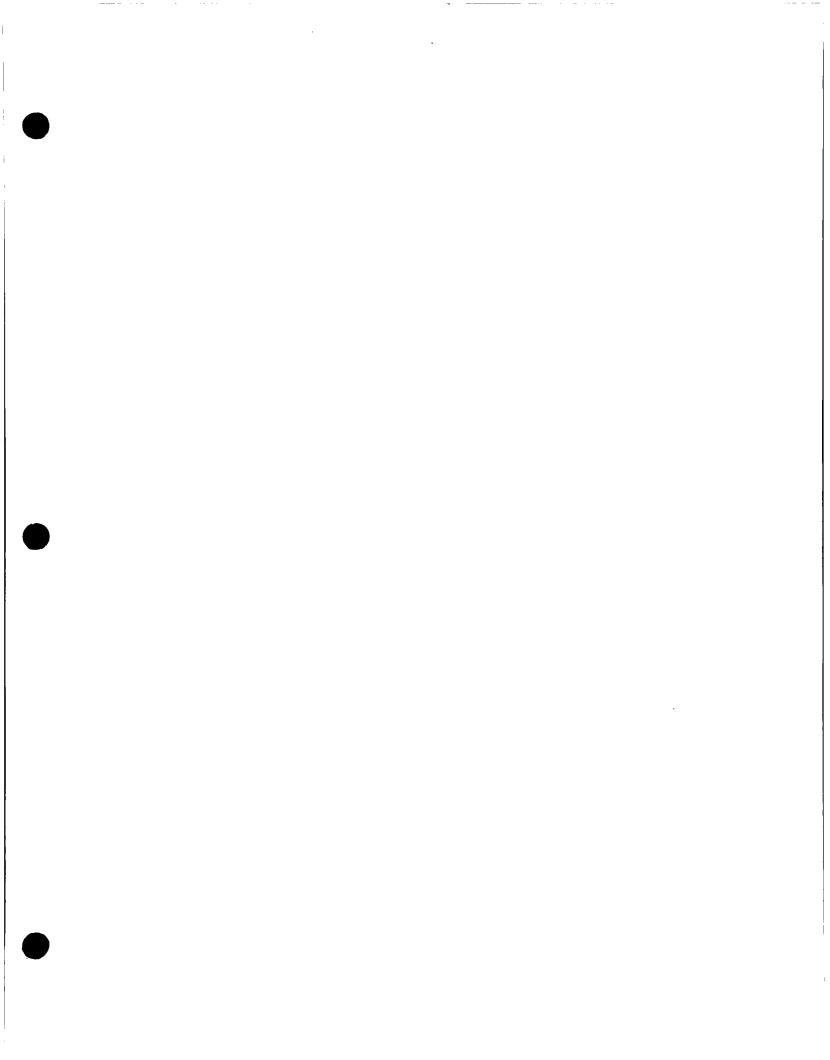
Image: Sheridan, Wyoming 82801 Gillette, Wyoming 82718 Farmingtor Telephone (307) 672-8945 Telephone (307) 682-8945 Telephone	Inte	Heiinquished by: (Signature)	neiiiiquisie by: (Sißnature)	the Aborn	Relinguished by: (Signature)					RfI0104 \$4 1/23/98 1245	RFI0103 By 10/23/06 1320	8F11303A6 b/23/01/15	RFJ1302A6 10/23/96 1445	RFJ 1301A6 10/23/26 1345	Sample No./ Identification Date Time Lab Number	Sampler: (Signature) Cha	ClienuProject Name GIANT REFINING CO.	Inter-Mourant
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ENVIRONMENT DEPARTMENT Hazardous & Radioactive Materials Bureau 525 Camino De Los Marquez P.O. Box 26110 Santa Fe, New Mexico 87502 (505) 827-4358 Fax (505) 827-4389

State of New Mexico

MARK E. WEIDLER SECRETARY

EDGAR T. THORNTON, III DEPUTY SECRETARY

CERTIFIED MAIL RETURN RECEIPT REQUESTED

July 13, 1995

John Stokes, Refinery Manager Giant Refining Company Ciniza Refinery Route 3, Box 7 Gallup, New Mexico 87301

Dear Mr. Stokes,

RE: Part A Permit Revision

On March 10, 1995, the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) received a copy of the Giant Refining Company-Ciniza (Giant) Part A Permit Modification request dated March 6, 1995, and sent to the Environmental Protection Agency (EPA). Giant is hereby notified that because the Permit Modification request concerns RCRA units, NMED and not EPA has the lead. The modification requested is a 337% increase in both API tank treatment capacity (API) and benzene stripping capacity.

The API and benzene stripping units appear on Giant's Part A Permit. However, they should not have been included on the Part A Permit as they are part of the process wastewater treatment system and are exempt from RCRA regulation. Also, evidence shows that the API and benzene strippers are regulated by the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department (EMNRD). OCD's Groundwater Discharge Permit #32 (GW 32), covers all discharges by the facility, including the API, benzene strippers and the aeration lagoons into which they discharge.

Required by the OCD is biennial groundwater monitoring which includes all approved RCRA constituents, to the standards of the New Mexico Water Quality Control Commission. Also required is annual monitoring of the API, benzene stripper and aeration lagoon effluents. Although the API and benzene stripper effluents are not monitored for RCRA constituents, the aeration lagoon into which they discharge are monitored for RCRA metals, and volatile and semi-volatile organics.



John Stokes July 13, 1995 Page 2 of 2

Further, Giant has submitted to OCD a modification request identical to the March 6, 1995 request for modification of their RCRA Part A Permit. As per OCD's March 15, 1995 letter to Giant, approval of this modification request is conditional upon Giant's submittal of a closure plan for the existing API. This is analogous to RCRA requirements and further demonstrates that OCD requirements for the API and benzene strippers are protective of human health and the environment.

Therefore, HRMB requests that Giant submit a request for removal of the aforementioned units from Giant's Part A Permit to the Director of NMED Water and Waste Management Division (WWD) for his approval. If the Director approves the request, Giant will be required to submit a revised Part A Permit which excludes the API oil/water separator and the benzene strippers.

If there are any questions on this matter, you may contact Mr. Michael Chacón at (505) 827-4308.

Sincerely, Benito J. Garc

Chief, Hazardous and Radioactive Materials Bureau

cc: Roger Anderson, OCD Ron Kern, HRMB Program Manager Michael Chacón, RCRA Permits David Neleigh, EPA File-Red 95 File-Reading



Route 3, Box 7 Gallup, New Mexico 87301

505[.] 722•3833

July 24, 1995

Mr. Ed Kelley, Director Water and Waste Management Division New Mexico Environment Department 525 Camino De Los Marguez Santa Fe, New Mexico 87502

Dear Mr. Kelley,

Giant Refining recently requested a modification to its Part A RCRA Permit. In reviewing this modification request, the Hazardous & Radioactive Materials Bureau (HRMB) staff determined that several items listed on Giant's Part A Permit (the API separator and benzene stripping units) should not have been included in the permit since they are part of a process wastewater treatment system and are regulated by the Oil Conservation Division.

Therefore, at the request of the HRMB, Giant hereby requests removal of the abovementioned API separator and benzene stripping units from its Part A Permit. Upon your approval of this request, Giant will submit to the HRMB a revised Part A Permit excluding these units.

Enclosed with this letter is a copy of HRMB Chief Benito Garcia's letter detailing the HRMB staff's findings and his request that Giant seek removal of these units from its Part A Permit.

Should you or your staff have any questions regarding the above, please do not hesitate to contact me or Mr. Lynn Shelton at (505) 722-3833. Thank you for your assistance in this matter.

Sincerely,

David C. Paulick

David C. Pavlich Health, Safety, and Environmental Manager

cc w/enclosure:

Lynn Shelton, Giant

cc w/o enclosure:

Roger Anderson, OCD Bureau Chief Michael Chacón, HRMB, RCRA Permits Ron Kern, HRMB Program Manager

TO ANTINITIAN INHTA LINUS OF TRACT NHC



July 28, 1995

Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

Mr. Ed Kelley, Director Water and Waste Management Division New Mexico Environment Department 525 Camino De Los Marquez Santa Fe, New Mexico 87502

Dear Mr. Kelley:

Earlier this week, I sent you a letter (copy attached) at the direction of Benito García of the Hazardous and Radioactive Materials Bureau (HRMB) requesting your approval to remove several listed items from Giant Refining's Part A RCRA permit. Those items are the API separator and the benzene stripping units. In subsequent discussions with HRMB staff, an additional item was identified as being a good candidate for removal from the Part A Permit. This item is a small hazardous waste drum storage area. Since this area was never constructed and Giant does not foresee a need for it in the near future, its removal from the Part A Permit is appropriate.

Therefore, in addition to the items listed in Giant's letter of July 24, 1995, Giant also requests approval for the removal of the hazardous waste container storage area from its Part A Permit. Upon receipt of your approval, Giant will submit an application for permit modification to the HRMB.

Thank you for your assistance in this matter.

Sincerely,

avid C. Paulich.

David C. Pavlich Health, Safety, and Environmental Manager

cc:

Roger Anderson, OCD Michael Chacon, HRMB Ron Kern, HRMB Lynn Shelton, Giant

[SRP\WPDOCS\PAV\WMED.728]

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Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

July 24, 1995

Mr. Ed Kelley, Director Water and Waste Management Division New Mexico Environment Department 525 Camino De Los Marquez Santa Fe, New Mexico 87502

Dear Mr. Kelley,

Giant Refining recently requested a modification to its Part A RCRA Permit. In reviewing this modification request, the Hazardous & Radioactive Materials Bureau (HRMB) staff determined that several items listed on Giant's Part A Permit (the API separator and benzene stripping units) should not have been included in the permit since they are part of a process wastewater treatment system and are regulated by the Oil Conservation Division.

Therefore, at the request of the HRMB, Giant hereby requests removal of the abovementioned API separator and benzene stripping units from its Part A Permit. Upon your approval of this request, Giant will submit to the HRMB a revised Part A Permit excluding these units.

Enclosed with this letter is a copy of HRMB Chief Benito Garcia's letter detailing the HRMB staff's findings and his request that Giant seek removal of these units from its Part A Permit.

Should you or your staff have any questions regarding the above, please do not hesitate to contact me or Mr. Lynn Shelton at (505) 722-3833. Thank you for your assistance in this matter.

Sincerely,

David C Paulick

David C. Pavlich Health, Safety, and Environmental Manager

1 · J



GARY E. JOHNSON

State of New Mexico ENVIRONMENT DEPARTMENT Hazardous & Radioactive Materials Bureau 525 Camino De Los Marquez P.O. Box 26110 Santa Fe, New Mexico 87502 (505) 827-4358 Fax (505) 827-4389

MARK E. WEIDLER SECRETARY

EDGAR T. THOBNTON, III DEPUTY SECRETABY

CERTIFIED MAIL RETURN RECEIPT REQUESTED

August 14, 1995

Mr. David Pavlich Health, Safety and Environmental Manager Giant Refinery-Ciniza Route 3, Box 7 Gallup, New Mexico 87301

Dear Mr. Pavlich,

RE: Request to amend Giant's Part A Permit.

The New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) is in receipt of the Giant Refining Company (Giant) letters to HRMB dated July 24 and 28, 1995. In the July 24 letter Giant agrees to HRMB's request (dated July 13, 1995) for Giant to request removal from their RCRA Part A. Permit of the following items;

- the API separator
- the benzene strippers.

In the July 28 letter Giant adds the hazardous waste drum storage area to the removal request.

The API separator and benzene strippers are part of the process wastewater treatment system and thus are exempt from RCRA permitting requirements. Further, these units are regulated by NMED Oil Conservation Division (OCD). The hazardous waste drum storage area has not been constructed, and Giant has no plans to construct it, thus there is no need for it to be on the Part A Permit.

HRMB hereby approves Giant's request for removal of the aforementioned items from their Part A Permit. Giant must now submit to HRMB within two (2) weeks of receipt of this letter a revised Part A excluding these units.



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SENT BY:	3-15-96 ; 3:36PM ;	Reg 6 Haz Waste→	5057220210;# 1/ 3								
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NEW MEXICO AND FEDERAL FACILITIES SECTION											
	PLEASE PRINT IN BLACK INK O										
TO: Ed Horst, Environ	unental Manager - Ciant R	cining Company, Ciniza									
MACHINK NUMBER: 505.722.0210	VERIFICATION NUMBER: 505.	722.0227									
FROM: James A. Harris, Jr., RCRA Facilit	ty Manager/Geologist										
PHONE: (214) 668-8302	Mail Codet 6PD-N										
OFFICE: New Mexice/Federal Pacilities Se	ction	PAGES, INCLUDING									
ATE: March 15, 1996		3									
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PANAFAX UF-766	(214) 665-6762	(214) 665-6760									
COMMENTS											
E4.			1								
Hara's what I have been using to track Ginat, Cistra'	s corrective action progress. Floues) review and lat's discuss it next weak. I	love a good sac.								

Thanx,

JAMES

Prepare	11:	7:	() **	4 	3 *	13:	12:	2	
prepared by: James A. Harris, Jr.\ompy as at March 13, 1996	Secondary Oil Skimmer (11)	Fire Training Area (4)	Landfill Åreas (7)	Old Burn Pit (8)	Empty Container Storage Area (5)	The Drainage Ditch between APIs Evaporation Ponds and the Neutralization Tank Evaporation Ponds (14)	Contact Waste Water Collection System (CWWCS)	The Evaporation Ponds (2)	The Aeration Basin (1)
946	3	I	8	3	Phase III	2	=	3	Phase II
	Under VCA	Under VCA	a Voluntary Corrective Action (VCA) Plan to cap the "Landfill Areas" was submitted in March 1993.			soil and groundwater sampling every five years	Inspection every 5 years beginning 1996	2	soil and groundwater sampling every five years
	discolored soil is the natural color; there is no hydrocarbon staining or odors detected; reference to "black fill" sand is actually "back fill"		EPA approved the VCA Plan on January 5, 1994 but required that additional soil borings be completed prior to Giant proceeding with the capping activities		N	Survey Plat submitted; closure certification must be submitted prior to initiating Class III Permit Mod process		Survey and closure certification must be submitted prior to initiating Class III Permit Mod process	RFI PHII RPT APP 1/94 w/modifications; Survey Plat submitted; closure certification must be submitted prior to initiating Class III Permit Mod process

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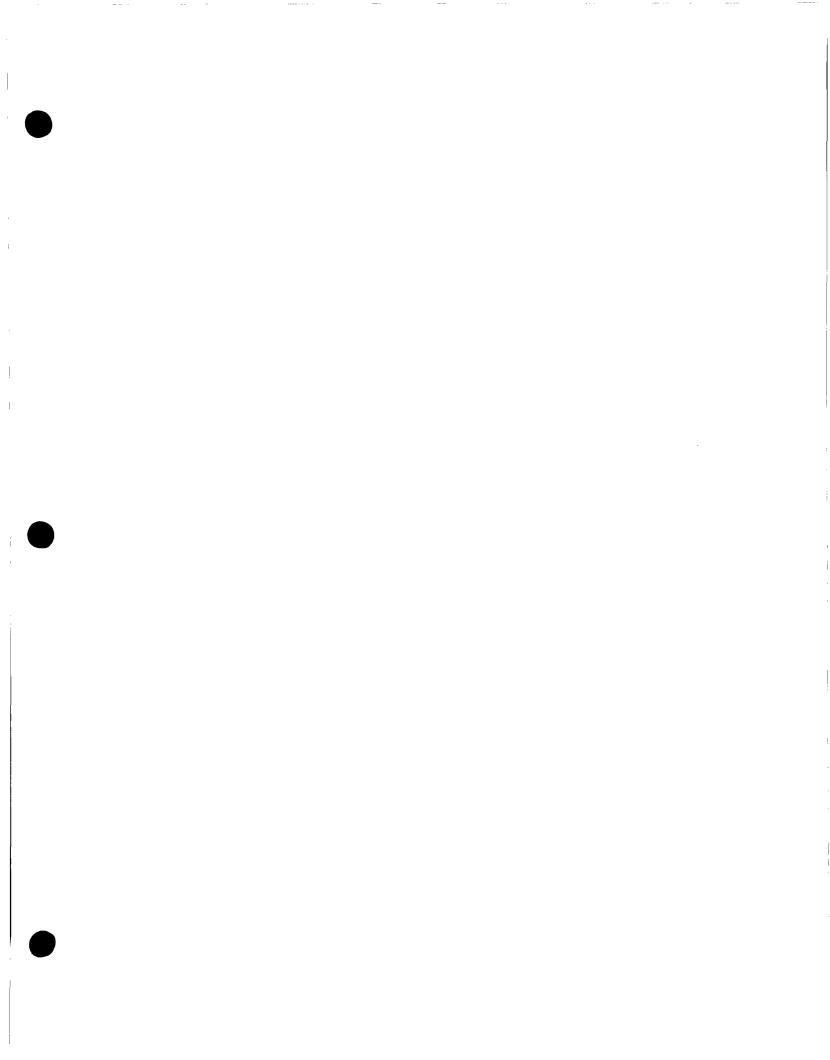
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monitoring requirements submitted w/quarterly status reports; notify EPA when	3	3	10: The Sludge Pits (9)	
<u> </u>	3	=	8: The Fan Out Area (associated w/Railroad Rack Lagoon) (6)	-
	=	3	8: The Overflow Ditch (associated w/Railroad Rack Lagoon) (6)	_
	under voluntary corrective action	3	8: The Railroad Rack Lagoon (6)	
		2	9: The Drainage Ditch near the Inactive Land Fara (10 & 13)	
		Phase I	6: The Tank Farm - Leaded Gasoline Tanks (3)	
	STATUS	PEASE/GROUP	SWNU 4 now using 5/90 RPI WKPLN Designation; HSWA in ().	
	REFINERY EPA ID: NADOOOSS3211	LIBT - GIANT R	SWAU TRACKING I	

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

Augūst 24, 1994

Mr. Lynn Shelton Senior Environmental Coordinator Giant Refining Company Route 3, Box 7 Gallup, NM 87301

Dear Mr. Shelton:

The Environmental Protection Agency (EPA) has reviewed your letter dated August 2, 1994, concerning additional RFI sampling requirements at solid waste management unit (SWMU) #1, the Aeration Basin; #2, the Evaporation Pond; and #13, the Drainage Ditch. In your letter, you propose to conduct soil and groundwater sampling every five years as opposed to the biennial sampling requirement detailed in the EPA's January 7, 1994 letter.

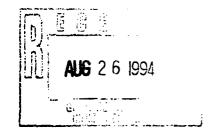
The EPA has reassessed your Phase II RFI Report and hereby approves your request to sample SWMUs 1, 2, and 13 every five years. Sampling shall begin in 1995 and reports shall be submitted to the EPA by December 31 of each sample year. As a reminder, a survey plat must be completed for SWMUs 1, 2, and 13 and submitted to the EPA for review and approval. Giant shall also initiate a Class 3 permit modification to terminate the RFI/Corrective Measures Study process for these SWMUs within three months of receipt of this letter.

Please contact Nancy R. Morlock of my staff at (214) 665-6650 if you have any questions or require additional information.

Sincerely yours,

William K. Honker, P.E., Chief RCRA Permits Branch

cc: Ms. Kathleen Sisneros, Director Water and Waste Management Division New Mexico Environment Department





Route 3, Box 7 Gallup, New Mexico 87301

505 722-3833

August 2, 1994

Allyn M. Davis United States Environmental Protection Agency Region VI 1445 Ross Avenue Suite 1200 Dallas, Texas 75202-2733

Re: Additional RFI Sampling

Dear Mr. Davis:

In the letter from you dated January 7, 1994 (copy enclosed), Giant Refining Company - Ciniza (Giant) received EPA's approval of Giant's recommendation of "No Further Action" on SWMU #1, the Aeration Basin; SWMU #2, the Evaporation Pond; and SWMU #13, the Drainage Ditch. The agency's approval of the "No Further Action" recommendations was accompanied with several additional requirements.

The additional requirements were to repeat the sampling protocol set forth in the approved RFI Sampling Plan (May, 1990) biennially. This additional sampling is intended to monitor potential migration of hazardous constituents from these SWMUs during the duration of their active service.

Giant understands the logic of continued sampling to document potential migration but has some reservations about the frequency of sampling and the true potential for migration of hazardous constituents.

It was determined in the RFI sampling (1990-1992) that migration of hazardous constituents had not occurred in any of the previously mentioned SWMUs and that water saturation had not occurred below five feet. This observation, coupled with the fact that hazardous constituents are not released to the three SWMUs, indicates that future contamination due to migration of hazardous constituents is virtually impossible.

Based on this knowledge, Giant proposes to sample SWMUs #1, #2, and #13, using the protocol set forth in the approved RFI Sampling Plan, every five years, beginning in 1995, with annual reports due on December 31 of the sample year. This sampling will adequately

demonstrate migration, if any, of hazardous constituents. Giant appreciates your prompt attention to this proposal, as this will expedite completion of any responsibilities of Giant to fully characterize and monitor SWMUs #1, #2, and #13.

If you require additional information, please contact me at (505) 722-0227.

Sincerely,

Lynn Shelton Senior Environmental Coordinator Giant Refining Company

TLS:sp

cc w/attachment:

David C. Pavlich, Giant Kim Bullerdick, Giant Rich Mayer, USEPA Kathleen Cisneros, NMED

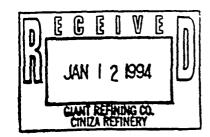
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

JAN 0 7 1994



CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I and Phase II Supplemental Reports and Voluntary Corrective Action Plan Giant Refining Co. <u>NMD000333211</u>

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) hereby approves your RCRA Facility Investigation (RFI) Phase I Supplemental Report, dated October 21, 1991, with the enclosed list of modifications. Your Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad Rack Lagoon, submitted in November and December, 1992, respectfully, are also approved with the enclosed list of modifications.

The EPA is requiring that additional monitoring be completed at several sites. An annual report detailing the monitoring results shall be submitted to the EPA by December 31, 1994, and each year thereafter. The EPA is also requiring that additional soil sampling be completed at the Sludge Pits and the Tank Farm. Sampling results shall be submitted to the EPA by October 1, 1994. Further information concerning the additional monitoring and sampling requirements may be found in the attached list of modifications.

If you have any further questions or need additional information, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

allen m Davo

Allyn M. Davis, Director Hazardous Waste Management Division (6H)

Enclosure

cc: Kathleen Sisneros, NMED

APPROVAL WITH MODIFICATIONS RFI PHASE I SUPPLEMENTARY REPORT RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS

The Environmental Protection Agency (EPA) has completed a technical review of Giant Refining's RCRA Facility Investigation (RFI) Phase I Supplementary Report; RFI Phase II Report; and voluntary Corrective Action Plan (CAP) for the Sludge Pits and Railroad Rack Lagoon. The subject reports are hereby approved with the following comments and modifications.

GENERAL COMMENTS

SWMU 1, The Aeration Basin; SWMU 2, The Evaporation Pond; and SWMU 13, The Drainage Ditch

The EPA agrees with the finding of no further action for Solid Waste Management Units (SWMUs) 1, 2 and 13. The EPA is, however, requiring periodic monitoring of these SWMUs (see below under Modifications). However, this approval is contingent upon the completion of a survey plat for these SWMUs. The survey plats shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit copies of the completed survey plats to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for these SWMUs.

SWMU 6, The Tank Farm

The EPA disagrees with Giant on their recommendation of no further action. Sampling results indicate that 9 of the 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 8, The Railroad Rack Lagoon, Overflow Ditch and Fan Out Area The EPA agrees with the finding of no further action for this SWMU. The EPA understands that Giant has elected to perform voluntary corrective measures at this unit which will include bioremediation Giant's of the wastes with periodic soil and waste monitoring. voluntary bioremediation should reduce the volume and toxicity of the wastes while continuing to periodically monitor the SWMU. The EPA will, however, require that additional monitoring be completed The EPA is also requiring that (see below under Modifications). a survey plat be completed for this SWMU. The survey plat shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit a copy of the completed survey plat to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for this SWMU.

SWMU 6, The Railroad Rack Lagoon

Giant shall take 5 soil borings within the lagoon after it has ceased receiving wastes. Three (3) of the five (5) borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Additionally, all six (6) borings required under the CAP closure (Section 5.0) must be sampled at the 5-6, 10-11, and 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Railroad Rack Lagoon has been initiated.

Continuation of SWMU 6, The Overflow Ditch

Giant shall complete three (3) soil borings in the Overflow Ditch after closing the Railroad Rack Lagoon. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. All results shall be included in the 1994 Annual Monitoring Report.

Continuation of SWMU 6, The Fan Out Area

Giant shall complete four (4) soil borings in the Fan Out Area after closure of the Railroad Rack Lagoon has been completed. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. Results shall be included in the 1994 Annual Monitoring Report.

SWMU #12, Contact Waste Water Collection System (CWWCS)

Giant shall perform an inspection of the CWWCS every five years beginning in calendar year 1996. The inspection shall be identical to the one performed in the previous RFI. If better technological equipment is developed, Giant may request that an alternative method be used. Results shall be included in the appropriate Annual Monitoring Report.

SWMU 9, The Sludge Pits

Giant shall complete soil borings as close as possible to sampling points 6 and 7 (numbers correspond to previous RFI sampling points, completed in May, 1991). Sampling intervals shall be at 18.0 -19.0 foot and 24.0 - 25.0 foot. Sampling procedures and analytical constituents shall be identical to those required in the previous

SWMU 9, The Sludge Pits

The EPA is unable to approve Giant's finding of no further action for this SWMU. Two (2) soil samples collected at the 15 foot interval (the deepest interval sampled) contained semivolatile contaminants. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications). Giant may begin the voluntary bioremediation (see SWMU #8 voluntary corrective action) under the CAP after the deeper soil samples have been completed.

MODIFICATIONS

SWMU 1, The Aeration Basin

Giant shall take soil samples around the Aeration Basin every two (2) years beginning in calendar year 1994. Sampling requirements shall be identical to those performed during the previous RFI, except that all soil borings shall be angled and an additional sample shall be collected at the 20-21 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

SWMU 6, The Tank Farm

Giant shall complete additional soil borings as close as possible to the following sample points (numbers correspond to previous RFI sampling points completed in May, 1991): 21, 22, 23, 25, 26, 27, 30, and 31. The sampling interval shall be at 16 feet, with the exception of sample point 31 which shall be sampled at 20 feet. Samples shall be analyzed for BTEX constituents. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to EPA by October 1, 1994.

SWMU 2, Evaporation Ponds

Giant shall monitor the seven (7) groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall be included in the Annual Monitoring Report.

SWMU 13, Drainage Ditch between APIs Evaporation Ponds and <u>Neutralization Tank Evaporation Ponds</u> _____ No log (1) (1)

Giant shall conduct soil sampling around the Drainage Ditch every two (2) years, with sampling beginning in calendar year 1994. Sampling procedures and analytical constituents shall be identical to those required in the RFI, except that all soil borings shall be angled and an additional interval shall be sampled at from 6.0-6.5 feet. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

RFI. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to the EPA by October 1, 1994.

Before final closure of the West Pit under the CAP, all soil borings shall be sampled at the 18.0 - 19.0 and 24.0 - 25.0 foot intervals. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Four (4) soil borings shall also be completed (before closure) in the East Pit using the same requirements specified for the West Pit borings. Results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Sludge Pits has been initiated.

Soil Boring Logs: The EPA has included an example of a soil boring log to be used for all future borings.

June 28, 1994

Rich Mayer U.S. Environmental Protection Agency Region VI 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733

Re: Quarterly Progress Report

Dear Mr. Mayer:

Pursuant to requirements of the HSWA Permit, Condition C.4., Page 11 and the May 31, 1990 RFI Workplan approval, Giant Refining Company - Ciniza (Giant) submits the <u>Quarterly Progress Report</u> for the second quarter of 1994.

REFINING

Route 3, Box 7 Gallup, New Mexico

87301 505 722-3833

Giant has completed piping modifications to the "Railroad Rack Lagoon" (SWMU #8) system and is presently evacuating the remaining water from the lagoon and disposing of it in the process wastewater system. As soon as it is feasible, Giant will sample the SWMU as required and begin bioremediation activities.

Giant is soliciting proposals for the survey requirement of SWMUs #1, 3, 8, 9 and 13.

Giant is also developing a scope and estimate of expense to further characterize SWMUs $\ddagger4$, 5, 6, 7, 10, and 11 and expects to complete that sampling during the third guarter of 1994.

If you require additional information, please contact Lynn Shelton, of my staff, at (505) 722-0227.

"I certify under penalty of law that this document and all attachments were prepared under my direction to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely, 0 John Stokes Refinery Manager

JJS/TLS:sp

cc: Kim Bullerdick, Corporate Counsel Giant Industries Arizona, Inc.

> David Pavlich, Health/Safety and Environmental Manger Giant Refining Company

> > ÷

DATE: February 3, 1994

TO: David Pavlich Kim Bullerdick

FROM: Lynn Shelton 748

SUBJECT: RCRA Facility Investigation - Additional Requirements

I. Introduction

Giant Refining Company - Ciniza (Giant) performed a RCRA Facility Investigation (RFI) in three phases (I, II, and III) over three years (1990, 1991, and 1992).

Using the analytical results of those three sampling events, Giant submitted four corrective action plans and eight "No Further Action" proposals to Region VI, United States Environmental Protection Agency (EPA).

Correspondence from the EPA (1-7-94) indicated approval of the corrective action plans (with additional requirements) for three Solid Waste Management Units (SWMUs), for RFI reports Phase I, II, and III and assigns a deadline for submittals of additional data.

The additional sampling and reporting requirements, some of which are redundant and unnecessary, are the focus of this correspondence. In the following pages, the scope and cost of the additional sampling requirements will be presented.

Some explanation of a potential problem is in order. The SWMU identification numbering sequence is inconsistent. In discussing the draft letters with Rich Mayer, of Region VI EPA, the discrepancy in reference to the SWMU numbers was mentioned. Mr. Mayer responded that the correct SWMU numbers were taken from the HSWA Permit (Section C, Corrective Actions for Continuing Releases, 5.(a)(1)). Giant had used the numbering sequence from the approved RFI Workplan (revised May 17, 1990). As shown in Table 1, there are discrepancies in all three sequences. Giant should propose to use the numbering sequence identified in the revised RFI Workplan to avoid confusion with the numbering sequence of SWMUs and sample numbers already reported.

Table 2 presents an overview of the status of the SWMUs.

TABLE 1

5

SWMU IDENTIFICATION

111Aeration Basin222Evaporation Ponds355Empty Container Storage488Burn Pit577Four Landfills636Tank Farm	RFI WORKPLAN	HSWA	EPA	Letter SWMU
355Empty Container Storage488Burn Pit577Four Landfills	1	1		1 Aeration Basin
4 8 8 Burn Pit 5 7 7 Four Landfills	2	2		2 Evaporation Ponds
5 7 7 Four Landfills	3	5		5 Empty Container Storage
	4	8		8 Burn Pit
6 3 6 Tank Farm	5	7		7 Four Landfills
	6	3		6 Tank Farm
7 4 4 Fire Training Area	7	4		4 Fire Training Area
8 6 8 Railroad Rack Lagoon	8	6		8 Railroad Rack Lagoon
9 10 & 13 - Inactive Land Treatment	9	10 & 13		 Inactive Land Treatment
10 9 9 Two Sludge Pits	10	9		9 Two Sludge Pits
11 11 11 Secondary Oil Skimmer	11	11	1	ll Secondary Oil Skimmer
12 14 13 Wastewater Collection	12	14	נ	13 Wastewater Collection
13 14 13 Drainage Ditch	13	14	נ	13 Drainage Ditch

TABLE 2

STATUS - INDIVIDUAL SWMU

Caps:

- * Railrack Lagoon
- * Sludge Pits
- Fire Training Area
- * Landfills

No Further Action:

- ****** Aeration Basin
- ****** Evaporation Ponds
- ****** Drainage Ditch
- Tank Farm
- ** Empty Container Storage Old Burn Pit Secondary Oil Skimmer
- *** Inactive Land Treatment

* Accepted by EPA with Additional Requirements
 ** "No Further Action" Approved by USEPA
 *** Not Addressed in Correspondence

II. Discussion

A discussion of additional requirements, by SWMU, follows. Included, as Figures 1 to 12, are drawings of the SWMUs with individual sample points.

<u>SWMU #1</u> - Aeration Lagoon

EPA approved Giant's proposal for "No Further Action". Although Giant demonstrated that no significant migration of hazardous constituents had taken place, EPA requires biennial sampling that duplicates the original RFI sampling. This is redundant and expensive. Giant should propose either a five year sampling rotation or a phased-in plan (of six sample locations, sample two biennially until all samples are taken, then start again). These sampling plans will diminish the costs considerably and still provide documentation that migration has not occurred.

EPA also requires a survey plat of the SWMU. Giant agrees that this is a reasonable requirement.

<u>SWMU #2</u> - Evaporation Ponds

EPA has also approved Giant's proposal for "No Further Action" of this SWMU. EPA requires that Giant sample the seven groundwater wells (MW-4, OW-1, OW-2, OW-5, OW-7, OW-9 and OW-10) biennially for the same constituents as monitored for in the RFI sampling event. Giant may wish to propose a five year sampling rotation.

<u>SWMU #3</u> - Empty Container Storage Area

EPA approved Giant's proposal for "No Further Action" for the SWMU, requiring only that Giant provide a survey plat.

SWMU #4 - Old Burn Pit

EPA does not approve Giant's proposal for "No Further Action". Three borings at six and ten feet will be required to characterize constituent migration in this SWMU.

<u>SWMU #5</u> - Landfill Areas

EPA requires that additional borings, at eleven, sixteen and twenty feet to fully characterize contamination.

<u>SWMU #6</u> - Tank Farm

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. EPA requires seven additional borings to sixteen feet and one additional boring to twenty feet to fully characterize contamination. When Giant performed supplemental sampling of this SWMU in 1991, it was anticipated that further sampling would be required.

<u>SWMU #7</u> - Fire Training

EPA does not approve Giant's proposal for "No Further Action" for this SWMU. Two additional angle borings to seven and eleven vertical feet are required. Additional sampling was anticipated when this SWMU was sampled in 1992, although I question why we now have to analyze for the Skinner List constituents. Samples from this SWMU were originally analyzed for TPH and oil & grease only.

<u>SWMU #8</u> - Railroad Rack Lagoon

EPA has approved Giant's corrective action plan for this SWMU, with additional requirements. After piping modifications at the railroad loading rack are complete and the railroad rack lagoon no longer receives waste, sampling is required within the footprint of the lagoon (five borings) and around the periphery of the lagoon (six borings). Sampling is also required in the overflow ditch (three borings to seven feet) and the fan out area (four borings to seven feet). Some sampling will be required during remediation of the lagoon to document completion of the corrective action plan.

A survey plat of the SWMU, after remediation, must be submitted to the EPA.

<u>SWMU</u> 9 - Inactive Land Treatment Area

Although Giant had provided data and proposed no further action, this SWMU was not addressed in the correspondence with the EPA. It needs to be determined if EPA accepts our proposal or has additional requirements.

<u>SWMU #10</u> - Sludge Pits

EPA is requiring additional sampling to 25' in this SWMU (seven borings) to fully characterize any contamination. Monitoring will be required during remediation to document completion of the corrective action plan.

It is reasonable to expect that EPA will require a survey plat of this SWMU after closure.

<u>SWMU #11</u> - Secondary Oil Skimmer

EPA does not approve Giant's proposal for "No Further Action" and is requiring additional sampling to ten feet (two borings). This is a reasonable request.

<u>SWMU #12</u> - Contact Wastewater System

Although onerous, the requirement to inspect the wastewater system every five years is acceptable in that we were not sure if we could get any kind of "Buy In" from EPA. Costs of monitoring this SWMU are therefore significantly less than anticipated.

<u>SWMU #13</u> - Drainage Ditch

Although EPA approves Giant's proposal of "No Further Action", additional requirements have been added. Complete resampling is required biennially. This is redundant and expensive. Even though this SWMU continues to be exposed to wastewater, Giant does not believe there is a significant possibility of migration. Giant should propose a five year sampling schedule or a "Phased-In" rotation of sampling.

A survey plat will be required for this SWMU.

III. Estimation of Expenses

Not normally a consideration of the regulatory community, expense is an indicator to industry of the scope and complexity of regulatory requirements. In providing a cost estimate, we are able to judge the economic impact for our company and determine the extent to which we are willing to contest the requirements issued to us.

The following tables (Tables 3, 4, and 5) illustrate the estimated costs per SWMU (for 1994 and biennially).

Table 3

SWMU #	SAMPLES <u>REQUIRED</u>	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
4	6	8240 8270 Metals pH	1,800 2,970 2,250 60
5	21	8240 8270 Metals	6,300 10,395 4,830
6	8	BTEX	1,000
7	4	TPH Oil & Grease	200 200
8	50	8240 8270	15,000 24,750
10	18	8240 8270 Metals	5,400 8,910 4,140
11	4	8240 8270	1,200 1,980
13	12	8240 8270	3,600 5,940

Total Analytical Cost 1994 Only

<u>\$119,245</u>

TABLE 4

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BIENNIAL	ANALYTICAL	COST
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SWMU 1	SAMPLES REQUIRED	ANALYSIS	COST
1	30	8240 8270 Metals	\$ 9,000 14,850 6,900
2	7	8240 8270 Metals pH	1,750 2,765 1,435 70
13	12	8240 8270	8,600 5,940

Total Biennial Analytical Cost <u>\$46,310</u>

TABLE 5

TOTAL COST OF 1994 SAMPLING (ESTIMATE)

1

SWMU #	ANALYTICAL COST	LABOR *	COST
1	\$ 30,750	\$12,600	\$ 43,350
2	6,020	1,100	7,120
4	7,080	3,000	10,080
5	21,525	14,000	35,525
6	1,000	13,200	14,200
7	400	2,200	2,600
8	39,750	21,400	61,160
10	18,450	22,500	40,950
11	3,180	2,000	5,180
13	9,540	2,600	12,140
	\$119,245	<u>\$94,600</u>	<u>\$213,845</u>

Including Drilling Rig

*

IV. Conclusions

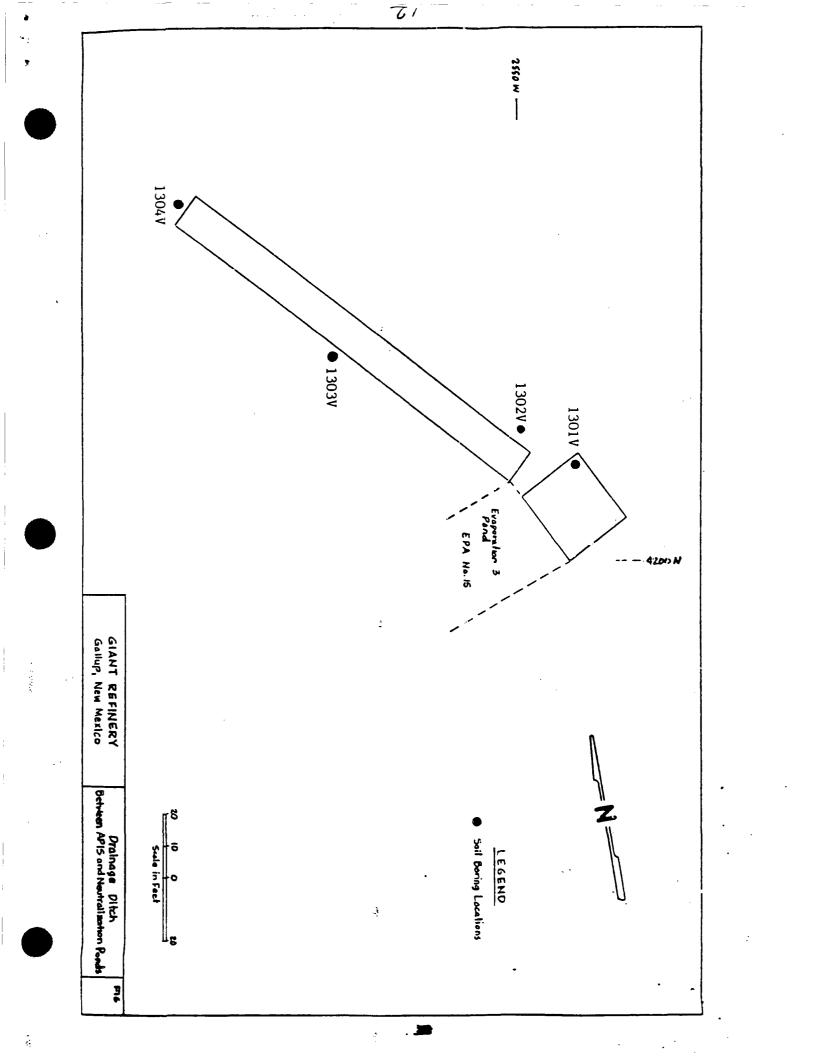
The additional requirements to fully characterize SWMUs #4, 5, 6, 7, 8, 10 and 11 are reasonable. Although expensive, full characterization of potential pollution is the thrust of an RFI project and is Giant's objective.

The biennial sampling requirements for SWMUS #1, 2, and 13 are, in effect, a repeat of the original RFI project every two years. This is redundant, expensive and, in my opinion, unwarranted. In completing the original RFI work, it was demonstrated that SWMUS #1, 2, and 13 pose no threat to human health or the environment. Additional sampling is probably justified, because these SWMUs continue to handle wastewater, but on a smaller scale. I recommend that we propose to do additional sampling every five years on one-third of the sample points, or something of that magnitude. This should be enough sampling to document that there is no contamination.

It is important that we act now to minimize sampling requirements in that we can reasonably assume that as other SWMUs are characterized, additional long term sampling requirements for those SWMUs will be requested. This could be an expensive task that provides minimal protection to the environment.

The actual sampling process should be fairly straight forward. Sampling protocol will be identical to past projects and can be accomplished by refinery personnel. The sampling process needs to be modified to using a drilling rig to take core samples in place of backhoe and hand auger. This change is due to the increased depths of samples, the sheer number of samples to be collected, analyzed and reported during 1994, and the requirement to use more appropriate soil boring logs. Using a drilling contractor will provide the necessary speed of sampling and the lithologic observations necessary to complete this project in a timely and efficient manner.

It is in the best interest of Giant that we develop the proper response to these new requirements. I recommend that we carefully analyze our options in this matter and schedule a meeting with the RCRA staff at EPA to discuss this issue.



DEC-17-1993 08-48

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I Supplemental and RFI Phase II Reports - Giant Refining Co. - NMD000333211

Dear Mr. Stokes:

We hereby approve your Phase I Supplemental Report dated August 21, 1991 and the RFI Phase II Report dated October 21, 1991, with the enclosed modifications. The Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad Rack Lagoon (submitted November and December 1992, respectfully) are also approved, with the enclosed modifications.

The Annual Monitoring (see enclosure for SWMUs requiring monitoring) Report is due to EPA by December 31, 1994, and each year thereafter. The additional soil sampling results for the Sludge Pits and the Tank Farm are due to EPA by June 1, 1994. If you have any further questions pertaining to the above discussed items, please contact Nancy Morlock or Richard Mayer of my staff at (214) 655-6650.

Sincerely yours,

Allyn M. Davís, Director Hazardous Waste Management Division

Enclosure

cc: Kathleen Sisneros, NMED

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6h-pn 6h-p 6h Neleigh Honker Morisato

APPROVAL OF THE RFI PHASE I SUPPLEMENTARY REPORT, RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS (CAP), WITH MODIFICATIONS, FOR GIANT REFINING COMPANY

Below are EPA's general comments and modifications pertaining to Giant's RFI Reports and the voluntary CAP for the Sludge Pits and the Railroad Rack Lagoon. Under general comments, there is a discussion describing the RFI status of each SWMU and the remaining RFI process/requirements for each SWMU. The modifications consist of SWMU specific monitoring or investigations required by EPA.

General Comment: EPA agrees with the finding of no further action for the following SWMUs: SWMU #1, the Aeration Basin; SWMU #2, the Evaporation Ponds; and, SWMU #13, the Drainage Ditch. Even though EPA is not requiring further investigations/remediation (no further action determination), periodic monitoring of the above mentioned SWMUs will be required (see below under modifications).

On SWMU #6, the Tank Farm, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, 9 out of 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

On SWMU #9, the Sludge Pits, EPA disagrees with Giant on their recommendation of no further action. After reviewing the results, two samples at the 15'interval (the deepest interval sampled) contained semivolatiles. Therefore, EPA is requiring deeper sampling at specified points (see below under modifications).

EPA agrees with the finding of no further action for SWMU #6, the Railroad Rack Lagoon, Overflow Ditch and Fan Out Area. Even though EPA is not requiring further investigations/remediation (no further action determination), periodic monitoring of the above mentioned SWMU will be required. Giant has decided to perform voluntary corrective measures (bioremediation of the wastes) on the above mention SWMU and will perform periodic monitoring on the SWMU while bioremediation is occurring. Giant's voluntary bioremediation should reduce the volume and toxicity of the waste contained in the SWMUs while continuing periodic monitoring of the SWMUs (which ' satisfies EPA's monitoring requirements). Also, EPA included some additional monitoring requirements besides those included by Giant in the CAP (see below under modifications).

Also, EPA will require one administrative control for all SWMUS which EPA has tententively approved a no further action determination. It is the following: A survey plat of each SWMU, according to the procedures required in 40 CFR 264.116. Once Giant has sent documentation to EPA verifying completion of the administrative control (for each SWMU), then Giant can submit a Class III permit modification to terminate the RFI/CMS process for a particular SWMU.

Modifications

SWMU #1, the Aeration Basin: Giant shall take soil samples around the Aeration Basin every 2 years, with sampling beginning in calender year 1994. Sampling requirements shall be identical to what was performed in the previous RFI, except, that all soil borings shall be angled and that an additional interval be sampled at the 20-21 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.). SWHU #6, the Tank Farm: Giant shall take soil borings as close as possible to the following sample points (numbers are from previous RFI sampling points, done 5/6 & 5/7/91): number's 21, 22, 23, 25, 26, 27, 30, and 31. Sampling intervals shall be at 16', except for #31, which shall be taken at 20'. Samples shall be analyzed for BTEX constituents. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EPA by June 1, 1994.

swmu #2, Evaporation Ponds: Giant shall monitor the seven groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall be included in the Annual Monitoring Report. WHICH WELLS

SWMU #13, Drainage Ditch between APIs Evaporation Ponds and Neutralisation Tank Bvaporation Ponds: Giant shall take soil samples around the Drainage Ditch every 2 years, with sampling beginning in calendar year 1994. Sampling procedures and constituents to be analyzed shall be identical to those required in the RFI, except, that all soil borings shall be angled and that an additional interval be sampled at the 6-6.5 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

swhu AG, Railroad Rack Lagoon: Giant shall take 5 soil borings within the lagoon after it has stopped receiving wastes and it is practicable to sample. Three of the five borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot Sampling procedures and constituents to be analyzed interval. shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Also, all six borings required under the CAP closure (Section 5.0) must be sampled at the 5-6', the 10-11' interval, and the 14-15'. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Continuation of SWMU #6, the Overflow Ditch: Giant shall take 3 soil borings in the Overflow Ditch after closure (stop receiving liquid wastes) of the Railroad Rack Lagoon. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Soil borings shall be taken at the 3-4' interval and at the 6.5-7' interval. Results shall be included in the 1994 Annual Monitoring Report.

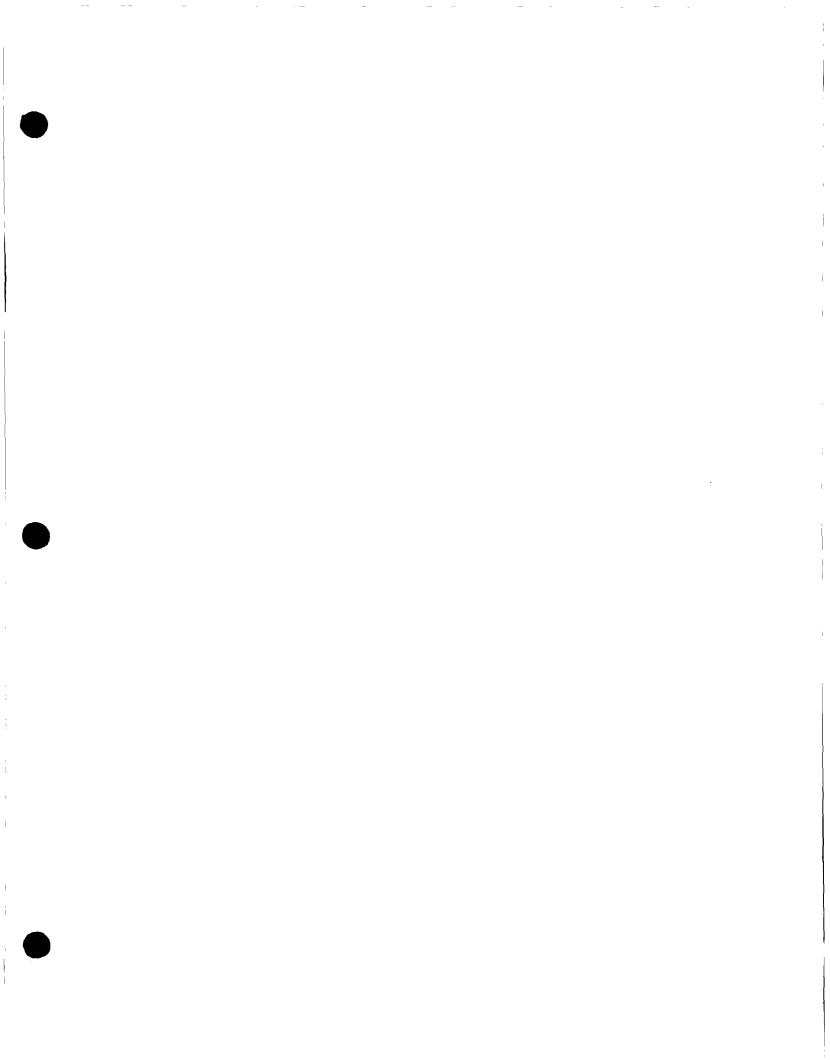
Continuation of SWMU #6, the Fan Out Area: Giant shall take 4 soil borings in the Fan Out Area after closure (stop receiving liquid wastes) of the Railroad Rack Lagoon. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Soil samples shall be taken at the 3-4' interval and at the 6.5' to 7' interval. Results shall be included in the 1994 Annual Monitoring Report.

SWMU #12, Contact Waste Water Collection System (CWWCS): Giant shall perform an inspection of the CWWCS every five years (the next inspection will be in 1996) and shall be identical to the one performed in the RFI (if better technological equipment is developed, then Giant may request that an alternative method be used). Results shall be included in the appropriate Annual Monitoring Report.

SUMPLY, Sludge Pits: Giant shall take soil borings as close as possible to sampling points (numbers are from previous RFI sampling points, done 5/6 & 5/7/91) 6 and 7. Sampling intervals shall be at 18-19'and 24-25'. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Note: If the intervals sampled are obviously contaminated, then deeper intervals should be sampled until vertical contamination is delineated. The results of this sampling event shall be due to EFA by June 1, 1994.

Before <u>final closure of the West pit</u> under the CAP, all soil borings shall have samples taken at the 18-19' and 24-25' intervals. Sampling procedures and constituents to be analyzed shall be identical to those required in the previous RFI. Three soil borings shall also be taken (before closure) from the east pit using the same requirements specified for the West Pit borings. Results shall be included in the appropriate Annual Monitoring Report.

Boil Boring Logs: EPA has included an example of a soil boring log which they would like Giant to use in all future borings.



PHASE II, RFI 1991 GIANT REFINING CINIZA

SWMU #13

METALS

1

SAMPLE POINT NUMBER SAMPLE POINT DEPTH		01 V2.0	01 V3.5	02 V2.0	02 V3.5	03 V2.0	03 V3.5	04 V2.0	04 V3.5	04 D3.5	02 E2.0 (ag/1)
PARAMETER	UNITS										
Antimony	ag/kg	<3	<3	<3	<3	<3	<3	<3	<3	<3	<0.05
Arsenic	ng/kg	<3	<3	<3	<3	<3	<3	<3	<3	<3	<0.005
Barium	mg/kg	281	237	244	377	244	312	260	250	252	<0.01)
Beryllium	ag/kg	2.4	3.5	4.3	3.2	4.1	÷.3	4.3	4.5	4.9	<0.005
Cadmium	ag/kg	<0.3	<0.3	<Ù.3	<0.3	<0.3	<).3	<0.3	<j.3< td=""><td><0.3</td><td><0.003</td></j.3<>	<0.3	<0.003
Chromiun	ag/kg	4.5	5.2	6.0	5.1	5.2	5.3	7.1	5.4	6.5	<0.010
Cobalt	ng/kg	4.4	5.3	5.1	5.0	5.Ù	5.1	5.9	5.3	5.2	<0.010
Copper	ag/kg	4.5	4.1	4.4	5.4	5.3	4.9	5.5	4.9	5.1	<0.010
Lead	ag/kg	10	10	12	10	11	12	10	9	11	<0.002
Mercury	ng/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0002
Nickel	mg/ltg	e.5		9.0	9.2	10.9	8.9	11.3	9.5	9.1	<0.020
Potassium	mg/kg	1080	1200	1720	1190	1680	1270	1830	2370	2190	<1.0
Selenium	ag/kg	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.003
Vanadium	ng/kg	10.0	11.5	12.3	9.3	12.1	12.0	10.0	12.2	12.6	<0.01Ú
Zinc	ng/kg	9.7	12.4	14.3	13.0	14.5	12.5	15.1	15.3	14.1	0.014

PHASE II, RFI 1991 GIANT REFINING CINIZA

SWMU #13

- 8240 VOLATILE ORGANICS

SAMPLE POINT NUMBER SAMPLE POINT DEPTH		01 ₹2.0	01 V3.5	02 V2.0	02 V3.5	03 ₩2.0	03 V3.5	04 V2.0	04 V3.5	04 D3.5	02 E2.0 (ug/l)
PARAMETER	UNITS										(ug/1/
Carbon Sulfide	ng/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
1,2-Dichloroethane	ng/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Benzene	ng/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<\$
2-Chloroethyl vinyl ether	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Toluene	ag/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Chlorobenzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Ethylbenzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
2-Butanone (MEK)	ng/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Styrene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Xylenes (total)	ag/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
1,4-Dioxane	mg/kg	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<10
1,2-Dibromoethane (EDB)	mg/kg	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<2.5



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SWMU #13

PHASE II, RFI 1991 GIANT REFINING CINIZA

8270 SEMI-VOLATILE ORGANICS

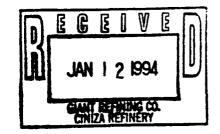
SAMPLE POINT NUMBER SAMPLE POINT DEPTH		01 V2.0	01 V3.5	02 V2.0	02 V3.5	03 V2.0	03 V3.5	04 V2.0	04 V3.5	04 D3.5	02 E2.0
PARAMETER	UNITS										(ug/1)
Anthracene	ng/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	0.17	<0.17	<5
Benzenethiol	mg/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	0.17	<0.17	<5
Benzo(a)anthracene	aq/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	< <u>5</u>
Benzo(b)fluoranthene	ag/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Benzo(k)fluoranthene	ng/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Benzo(a)pyrene	a g/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Butyl benzyl phthalate	ag/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Chrysene	ng/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Dibenz(a,h)anthracene	¤g/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Di-n-butyl phthalate	ag/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<\$
1,2-Dichlorobenzene	ag/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
1,3-Dichlorobenzene	∎g/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
1,4-Dichlorobenzene	ag/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Diethyl phthalate	ng/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
7,12-Dimethylbenz(a)-											
anthracene	ng/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<٢
2,4-Dimethylphenol	∎g/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Dimethyl phthalate	ng/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
2,4-Dinitrophenol	∎g/kg	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<25
Fluoranthene	ng/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Naphthalene	sg∕kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
4-Nitrophenol	ag/kg	<0.85	<0.85	<0.85	<0.85	<0.95	<0.85	<0.35	<0.35	<0.85	<25 \
Phenanthrene	∎g/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Phenol	∎g/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
Pyrene	ag/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<s< td=""></s<>
Methylchrysene	ag/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
1-Methylnaphthalene	mg/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<5
3-Methyl Phenol	ng/kg	<5	<5	<5	<5	<5	_<5	<\$	<5	<5	<5
Pyridine	ng/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Quinolíne	ng/kg	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.35	<25

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



REGION 6 1445 ROSS AVENUE, SUITE 1200 DALLAS, TX 75202-2733

JAN 0 7 1994



CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301

RE: RFI Phase I and Phase II Supplemental Reports and Voluntary Corrective Action Plan Giant Refining Co. NMD000333211

Dear Mr. Stokes:

The Environmental Protection Agency (EPA) hereby approves your RCRA Facility Investigation (RFI) Phase I Supplemental Report, dated October 21, 1991, with the enclosed list of modifications. Your Corrective Action Plans (CAPs) for the Sludge Pits and the Railroad 1992, Rack Lagoon, submitted in November and December, respectfully, are also approved with the enclosed list of modifications.

The EPA is requiring that additional monitoring be completed at several sites. An annual report detailing the monitoring results shall be submitted to the EPA by December 31, 1994, and each year thereafter. The EPA is also requiring that additional soil sampling be completed at the Sludge Pits and the Tank Farm. Sampling results shall be submitted to the EPA by October 1, 1994. Further information concerning the additional monitoring and sampling requirements may be found in the attached list of modifications.

If you have any further questions or need additional information, please contact Nancy Morlock at (214) 655-6650 or Richard Mayer at (214) 655-7442.

Sincerely yours,

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Allyn M. Davis, Director Hazardous Waste Management Division (6H)

Enclosure

cc: Kathleen Sisneros, NMED

APPROVAL WITH MODIFICATIONS RFI PHASE I SUPPLEMENTARY REPORT RFI PHASE II REPORT AND THE VOLUNTARY CORRECTIVE ACTION PLANS

The Environmental Protection Agency (EPA) has completed a technical review of Giant Refining's RCRA Facility Investigation (RFI) Phase I Supplementary Report; RFI Phase II Report; and voluntary Corrective Action Plan (CAP) for the Sludge Pits and Railroad Rack Lagoon. The subject reports are hereby approved with the following comments and modifications.

GENERAL COMMENTS

SWHU 1, The Aeration Basin; SWMU 2, The Evaporation Pond; and SWHU 13. The Drainage Ditch

The EPA agrees with the finding of no further action for Solid Waste Management Units (SWMUs) 1, 2 and 13. The EPA is, however, requiring periodic monitoring of these SWMUs (see below under Modifications). However, this approval is contingent upon the completion of a survey plat for these SWMUs. The survey plats shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit copies of the completed survey plats to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for these SWMUs.

SWMU 6, The Tank Farm

The EPA disagrees with Giant on their recommendation of no further action. Sampling results indicate that 9 of the 13 samples taken at the 11 foot interval (the deepest interval sampled) contained elevated levels of BTEX constituents. One sample at the 16 foot interval also contained elevated BTEX levels. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications).

SWMU 8, The Railroad Rack Lagoon, Overflow Ditch and Fan Out Area The EPA agrees with the finding of no further action for this SWMU. The EPA understands that Giant has elected to perform voluntary corrective measures at this unit which will include bioremediation of the wastes with periodic soil and waste monitoring. Giant's voluntary bioremediation should reduce the volume and toxicity of the wastes while continuing to periodically monitor the SWMU. The EPA will, however, require that additional monitoring be completed (see below under Modifications). The EPA is also requiring that a survey plat be completed for this SWMU. The survey plat shall be completed in accordance with the requirements set forth in 40 CFR 264.116. Giant shall submit a copy of the completed survey plat to the EPA for review and approval. Upon approval, Giant may submit a Class III permit modification to terminate the RFI/Corrective Measures Study (CMS) process for this SWMU.

SWMU 9, The Sludge Pits

The EPA is unable to approve Giant's finding of no further action for this SWMU. Two (2) soil samples collected at the 15 foot interval (the deepest interval sampled) contained semivolatile contaminants. The EPA is therefore requiring deeper sampling at specified points (see below under Modifications). Giant may begin the voluntary bioremediation (see SWMU #8 voluntary corrective action) under the CAP after the deeper soil samples have been completed.

MODIFICATIONS

SWMU 1, The Aeration Basin

Giant shall take soil samples around the Aeration Basin every two (2) years beginning in calendar year 1994. Sampling requirements shall be identical to those performed during the previous RFI, except that all soil borings shall be angled and an additional sample shall be collected at the 20-21 foot interval. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

SWMU 6, The Tank Farm

Giant shall complete additional soil borings as close as possible to the following sample points (numbers correspond to previous RFI sampling points completed in May, 1991): 21, 22, 23, 25, 26, 27, 30, and 31. The sampling interval shall be at 16 feet, with the exception of sample point 31 which shall be sampled at 20 feet. Samples shall be analyzed for BTEX constituents. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to EPA by October 1, 1994.

SWMU 2, Evaporation Ponds

Giant shall monitor the seven (7) groundwater wells around the evaporation ponds biannually for the same constituents monitored for in the original RFI. Results shall be included in the Annual Monitoring Report.

SWMU 13, Drainage Ditch between APIs Evaporation Ponds and <u>Neutralization Tank Evaporation Ponds</u>

Giant shall conduct soil sampling around the Drainage Ditch every two (2) years, with sampling beginning in calendar year 1994. Sampling procedures and analytical constituents shall be identical to those required in the RFI, except that all soil borings shall be angled and an additional interval shall be sampled at from 6.0-6.5 feet. Results shall be included in the appropriate Annual Monitoring Report (1994, 1996, etc.).

SWMU 6, The Railroad Rack Lagoon

Giant shall take 5 soil borings within the lagoon after it has ceased receiving wastes. Three (3) of the five (5) borings must be sampled at the 0-1 foot interval. All borings must be sampled at the 5-6 foot interval, the 10-11 foot interval, and the 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the 1994 Annual Monitoring Report.

Additionally, all six (6) borings required under the CAP closure (Section 5.0) must be sampled at the 5-6, 10-11, and 14-15 foot interval. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Sampling results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Railroad Rack Lagoon has been initiated.

Continuation of SWMU 6. The Overflow Ditch

Giant shall complete three (3) soil borings in the Overflow Ditch after closing the Railroad Rack Lagoon. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. All results shall be included in the 1994 Annual Monitoring Report.

Continuation of SWMU 6, The Fan Out Area

Giant shall complete four (4) soil borings in the Fan Out Area after closure of the Railroad Rack Lagoon has been completed. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Soil samples shall be collected at the 3.0 - 4.0 and 6.5 - 7.0 foot interval. Results shall be included in the 1994 Annual Monitoring Report.

SWMU #12, Contact Waste Water Collection System (CWWCS)

Giant shall perform an inspection of the CWWCS every five years beginning in calendar year 1996. The inspection shall be identical to the one performed in the previous RFI. If better technological equipment is developed, Giant may request that an alternative method be used. Results shall be included in the appropriate Annual Monitoring Report.

SWMU 9, The Sludge Pits

Giant shall complete soil borings as close as possible to sampling points 6 and 7 (numbers correspond to previous RFI sampling points, completed in May, 1991). Sampling intervals shall be at 18.0 -19.0 foot and 24.0 - 25.0 foot. Sampling procedures and analytical constituents shall be identical to those required in the previous

RFI. Sampling must extend vertically until no subsequent increase in contamination levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. The results of this sampling event shall be submitted to the EPA by October 1, 1994.

Before final closure of the West Pit under the CAP, all soil borings shall be sampled at the 18.0 - 19.0 and 24.0 - 25.0 foot intervals. Sampling procedures and analytical constituents shall be identical to those required in the previous RFI. Four (4) soil borings shall also be completed (before closure) in the East Pit using the same requirements specified for the West Pit borings. Results shall be included in the appropriate Annual Monitoring Report.

Monitoring requirements under the voluntary CAP shall be submitted to EPA in the appropriate quarterly progress report. Giant shall notify the EPA when final closure of the Sludge Pits has been initiated.

Soil Boring Logs: The EPA has included an example of a soil boring log to be used for all future borings.