GW - 32

REPORTS

YEAR(S):

1990- SMWU'S INVESTIGATION

SWMU SITE-SPECIFIC FACILITY INVESTIGATION WORKPLAN RCRA FACILITY INVESTIGATION GIANT REFINERY GALLUP, NEW MEXICO

A REPORT PREPARED FOR
GIANT INDUSTRIES, INC.
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GALLUP, NEW MEXICO

AES PROJECT

DECEMBER 15, 1989
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1.0 INTRODUCTION

This document describes the site specific activities which will be conducted at each SMWU at the Giant Refinery. The methodology for each study is taken from EPA documents on RFI workplans and investigations (EPA 530/SW-87-001) and the permit conditions in HSWA Permit NMD000333211. A copy of the permit is attached as Appendix A.

Each investigation will follow a progression of logical events from an initial verification of release at the unit to characterization of the unit and contained waste constituents. At each SWMU a soil contamination characterization study will be initiated. Air studies will not be performed at this time. A surface water study will be conducted at the Railroad Rack Lagoon. A ground water contamination study will be completed to assist in the evaluation of the Evaporation ponds.

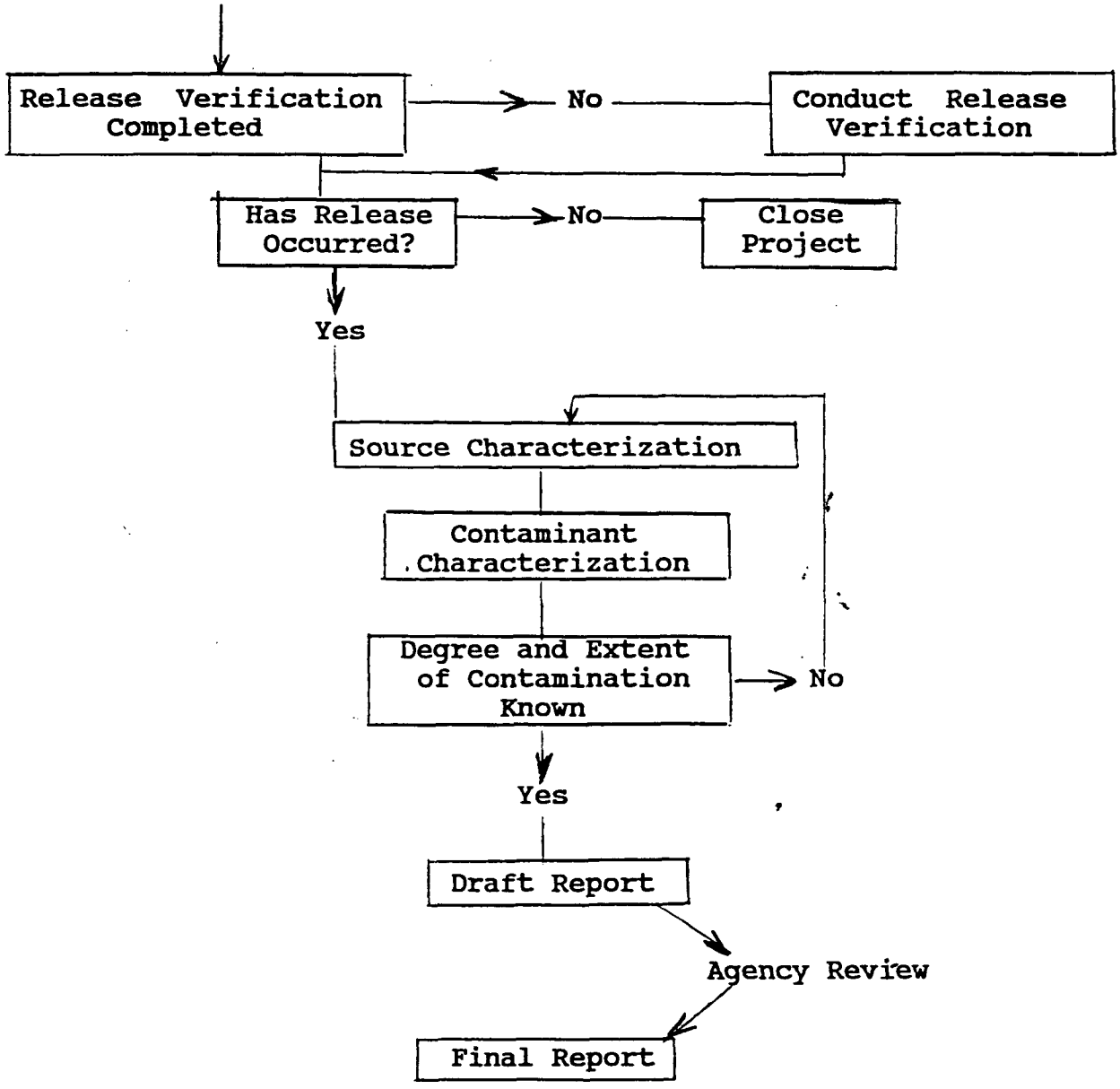
The analyses chosen for each SWMU is determined based upon the type of media and suspected contaminant. The main classes of analyses are the skinner list of organics, BTEX and metals. The skinner list organics encompasses the compounds typically found in refinery wastes. EPA Methods 8240 and 8270 analyses will also be conducted in conjunction with the skinner list organics and metals on sludge and water samples. BTEX is used as an indicator for the potential release of hydrocarbons. A list of metals have been analyzed onsite as part of the land treatment demonstration. These metals, hereafter called background metals, will be analyzed at certain SWMU's and statistically compared to the background data.

The analysis of metals was selected in those SWMU's where the possibility existed for refinery wastes.

Following assessment, the information will be analyzed to evaluate whether the SWMU has been adequately characterized. If additional assessment is warranted, a second phase of sampling will be developed and completed. Figure 1 is a flow chart of the proposed activities of a SWMU.

RFI

Assessment Flow Chart
Giant Refinery
Gallup, New Mexico



2.0 SOLID WASTE MANAGEMENT UNITS

An EPA Preliminary Review (PR) and Visual Site Inspection (VSI) report completed in January 1987 listed fourteen solid waste management units (SWMU). The units are listed below:

- Aeration Basin
- Evaporation Ponds
- Tank Farm
- Fire Training Area
- Empty Container Storage Area
- Railroad Rack Lagoon
- Four (4) Landfills
- Burn Pit
- Two (2) Sludge Pits
- Inactive Land Treatment Area
- Secondary Oil Skimmer and Associated Drainage Ditch
- Contact Wastewater Collection System
- Drainage Ditch near the Inactive Land Treatment Ditch*
- Drainage Ditch between APIS Evaportation Ponds and Neutralization Tank Evaporation Ponds

* The Permit lists the Inactive Land Treatment area and Ditch as separate SWMU's, however, the proximity of the two units (10 to 20 feet) suggest that they be studied together.

3.0 FACILITY INVESTIGATION

Each SWMU Facility Investigation will follow the Generic RFI workplans.

The investigations will be conducted to verify if a release has occurred, define the source of contamination, and the degree and extent of contamination. The following outline will be used for the assessment.

3.1 Release Verification

Sufficient data will be collected to identify the location and sources of suspected releases associated with the SWMU. The data shall be of adequate technical quality and detail to support the development of unit or source specific plans to further characterize any confirmed releases.

3.2 Source Characterization

Each investigation will include a program to collect data to characterize the wastes and the areas where wastes have been placed, including: type; quantity; physical form; disposition (containment or nature of deposits); and

facility characteristics affecting release (e.g., facility security, and engineered barries).

3.2.1 Unit/Disposal Area Characteristics

- Location of unit/disposal area;
- Type of unit/disposal area;
- Design features;
- Operating practices (past and present);
- Period of operation;
- Age of unit/disposal area;
- General physical conditions; and
- Method used to close the unit/disposal area.

3.2.2 Waste Characteristics

- Type of waste placed in the unit;
- Physical and chemical characteristics; and
- Migration and dispersal characteristics of the waste.

3.3 Contamination Characterization

Studies will be conducted to define the extent, origin, direction, and rate of movement of contaminant

plumes in the media as specified in HSWA permit NMD000333211 C.5(a)(1).

3.3.1 Soil Contamination

An investigation will be completed to characterize the contamination of the soil and rock units in the vicinity of the contaminant release. The investigation will include the following information:

- A description of the vertical and horizontal extent of contamination.
- A description of contaminant and soil chemical properties within the contaminant source area and plume.
- Specific contaminant concentrations.
- The velocity and direction of contaminant movement.
- An extrapolation of future contaminant movement.

3.3.2 Ground Water Contamination

A ground water investigation will be completed to characterize any plumes of contamination in the aquifer underneath the facility. This investigation will at a minimum provide the following information:

- A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;

- The horizontal and vertical direction of contamination movement;
- The velocity of contaminant movement;
- The horizontal and vertical concentration profiles of Appendix IX constituents in the plume(s);
- An evaluate of factors influencing the plume movement; and
- An extrapolation of future contaminant movement.

3.3.3 Surface-Water Contamination

Surface-water investigation will be conducted to characterize contamination in surface-water bodies resulting from contaminant releases at the facility. The investigation shall include the following:

- A description of the horizontal and vertical extent of any immiscible or dissolved plumes originating from the facility, and the extent of contamination in underlying sediments.
- The horizontal and vertical direction and velocity of contaminant movement;
- An evaluation of the physical, biological, and chemical factors influencing contaminant movement;
- An extrapolation of future contaminant movement; and
- A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, and specific contaminant concentrations.

3.3.4 Air Contamination

An investigation to characterize the particulate and

gaseous contaminants released into the atmosphere may be conducted at a later date. If the investigation is conducted it shall provide the following information:

- A description of the horizontal and vertical direction and velocity of contaminant movement;
- The rate and amount of release; and
- The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

3.4 Potential Receptors

Information describing the human populations and environmental systems that may be susceptible to contaminant exposure from the facility will be developed. Information may include:

- Existing and possible future use of ground water, including the type of use (e.g., municipal and/or residential drinking water, agricultural, domestic/ non-potable and industrial);
- Location of ground water users, including wells and discharge areas;
- Existing and possible future uses of surface waters draining the facility, including domestic and municipal uses (e.g., potable and lawn/gardening watering), recreational (e.g., fishing and swimming), agricultural, industrial and environmental (e.g., fish and wildlife populations) uses;

- Human use of or access to the facility and adjacent lands, including recreational, hunting, residential, commercial, zoning, and the relationship between population locations and prevailing wind direction;

- A description of the biota in surface water bodies on, adjacent to, or which can be potentially affected by the release;

- A description of the ecology on and adjacent to the facility;

- A demographic profile of the human population who use or have access to the facility and adjacent land, including age, sex, sensitive subgroups (e.g., schools, nursing homes), and other factors as appropriate; and

- A description of any endangered or threatened species near the facility.

4.0 SITE SPECIFIC RFI WORKPLAN WORKSHEETS

The methods for assessment of the fourteen SWMU's listed in HSWA Permit NMDO00333211 are contained in this chapter.

Release Investigation and Waste and Unit Characterization methods are documented in the Giant RFI Generic Plans, which are submitted as part of the workplan.

Sampling techniques for contamination characterization are documented in the Giant RFI Generic Sampling Plan, which is submitted as part of the workplan.

Health and Safety criteria are presented in the Safety Execution Plan.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Aeration Basin

LOCATION: Figure 1, No. 8

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.
5) Statistical comparison of background metals.
6) Air contamination assessment.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and the implementation of field investigations to evaluate the nature and extent of possible releases. Workplan C describes the field investigation in detail. The unit characterization is described in Workplan B, Section 1(b). The waste characterization will be accomplished by sampling the waste and identifying its analytical constituents. Plans for additional waste characterization are described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Aeration Basin

LOCATION: Figure 1, No. 8

B. SOURCE CHARACTERIZATION:

1. Type of unit - Aeration Basin

(a) Is unit history accurately known _X_ yes ___ no

(b) Discuss plans for additional data collection:

Record search to determine the unit location, type, design features, operating practices, period of operation, age, and general physical conditions.

2. Type(s) of wastes in unit:

Bacteria and nutrients needed for biological degradation, dissolved solids, oil and grease.

(a) Is waste history accurately known _X_ yes ___ no

(b) If no, discuss plans for additional waste characterization:

(c) List potential indicator parameters for wastes:

EPA 8240 and 8270 priority pollutants; background metals

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Aeration Basin

LOCATION: Figure 1, No. 8

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5. (a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_X_ Soil ___ Ground Water ___ Air ___ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Four vertical soil borings will be collected to a depth of 14½ feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals:

4 - 4½
9 - 9½
11 - 11½
14 - 14½

Additionally, two angle borings will be attempted. The anticipated angle of drilling will be from 60° to 45° from vertical. The actual angle will be based upon field conditions and design construction of the drilling rig. The same sampling depth and interval as the vertical borings will be used.

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4	Soil Sampling Techniques
Section 4.0	Sample Labeling
Section 5.0	Decontamination Procedures
Section 6.0	Sample Custody
Section 7.0	Analytical Procedures

Proposed Number of Samples:

Four vertical borings and two angle borings to a depth of 14½ feet with four sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Aeration Basin

LOCATION: Figure 1, No. 8

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Locations are shown on the attached figures. A photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five foot CME Tubes, backhoe and/or hand augers.

Contaminant Description; specific constituents to be quantified:

EPA 8240 and 8270 priority pollutants; background metals

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Aeration Basin

LOCATION: Figure 1, No. 8

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil ___X__ Ground Water _____ Air _____ Surface-Water

Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more thorough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Aeration Basin

LOCATION: Figure 1, No. 8

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

___Soil ___Ground Water _X_Air ___Surface-Water

Methodology:

An air contamination characterization study will not be completed at this time.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Aeration Basin

LOCATION: Figure 1, No. 8

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors: Any changes will be noted in subsequent reports.

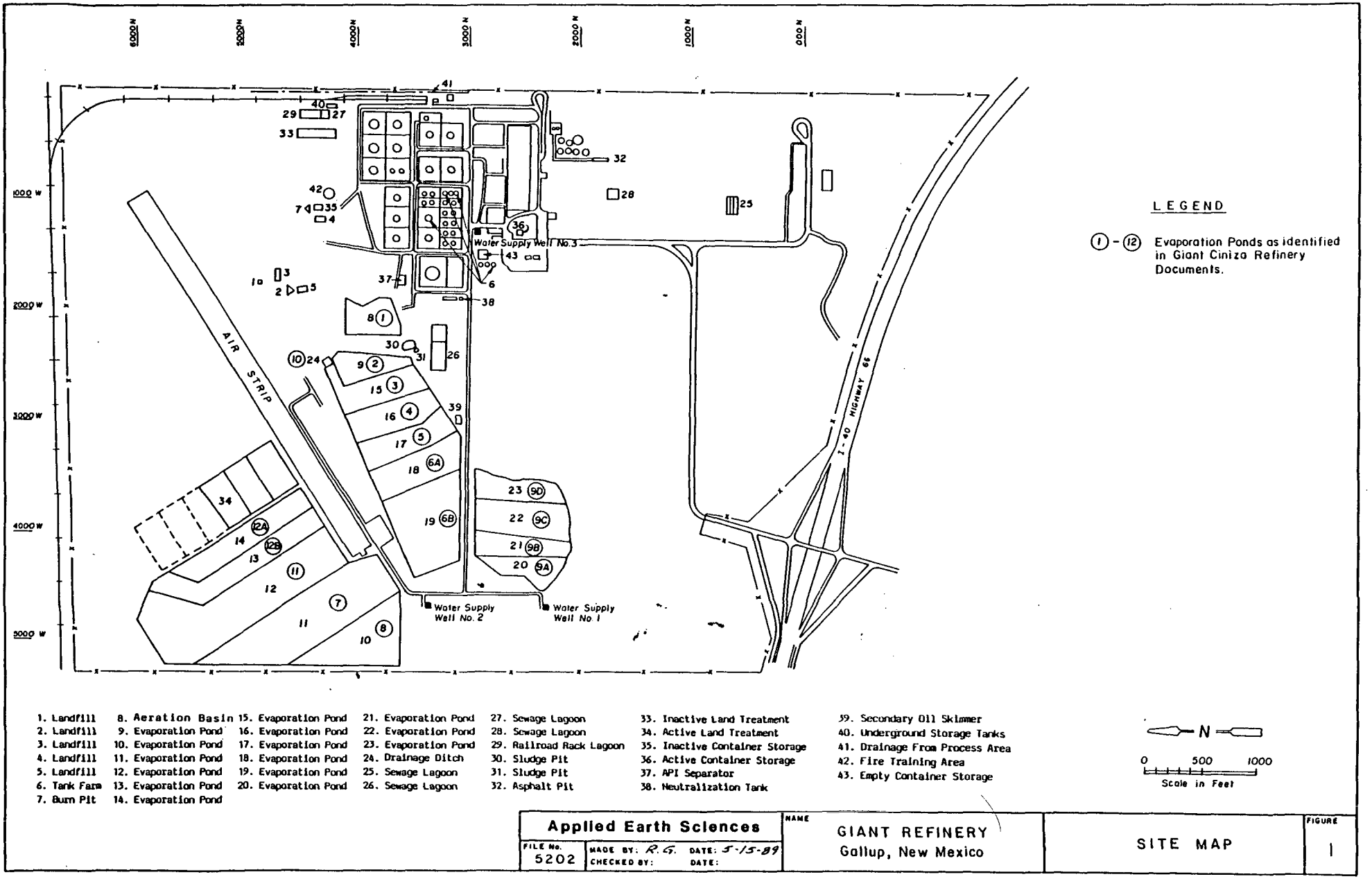
E. SCHEDULE:

Completion of Release Verification - Six Months Following Recommended Sampling Schedule

Completion of Source Characterization - Six Months Following Recommended Sampling Schedule

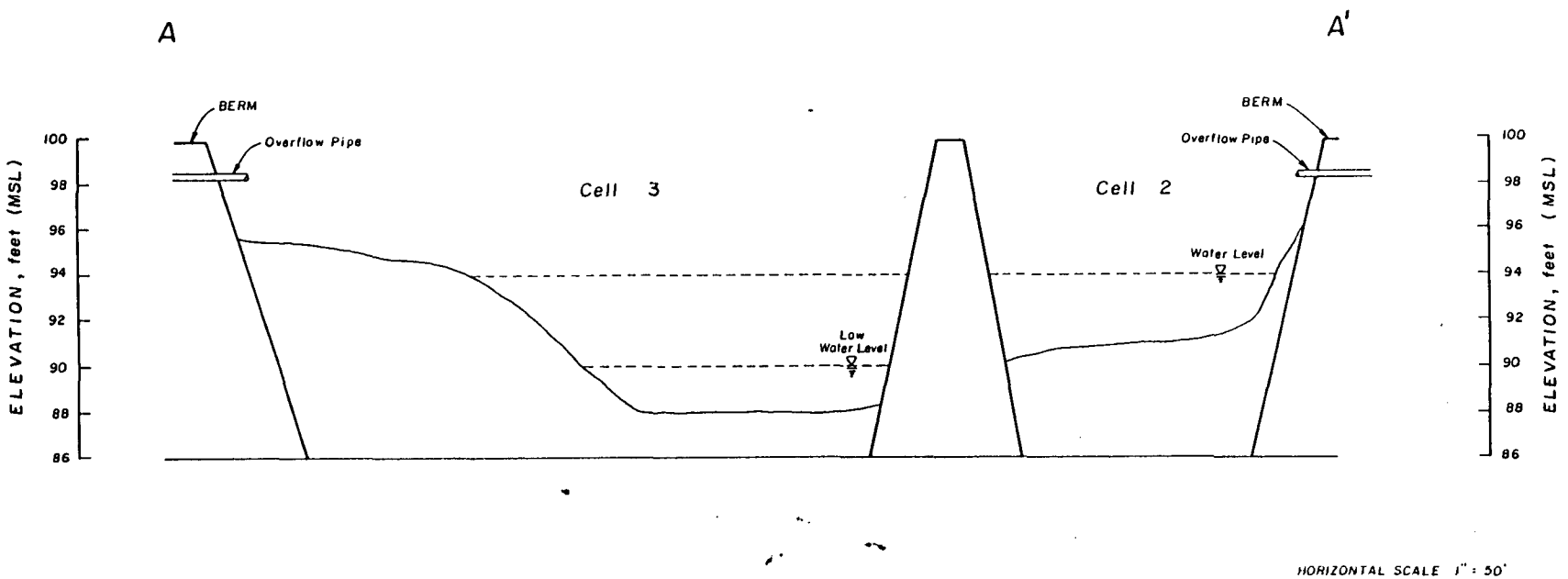
Beginning Date of Contaminant Characterization - Will comply with attached schedule

Draft Report Date - Approximately Four Months after completion of Field Work



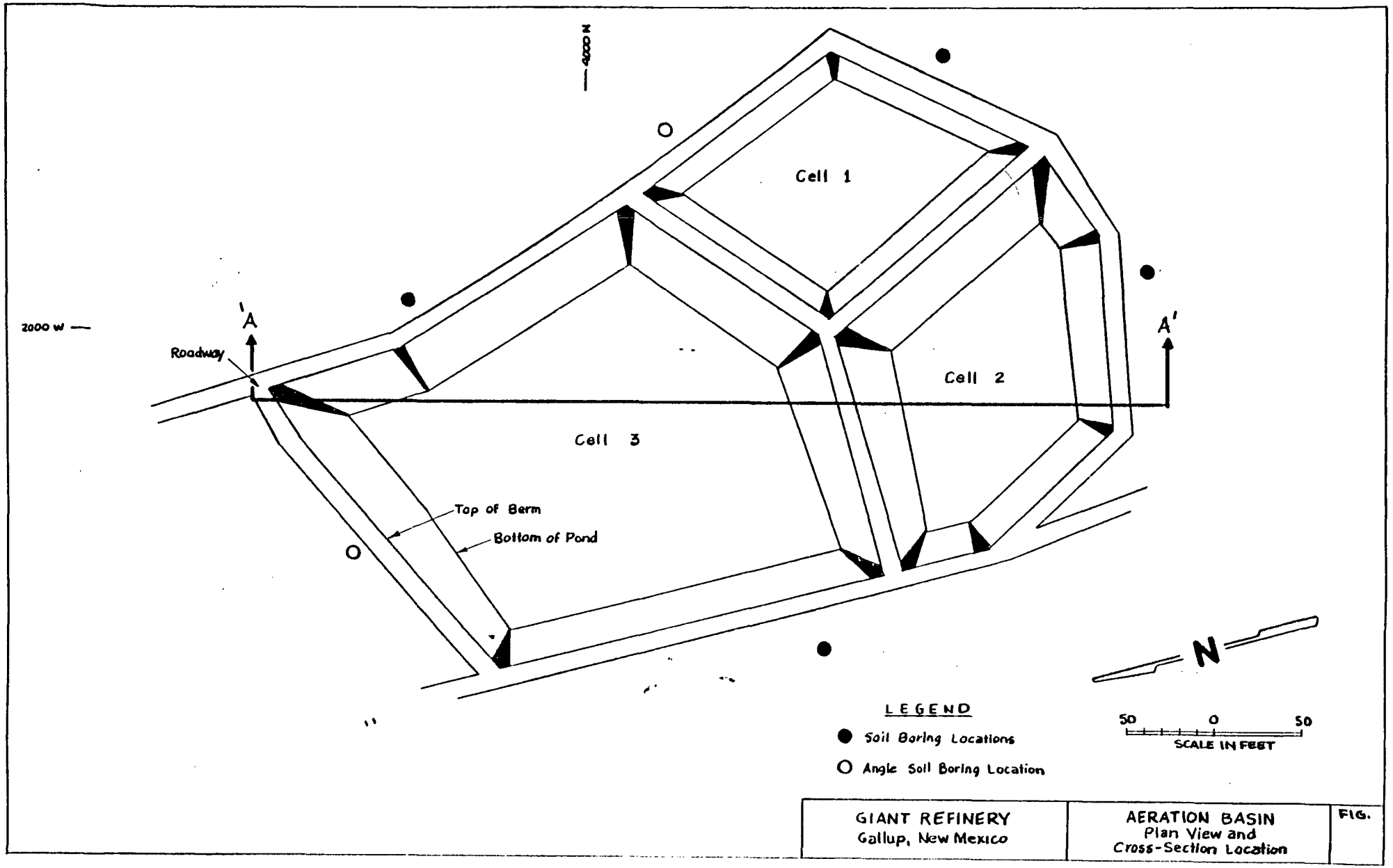
Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	SITE MAP	1

1(h)



HORIZONTAL SCALE 1" = 50'

Applied Earth Sciences	NAME	GIANT REFINERY Gallup, New Mexico	AERATION BASIN Cross-Section A-A' Cell 3 to Cell 2	FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 12-6-89 CHECKED BY: DATE:			



GIANT REFINERY Gallup, New Mexico	AERATION BASIN Plan View and Cross-Section Location	FIG.

1(j)

Aeration Basin under Construction - 1987

Aeration Cells 1, 2, 3 in foreground,
Evaporation Ponds in background - 1987

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Evaporation Ponds

LOCATION: Figure 1, Nos. 9 - 23

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5 (a)(1).

Has a known release been documented at this unit _X_ yes ____ no

If yes, state _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.
5) Air contamination assessment.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and a completion of a soil contamination characterization study. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The unit characterization is described in Workplan B. Seciton 1(b). The waste characterization is described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Evaporation Ponds

LOCATION: Figure 1, Nos. 9-23

B. SOURCE CHARACTERIZATION:

1. Type of unit - Evaporation Pond

(a) Is unit history accurately known _X_ yes ___ no

(b) Discuss plans for additional data collection:

Record search to determibe the unit location, type, design features, operating practices, period of operation, age, and general physical conditions.

2. Type(s) of wastes in unit:

Water from Aeration Basin and Neutralization Tank.

(a) Is waste history accurately known _X_ yes ___ no

(b) If no, discuss plans for additional waste characterization:

(c) List potential indicator parameters for wastes:

pH, Skinner list constituents including metals

Background metals may be performed at a later date based on the Aeration Basin SWMU study.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Evaporation Ponds

LOCATION: Figure 1, Nos. 9-23

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_X_ Soil ___ Ground Water ___ Air ___ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Twelve vertical soil borings will be collected to a depth of 7 feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals:

$3\frac{1}{2}$ - 4 ft.
5 - $5\frac{1}{2}$ ft.
$6\frac{1}{2}$ - 7 ft.

Additionally, six angle borings will be attempted. The anticipated angle of drilling will be from 60° to 45° from vertical. The actual angle will be based upon field conditions and design construction of the drilling rig. The same sampling depth and interval as the vertical borings will be used.

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4	Soil Sampling Techniques
Section 4.0	Sample Labeling
Section 5.0	Decontamination Procedures
Section 6.0	Sample Custody
Section 7.0	Analytical Procedures

Proposed Number of Samples:

12 vertical borings and 6 angle borings to a depth of 7 feet with three sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Evaporation Ponds

LOCATION: Figure 1, Nos. 9-23

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Location are shown on attached figures. A photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five foot CME Tubes backhoe and/or hand auger

Contaminant Description;specific constituents to be qualified:

pH, Skinner list constituents including metals

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Evaporation Ponds

LOCATION: Figure 1, Nos. 9-23

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

___Soil __X__Ground Water ___Air ___Surface-Water

Methodology for Assessment of Extent of Contamination:

a) Review existing facility well locations to determine appropriate sample locations.
b) Stainless steel bailers
c) A detailed sampling procedure is outlined in the Generic Sampling Plan-Section 3.3.2.

Proposed Number of Samples:

Six wells

Sample Locations:

Six wells will be sampled for this specific SWMU. These wells are listed as MW-4, OW-1, OW-5, OW-7, OW-9 and OW-10 and are shown on the attached figures.

Sample Collection Methods:

Stainless Steel bailers

Contaminant Description; specific constituents to be quantified:

pH, Skinner list constituents including metals

Plans if contamination is not adequately characterized after initial sampling and analysis:

If the extent of contamination is not fully defined after initial sampling, sampling of additional existing wells or new wells will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Evaporation Ponds

LOCATION: Figure 1, Nos. 9-23

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

___Soil ___Ground Water _X_Air ___Surface-Water

Methodology:

An air contamination characterization study will not be completed at this time.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Evaporation Ponds

LOCATION: Figure 1, Nos. 9-23

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors: Any changes will be noted in sebsequent reports.

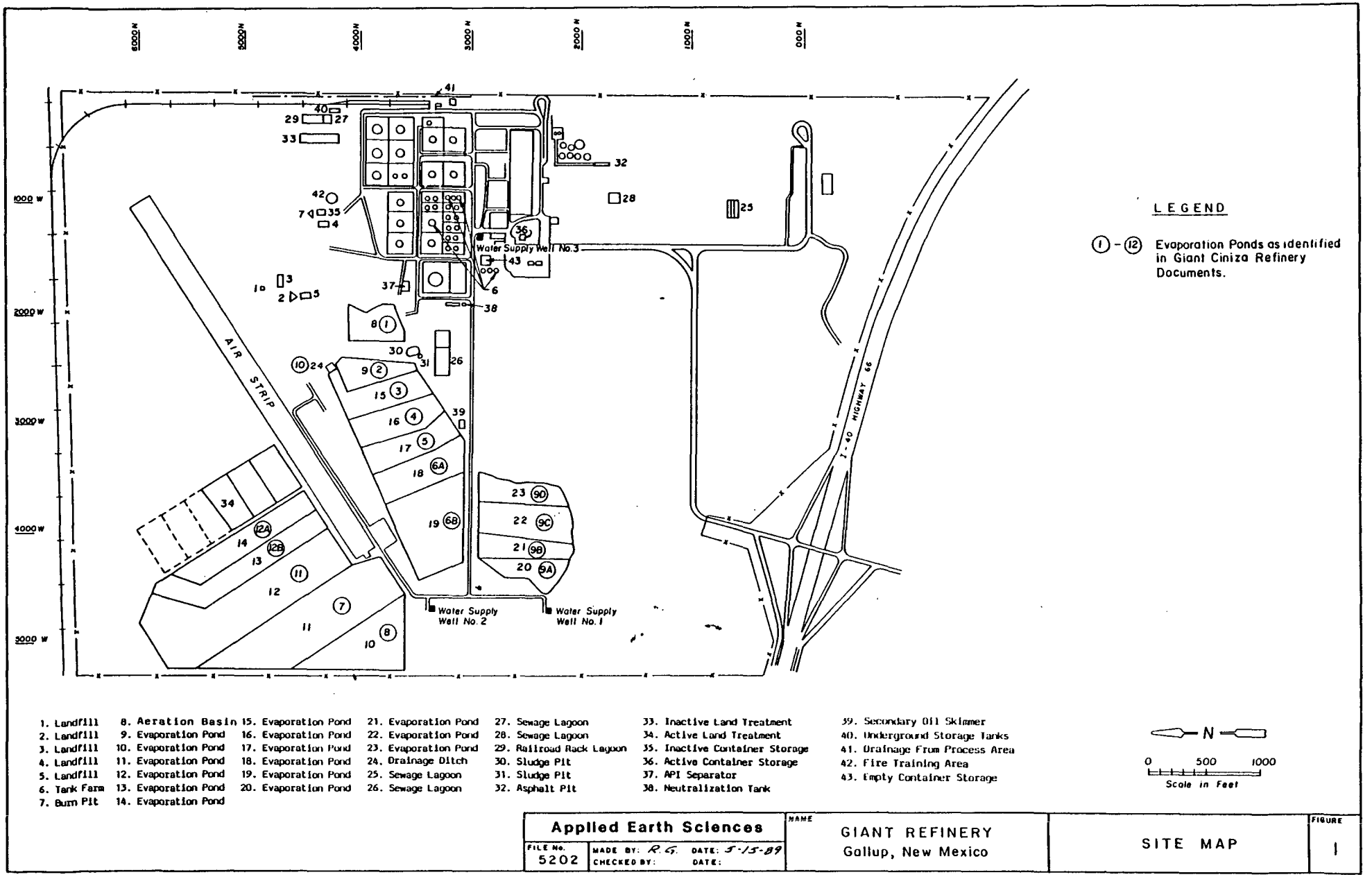
E. SCHEDULE:

Completion of Release Verification - Six Months Following recommended Sampling Schedule

Completion of Source Characterization - Six Months Following recommended Sampling Schedule

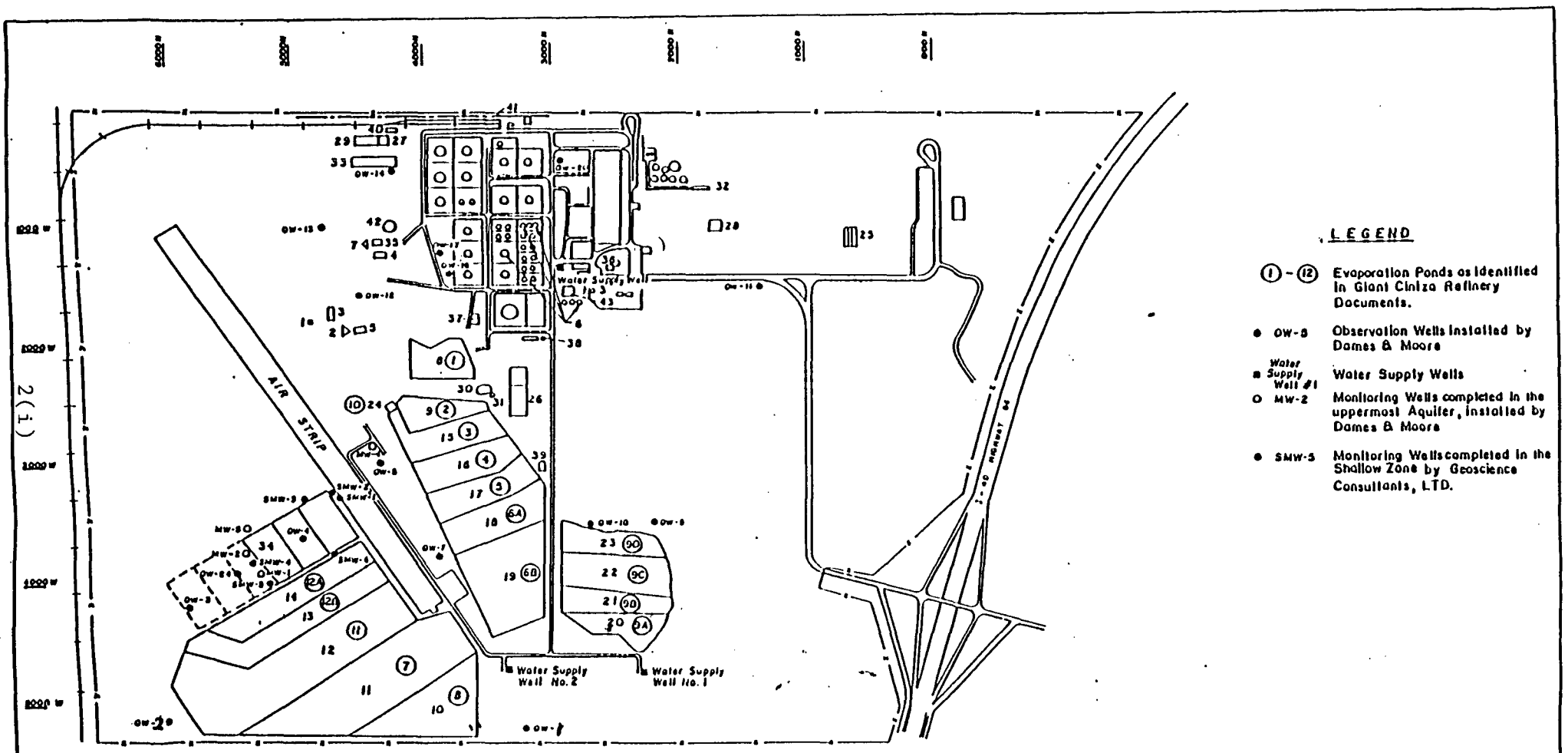
Beginning Date of Contaminant Characterization - Will comply with attached schedule

Draft Report Date - Approximately Four Months after completion of Field Work



Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	SITE MAP	1

2(h)



LEGEND

- ① - ⑫ Evaporation Ponds as identified in Giant Ciniza Refinery Documents.
- ● OW-8 Observation Wells installed by Dames & Moore
- ■ Water Supply Well #1 Water Supply Wells
- ○ MW-2 Monitoring Wells completed in the uppermost Aquifer, installed by Dames & Moore
- ● SMW-5 Monitoring Wells completed in the Shallow Zone by Geoscience Consultants, LTD.

1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
11. Evaporation Pond
12. Evaporation Pond
13. Evaporation Pond
14. Evaporation Pond
15. Evaporation Pond
16. Evaporation Pond
17. Evaporation Pond
18. Evaporation Pond
19. Evaporation Pond
20. Evaporation Pond
21. Evaporation Pond
22. Evaporation Pond
23. Evaporation Pond
24. Drainage Ditch
25. Sewage Lagoon
26. Sewage Lagoon
27. Sewage Lagoon
28. Sewage Lagoon
29. Railroad Rack Lagoon
30. Sludge Pit
31. Sludge Pit
32. Asphalt Pit
33. Inactive Land Treatment
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

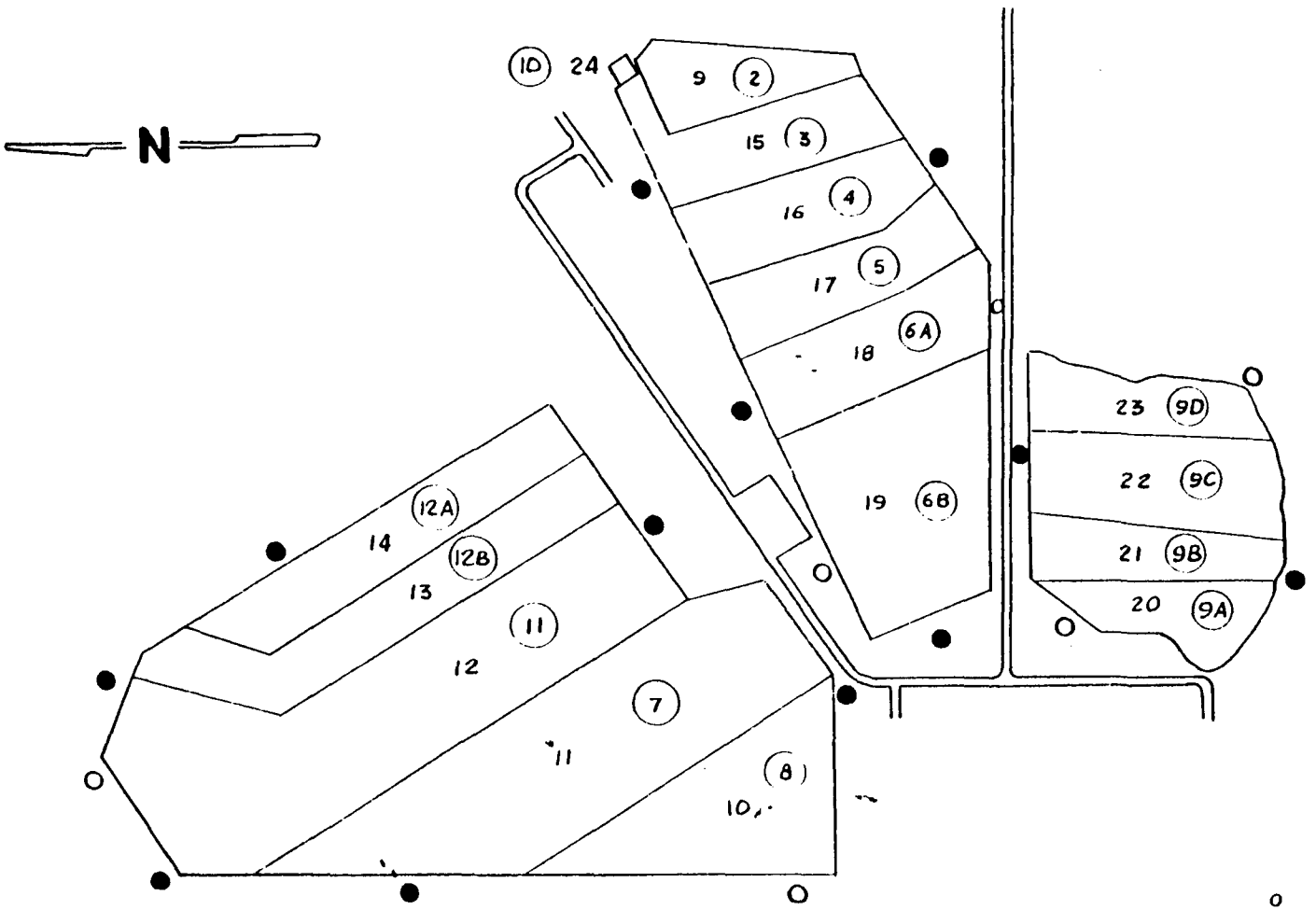
N

0 500 1000

Scale in Feet

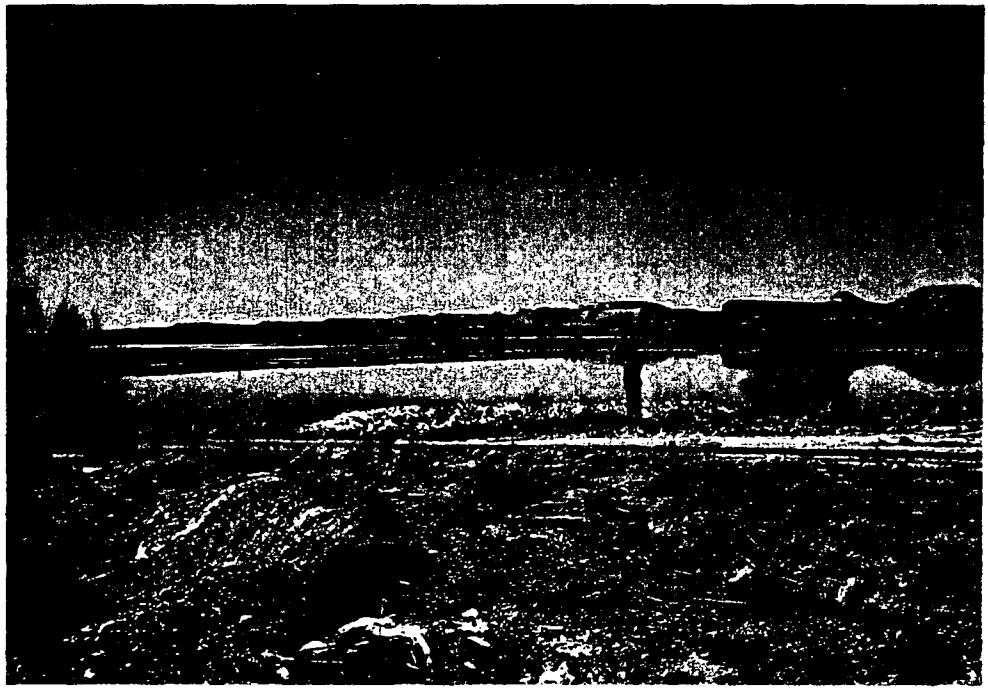
Applied Earth Sciences	NAME: GIANT REFINERY, Gallup, New Mexico	WELL LOCATION MAP	FIGURE 1
FILE NO. 5202	MADE BY: R.G. DATE: 9-22-81		
CHECKED BY:	DATE:		

2(i)



GIANT REFINERY Gallup, New Mexico	Evaporation Ponds	FIG.

2(j)



Evaporation Ponds - February 1989

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Empty Container Storage Area

LOCATION: Figure 1, No. 43

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and the implementation of field investigations to evaluate the nature and extent of possible releases. Workplan C describes the field investigation in detail. The unit characterization is described in Workplan B, Section 1(b). The waste characterization will be accomplished by sampling the waste and identifying its analytical constituents. Plans for additional waste characterization are described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Empty Container Storage Area

LOCATION: Figure 1, No. 43

B. SOURCE CHARACTERIZATION:

1. Type of unit - Inactive Container Storage

(a) Is unit history accurately known ___ yes _X_ no

(b) If no, discuss plans for additional data collection:

Record search to determine the unit location, type, design features, operating practices, period of operation, age, and general physical conditions.

2. Type(s) of wastes in unit:

Empty drums from various chemical products.

(a) Is waste history accurately known ____ yes _X_ no

(b) If no, discuss plans for additional waste characterization:

Record search of past practices to determine the type of waste placed in the unit, its physical and chemical characteristics and the migration and dispersal characteristics of the waste.

(c) List potential indicator parameters for wastes:

8240 priority pollutants

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Empty Container Storage Area

LOCATION: Figure 1, No. 43

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_X_ Soil ___Ground Water ___Air ___Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Four vertical soil borings will be collected to a depth of 5 feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals.

0 - $\frac{1}{2}$ ft
3 -3$\frac{1}{2}$ ft
4$\frac{1}{2}$ -5 ft

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4	Soil Sampling Techniques
Section 4.0	Sample Labeling
Section 5.0	Decontamination Procedure
Section 6.0	Sample Custody
Section 7.0	Analytical Procedures

Proposed Number of Samples:

Four borings to a depth of five feet with three sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Empty Container Storage Area

LOCATION: Figure 1, No. 43

C. CONTAMINATION CHARACTERIZATION: (Continued)

Sample Location (and depth):

Locations are shown on the attached figures. A photograph of the SWMU is also attached. Exact sampling locations will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) Stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

8240 priority pollutants

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Empty Container Storage Area

LOCATION: Figure 1, No. 43

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil ___X___ Ground Water _____ Air _____ Surface-Water

Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more thorough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Empty Container Storage Area

LOCATION: Figure 1, No. 43

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

NAME_____

WORK TASK_____

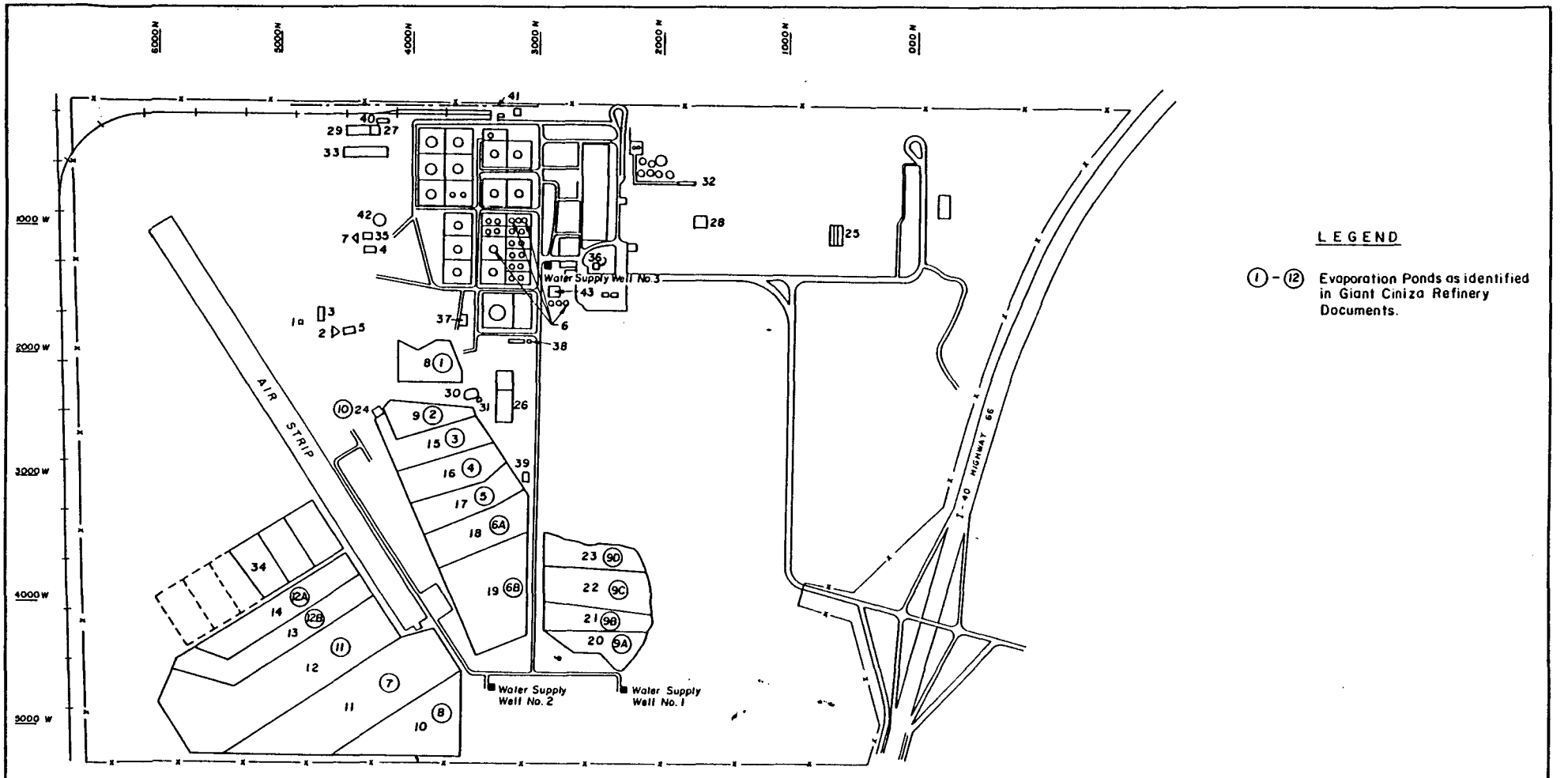
E. SCHEDULE:

Completion of Release Verification - Six months following recommended sampling schedule

Completion of Source Characterization - Six months following recommended sampling schedule

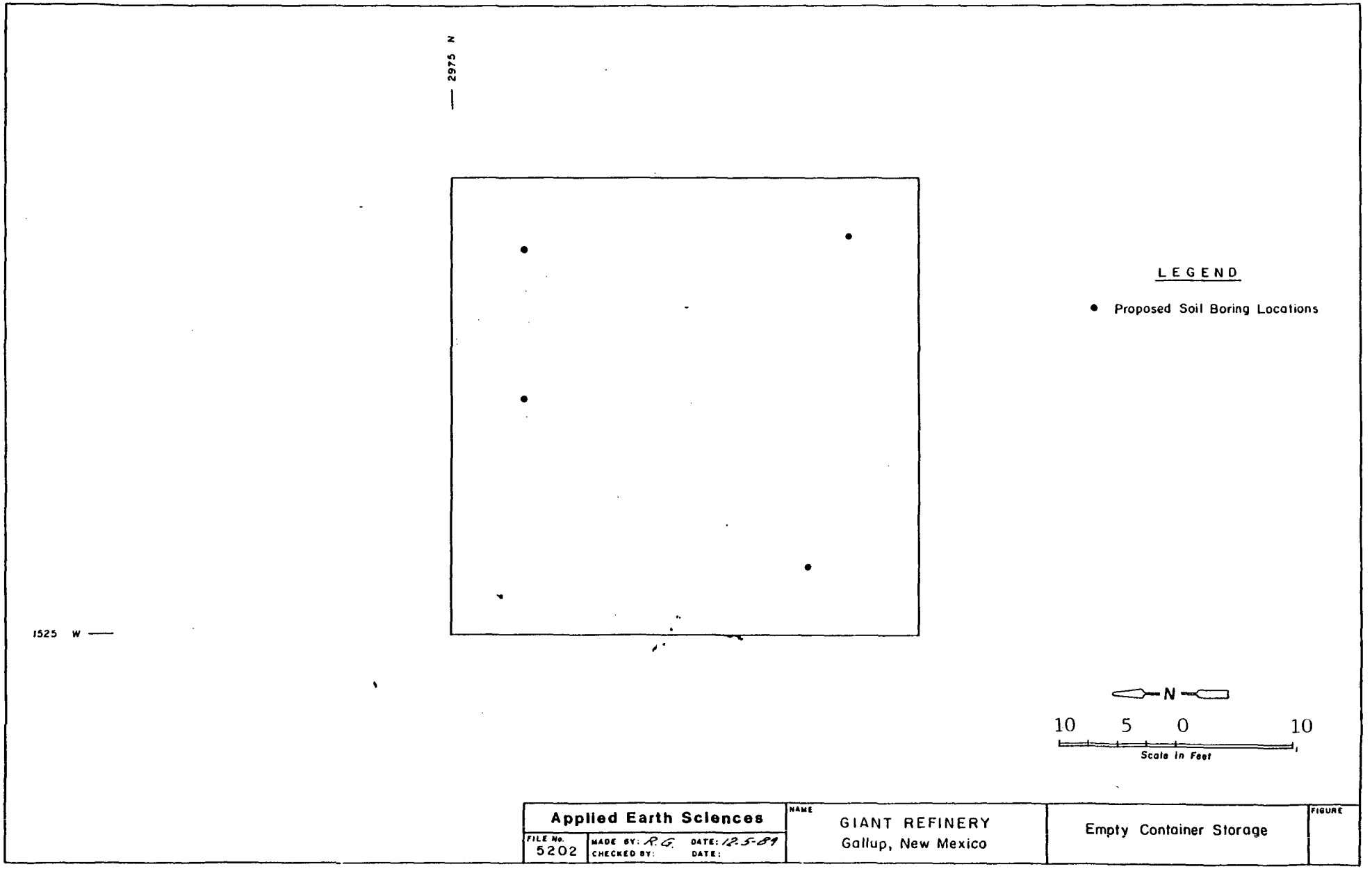
Beginning Date of Contaminant Characterization - Will comply with attached schedule

Draft Report Date - Approximately four months after completion of field work



Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	SITE MAP	1

3(g)


2975 N
1525 W
LEGEND
Proposed Soil Boring Locations
N
10 5 0 10
Scale in Feet
Applied Earth Sciences
FILE No. 5202
MADE BY: R.G. DATE: 12-5-89
CHECKED BY: DATE:
NAME
GIANT REFINERY
Gallup, New Mexico
Empty Container Storage
FIGURE

3(h)

View looking south.

Empty Container Storage Area From
Visual Site Inspection (VSI) Report
January 1987

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Burn Pit

LOCATION: Figure 1, No. 7

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit _____ yes x no

If yes, state facts _____

_____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.
5) Statistical comparison of background metals data.

Methodology for release verification and source characterization:

Since there have been no known releases at the burn pit the method for release verification is a complete review of the facility records to confirm that no release has occurred and completion of a soil characterization study. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The waste characterization is described in Workplan B, Section 2(b). The unit characterization will include unit type, location, dimension, design features, operating practices, period of operation, physical conditions, and method used to close the unit.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Burn Pit

LOCATION: Figure 1, No. 7

B. SOURCE CHARACTERIZATION:

1. Type of unit - Burn Pit

(a) Is unit history accurately known __X__ yes ____ no

(b) If no, discuss plans for additional data collection _____

_____

2. Type(s) of wastes in unit:

Acid soluble oils from the alkylation unit; possibly spent silicon oxide catalysts.

(a) Is waste history accurately known _____ yes __X__ no

(b) If no, discuss plans for additional waste characterization:

Record search of past practices to determine the type of waste placed in the unit; its physical and chemical characteristics and the migration and dispersal characteristics of the waste.

(c) List potential indicator parameters for wastes:

pH, Skinner list organics, background metals

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Burn Pit

LOCATION: Figure 1, No. 7

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_X_ Soil ___ Ground Water ___ Air ___ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Three vertical soil borings will be collected to a depth of 5 feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals:

0 - $\frac{1}{2}$ft
3 - $3\frac{1}{2}$ft
$4\frac{1}{2}$ - 5 ft

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4 Soil Sampling Techniques
Section 4.0 Sample Labeling
Section 5.0 Decontamination Procedure
Section 6.0 Sample Custody
Section 7.0 Analytical Procedures

Proposed Number of Samples:

Three borings inside the area to a depth of five feet with three sample intervals in each boring around the burn pit.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Burn Pit

LOCATION: Figure 1, No. 7

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Location are shown on the attached figure. A photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five foot CME Tube, backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

pH, Skinner list organics, background metals

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Burn Pit

LOCATION: Figure 1, No. 7

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil ___X__ Ground Water _____ Air _____ Surface-Water

Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more throrough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Burn Pit

LOCATION: Figure 1, No. 7

D. LIST OF PARTICIPANTS

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

NAME:_____

WORK TASK:_____

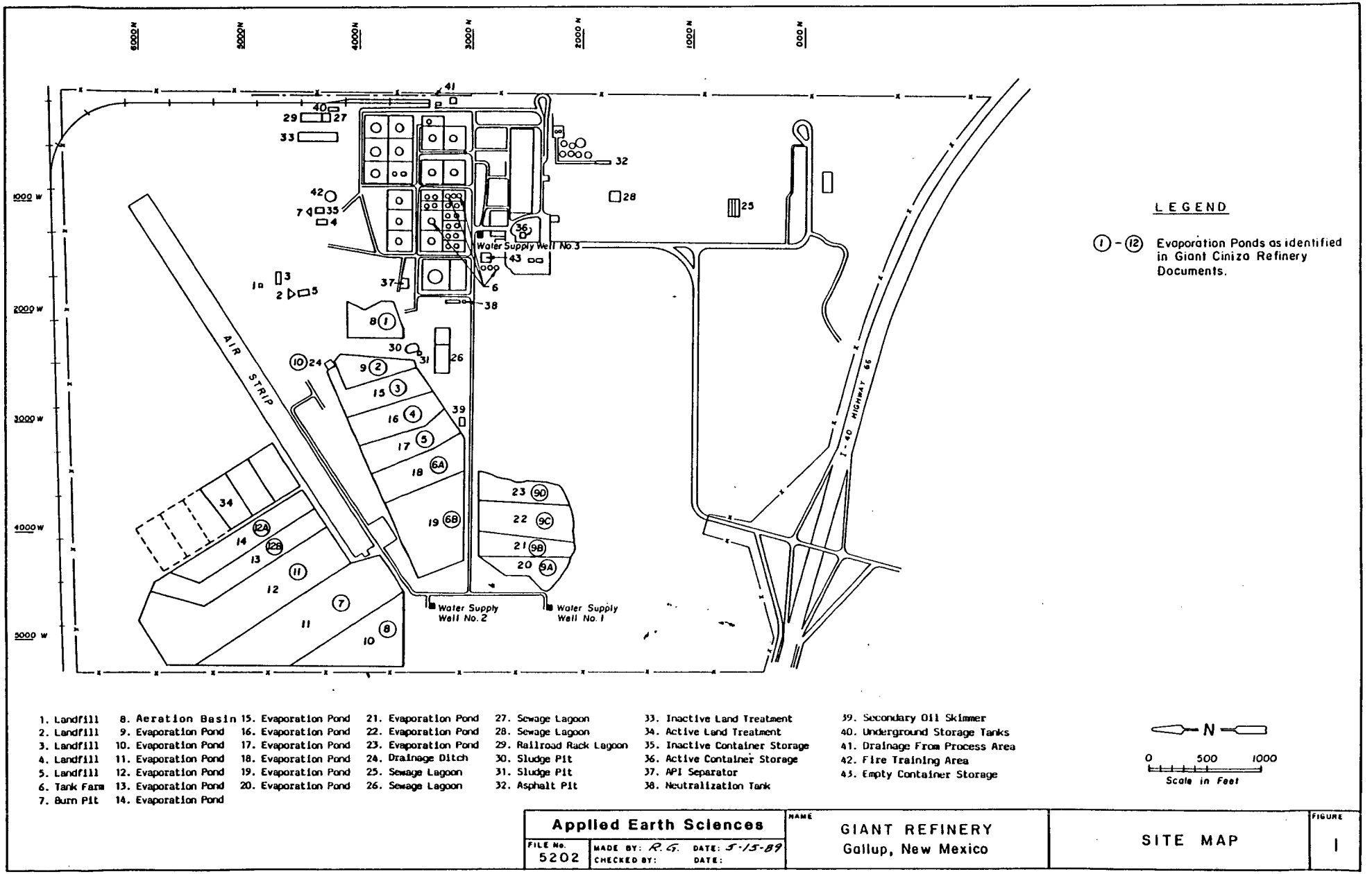
E. SCHEDULE

Completion of Release Verification - Six months following recommended sampling schedule

Completion of Source Characterization - Six months following recommended sampling schedule

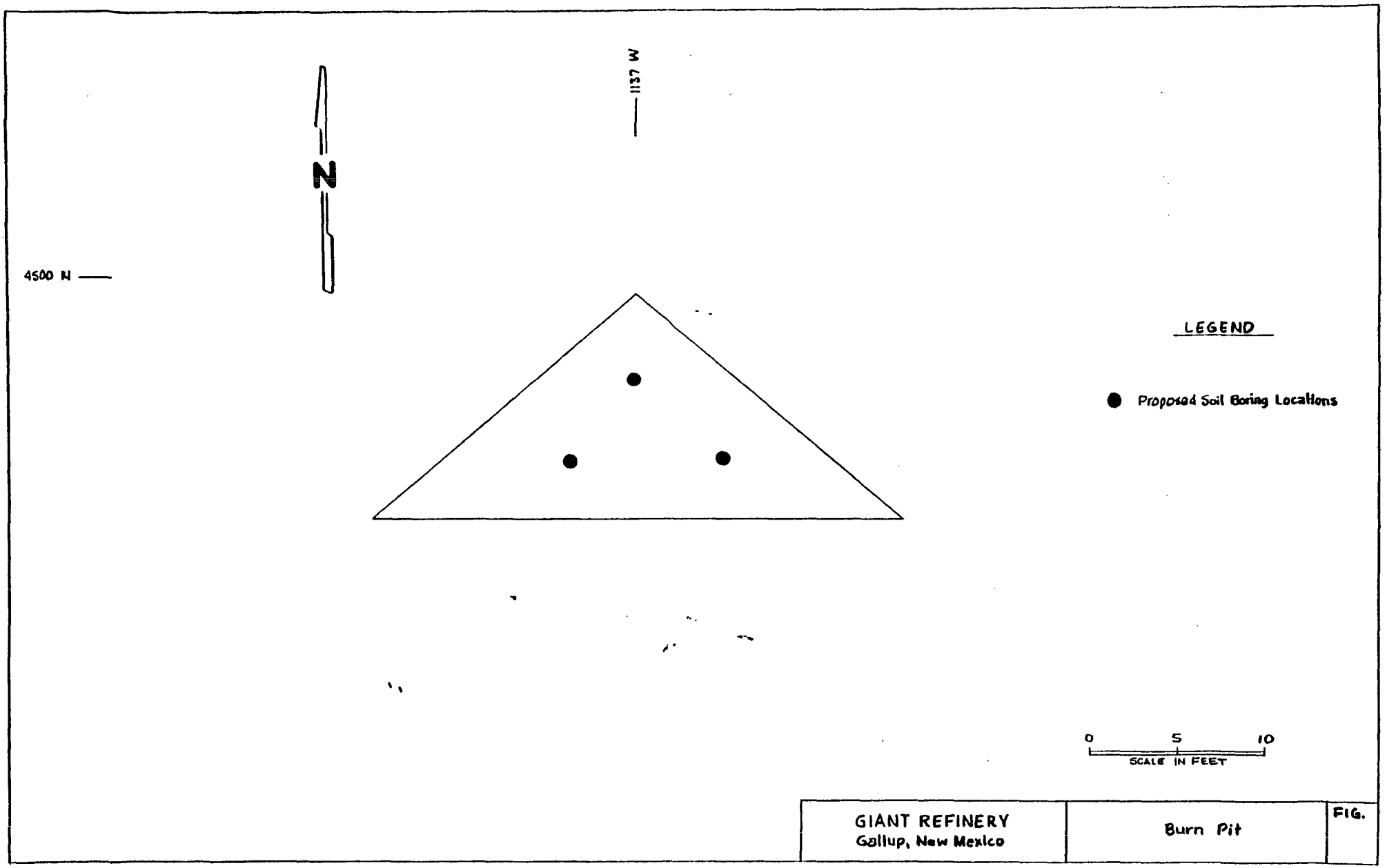
Beginning Date of Contaminant Characterization - Will comply with attached schedule

Draft Report Date - Approximately four months after completion of field work



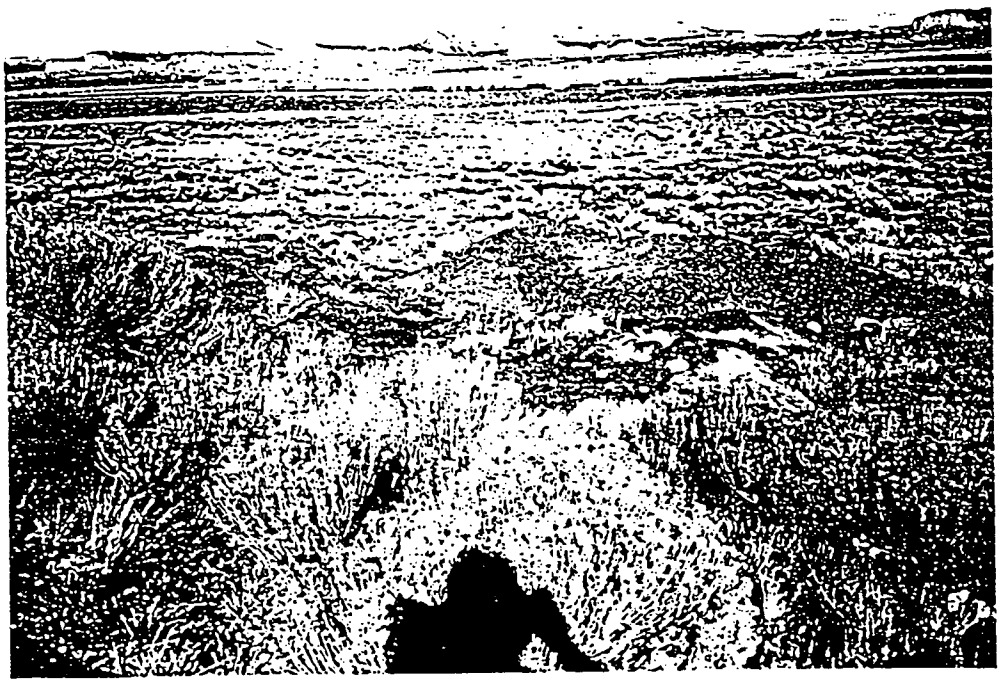
1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
11. Evaporation Pond
12. Evaporation Pond
13. Evaporation Pond
14. Evaporation Pond
15. Evaporation Pond
16. Evaporation Pond
17. Evaporation Pond
18. Evaporation Pond
19. Evaporation Pond
20. Evaporation Pond
21. Evaporation Pond
22. Evaporation Pond
23. Evaporation Pond
24. Drainage Ditch
25. Sewage Lagoon
26. Sewage Lagoon
27. Sewage Lagoon
28. Sewage Lagoon
29. Railroad Rack Lagoon
30. Sludge Pit
31. Sludge Pit
32. Asphalt Pit
33. Inactive Land Treatment
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	SITE MAP	1



GIANT REFINERY Gallup, New Mexico	Burn Pit	FIG.

4 (h)



View looking north.

Burn Pit
From VSI Report - January 1987

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Four Landfills

LOCATION: Figure 1, Nos. 1, 2, 3 and 5

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes _X_ no

If yes, state facts _____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.
5) Statistical comparison of background metals data.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and a completion of a soil contamination characterization. Sources characterizaiton will be accomplished by characterizing the waste constituents and a description of the unit. The waste characterization is described in Workplan B, Section 2(b). The unit characterization is described in Workplan B, Section 1(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU:

LOCATION: Figure 1, Nos. 1, 2, 3 and 5

B. SOURCE CHARACTERIZATION:

1. Type of unit - Landfills

(a) Is unit history accurately known ___yes _X_no

(b) If no, discuss plans for additional data collection:

Record search to determine the unit location, type, design features, operating practices, period of operation, age, physical conditions and method used to close the unit.

2. Type(s) of wastes in unit - Asbestos, bauxite, cobalt molybedenun, nickel, alky scrap, possible laboratory chemicals - unknown.

(a) Is waste history accurately known ___yes _X_no

(b) If no, discuss plans for additional waste characterization:

Record search of past practices to determine the type of waste placed in the unit; its physical and chemical characteristics and the migration and dispersal characteristics of the waste.

(c) List potential indicator parameters for waste:

8240 priority pollutants, background metals and pH

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU:

LOCATION: Figure 1, Nos. 1, 2, 3 and 5

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_X_ Soil ___ Ground Water ___ Air ___ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Twelve vertical soil borings will be collected to a depth of 10 feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals:

0 - $\frac{1}{2}$
3 - $3\frac{1}{2}$
7 - $7\frac{1}{2}$
$9\frac{1}{2}$ -10

A detailed sampling procedure is outlined in the Generic Sampling Plan and referenced below:

Section 3.4 Soil Sampling Techniques
Section 4.0 Sample Labeling
Section 5.0 Decontamination Procedures
Section 6.0 Sample Custody
Section 7.0 Analytical Procedures

Proposed Number of Samples:

Twelve soil borings will be drilled to a depth of ten feet with four sample intervals in each boring. The borings will be located within the boundaries of the landfills.

SWMU: Four Landfills

LOCATION: Figure 1, Nos. 1, 2, 3 and 5

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Locations are shown on the attached figures. A photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained oil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five foot CME Tube, backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

8240 priority pollutants, background metals and pH

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Four Landfills

LOCATION: Figure 1, Nos. 1, 2, 3 and 5

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil ___X___ Ground Water _____ Air _____ Surface-Water

Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more thorough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Four Landfills

LOCATION: Figure 1, Nos. 1, 2, 3, and 5

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

NAME_____

WORK TASK_____

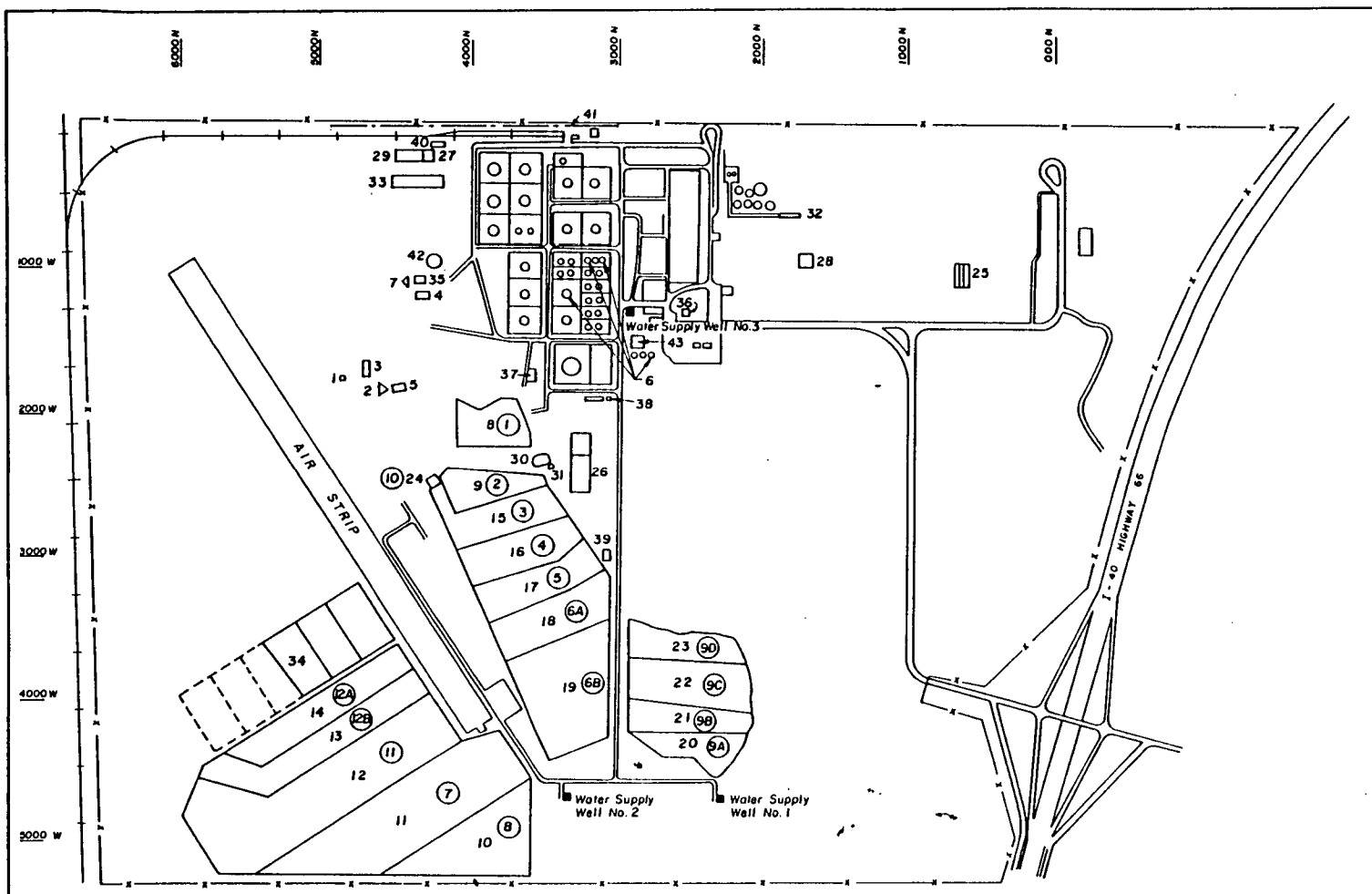
E. SCHEDULE:

Completion of Release Verification - Six months following recommended sampling schedule

Completion of Source Characterization - Six months following recommended sampling schedule.

Beginning Date of Contaminant Characterization - Will comply with attached schedule

Draft Report Date - Approximately four months after completion of Field Work.



LEGEND

(1) - (12) Evaporation Ponds as identified in Giant Ciniza Refinery Documents.

1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
11. Evaporation Pond
12. Evaporation Pond
13. Evaporation Pond
14. Evaporation Pond
15. Evaporation Pond
16. Evaporation Pond
17. Evaporation Pond
18. Evaporation Pond
19. Evaporation Pond
20. Evaporation Pond
21. Evaporation Pond
22. Evaporation Pond
23. Evaporation Pond
24. Drainage Ditch
25. Sewage Lagoon
26. Sewage Lagoon
27. Sewage Lagoon
28. Sewage Lagoon
29. Railroad Rack Lagoon
30. Sludge Pit
31. Sludge Pit
32. Asphalt Pit
33. Inactive Land Treatment
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

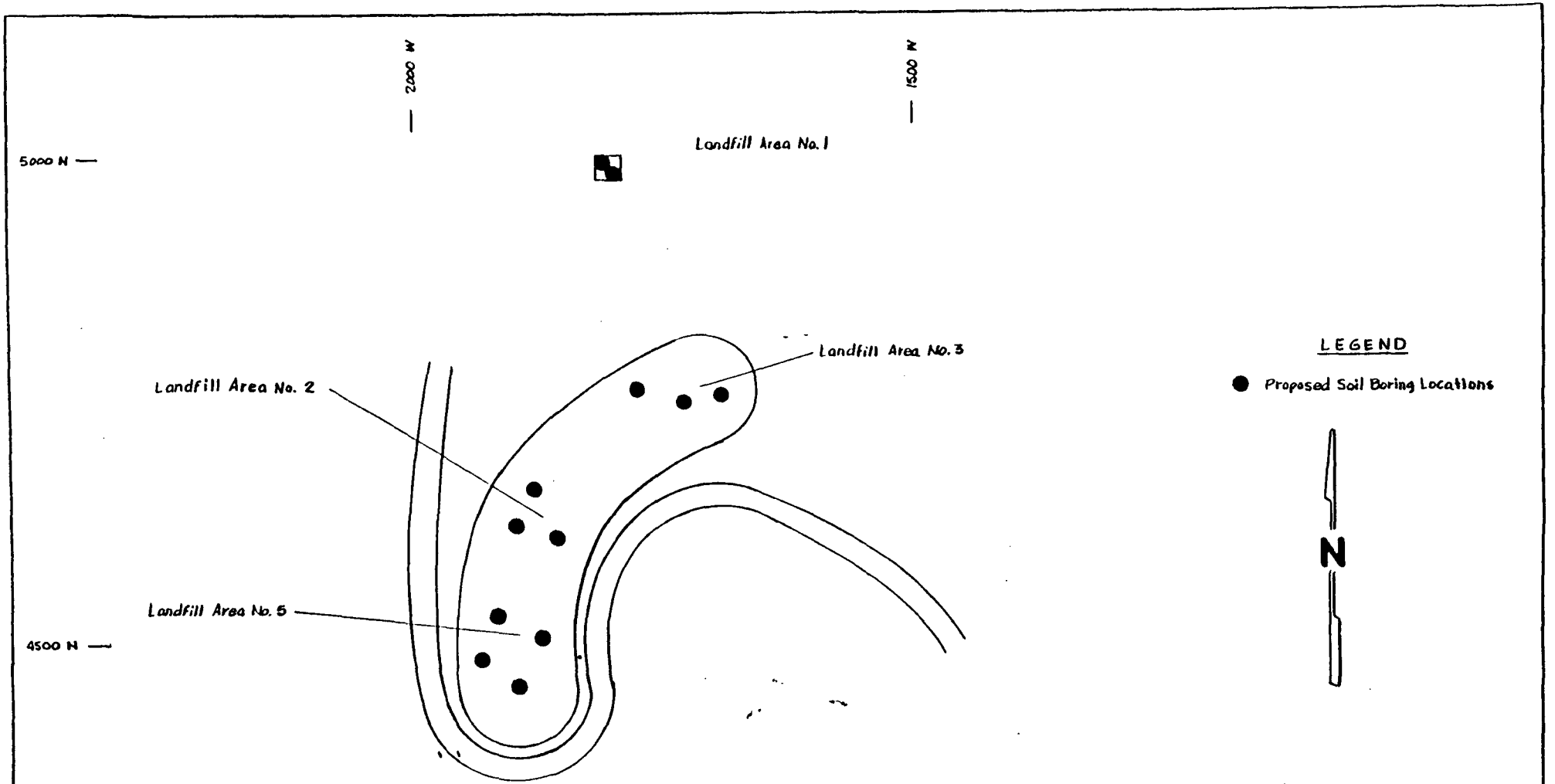
N

0 500 1000
Scale in Feet

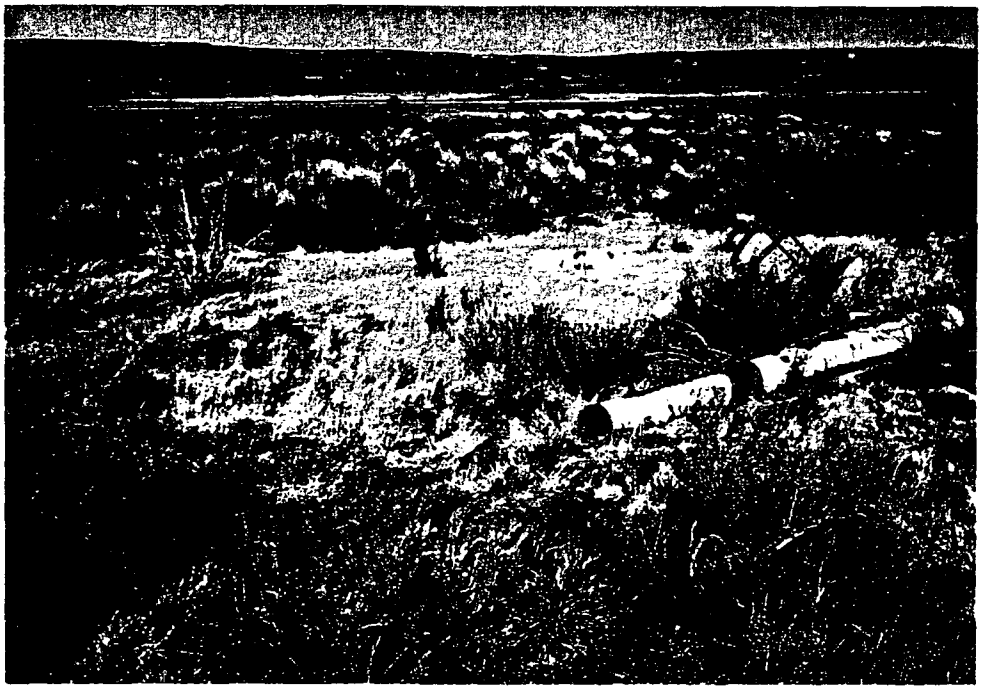
Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	SITE MAP	1

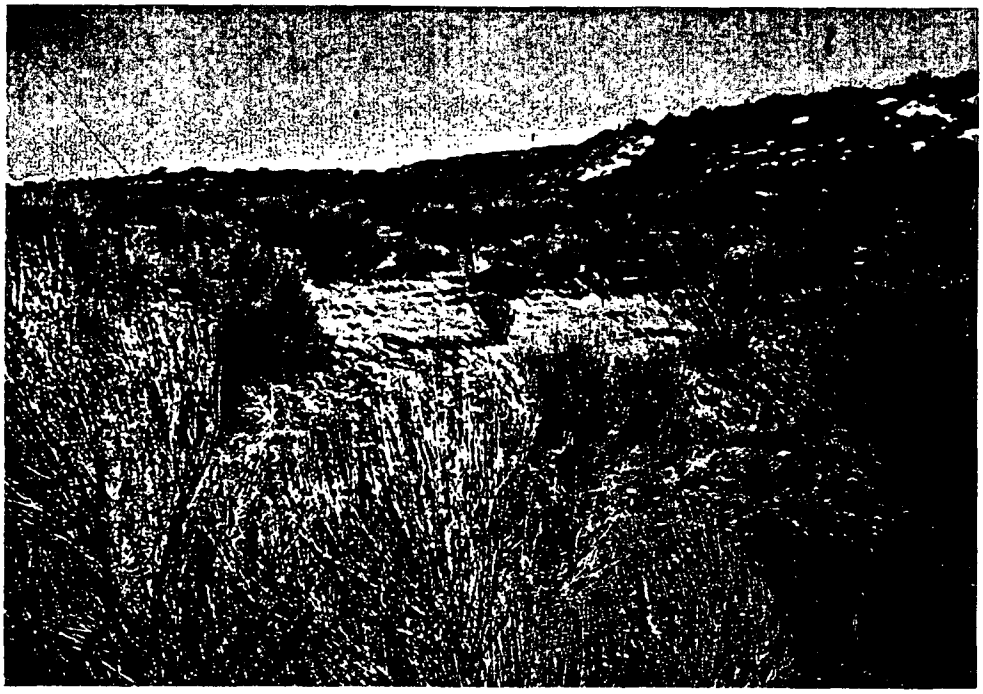
5(8)

5(h)



GIANT REFINERY Gallup, New Mexico	Landfill Areas	FIG.





Landfill No. 1 - February 1989
No Pictures of Landfill Nos. 2, 3, and 5

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Tank Farm

LOCATION: Figure 1, No. 6

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit _X_ yes ____ no

If yes, state facts:

1. April 28, 1989 - A high level tank sensor failed to cut off fuel delivery. A refinery vacuum truck pumped up the liquids which were deposited into the API separator.

2. October 15, 1985 - 30% hydrochloric acid leaked on the ground. The area was neutralized with soda ash and covered with a layer of dirt.

3. July 22, 1985 - Approximately 50 barrels of sludge from Tank 339 was released. This sludge was removed from the site and transported to the Land Treatment Area for recovery.

Details of each release along with a copy of the report form for each event is found in the "Release Verification and Source Characterization Report" of September 14, 1989.

Detail plans to check for release:

1. Soil contamination characterization.
2. Statistical comparison of background metals.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of the facility records to confirm that no release has occurred and a completion of a soil contamination characterization study. The unit characterization will include unit type, location, dimension, design features, operating practices, period of operation, physical conditions and method used to close the unit. The waste characterization will include a record search of past practices to determine the type of waste placed in the unit, the physical and chemical characteristics, and the migration and dispersal characteristics of the waste.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Tank Farm

LOCATION: Figure 1, No. 6

B. SOURCE CHARACTERIZATION:

1. Type of unit - Tank Farm

(a) Is unit history accurately known __X__ yes _____ no

(b) If no, discuss plans for additional data collection:

2. Type(s) of wastes in unit:

Leaded gasoline tank bottoms

(a) Is waste history accurately known __X__ yes _____ no

(b) If no, discuss plans for additional waste characterization:

(c) List potential indicator parameters for wastes:

BTEX, Lead, Nickel

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Tank Farm

LOCATION: Figure 1, No. 6

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.3.(a) (1). All sampling and analytical methods are listed in Generic RFI work plan.

__X__ Soil _____ Ground Water _____ Air _____ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Soil borings will be drilled under each tank that contained leaded gasoline. These tanks include the following:

451	569
452	570
453	571
567	572
568	3 - Marketing Storage Tank

Both verticle and angle borings will be attempted. One vertical boring will be located adjacent to the manway of each of the above listed tanks and drilled to a depth of 7-1/2 feet below ground surface. One angle boring will also be collected below each of the listed tanks to a depth of 7-1/2 linear feet below the ground surface. The anticipated anlge of drilling will be from 60 to 45 from vertical. Samples will be collected at the following intervals:

0	-	1/2 ft.
3-1/2	-	4 ft.
7	-	7-1/2 ft.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Tank Farm

LOCATION: Figure 1, No. 6

A detailed sampling procedure is outline in the Generic Sampling Plan and referenced below:

Section 3.4	Soil Sampling Techniques
Section 4.0	Sample Labeling
Section 5.0	Decontamination Procedures
Section 6.0	Sample Custody
Section 7.0	Analytical Procedures

Proposed Number of Samples:

Ten tanks will each have one verticle boring and one angle boring to a depth of 7-1/2 feet with three sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Tank Farm

LOCATION: Figure 1, No. 6

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Location is shown on attached figure. a photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five Foot CME Tubes, backhoe, and/or hand auger

Contaminant Description; specific constituents to be quantified:

BTEX, Lead, Nickel

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Tank Farm

LOCATION: Figure 1, No. 6

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 (.5.(a)(1). All sampling and analytical methods are listed in Generic RFI work plan.

_____ Soil __X__ Ground Water _____ Air _____ Surface-Water

Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more thorough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Tank Farm

LOCATION Figure 1, No. 6

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

Name _____

Work Task _____

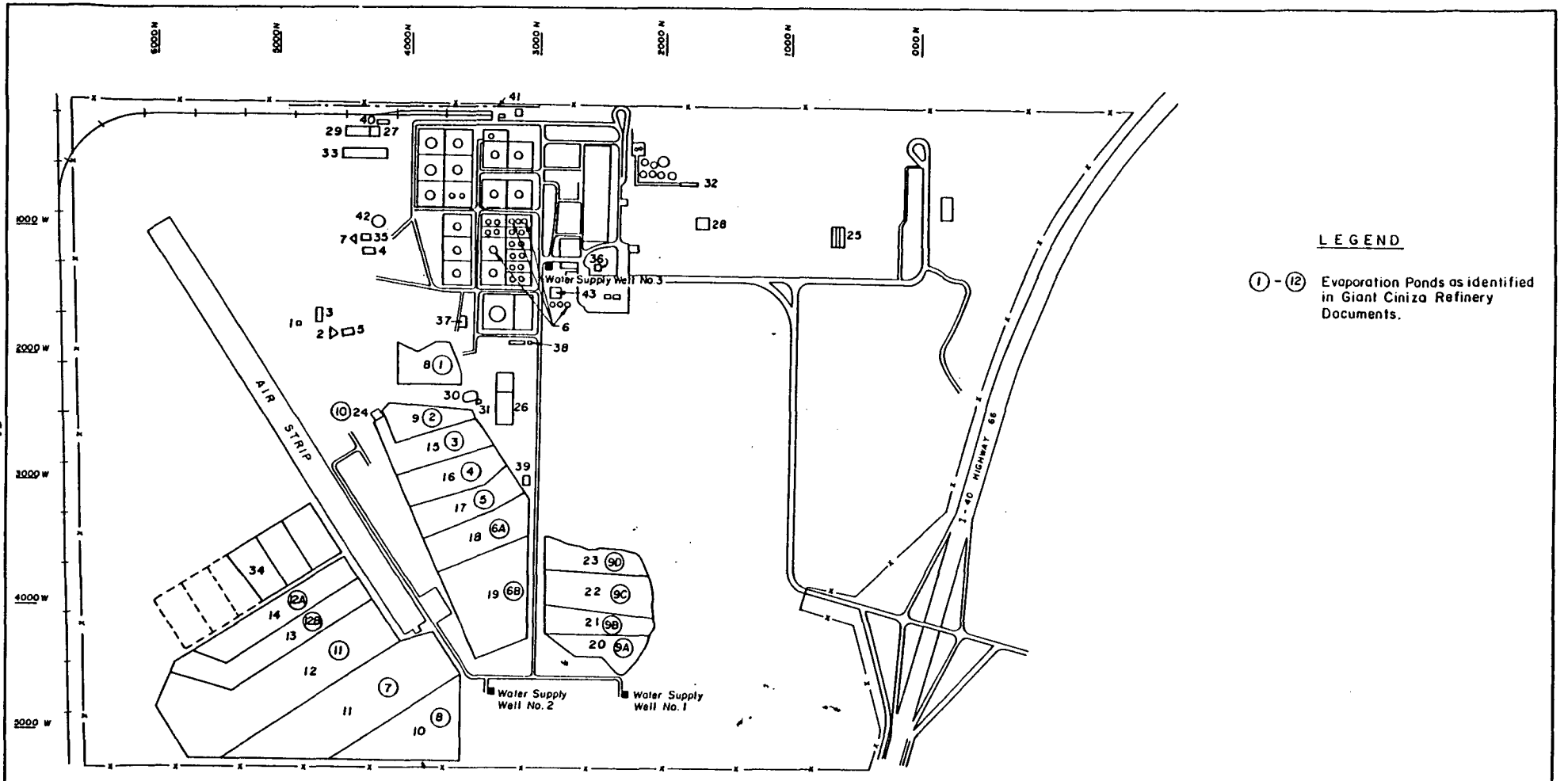
E. SCHEDULE

Completion of Release Verification - Six months following recommended sampling schedule

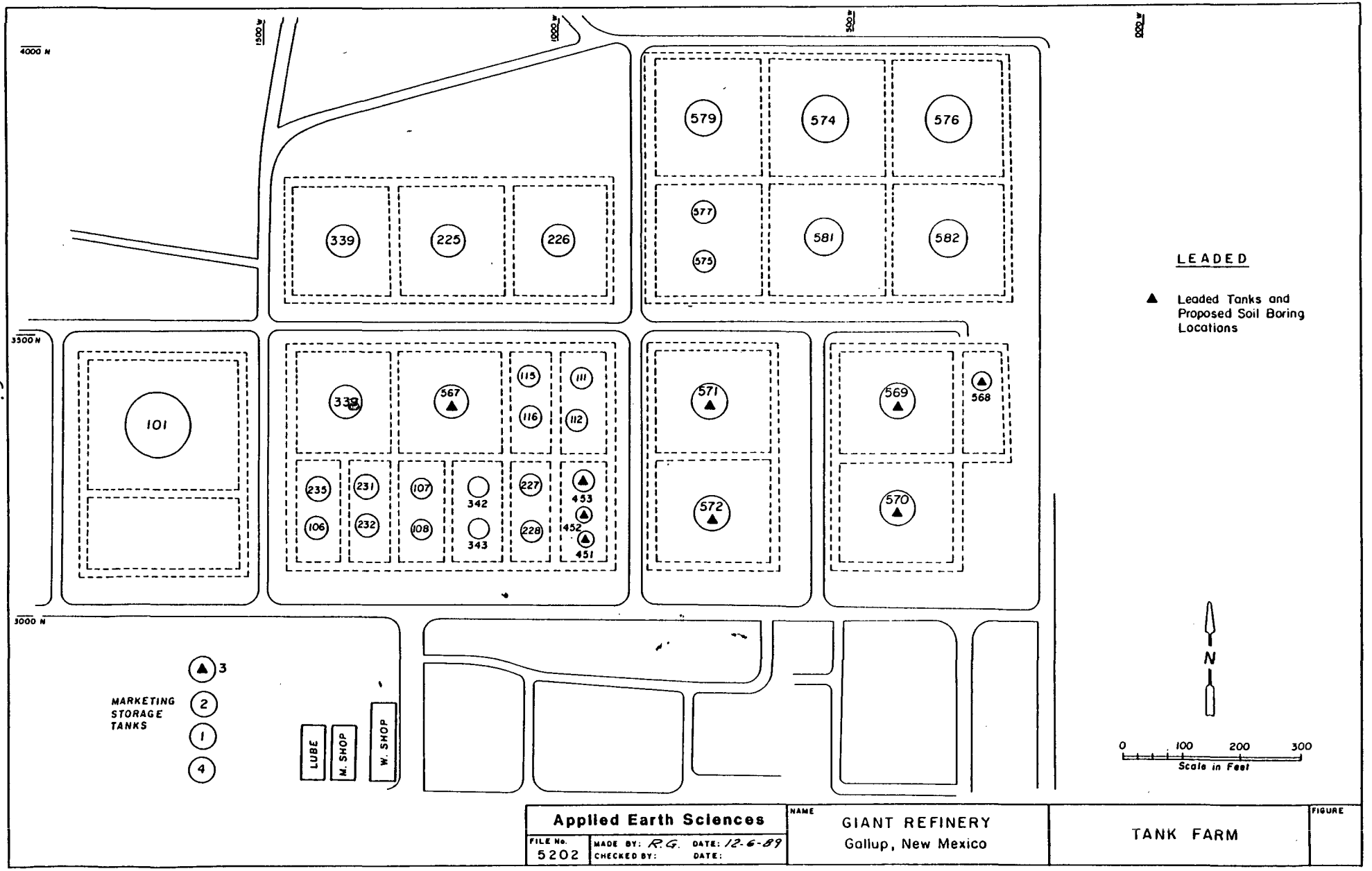
Completion of Source Characterization - Six months following recommended sampling schedule

Beginning Date of Contaminant Characterization - will comply with attached schedule

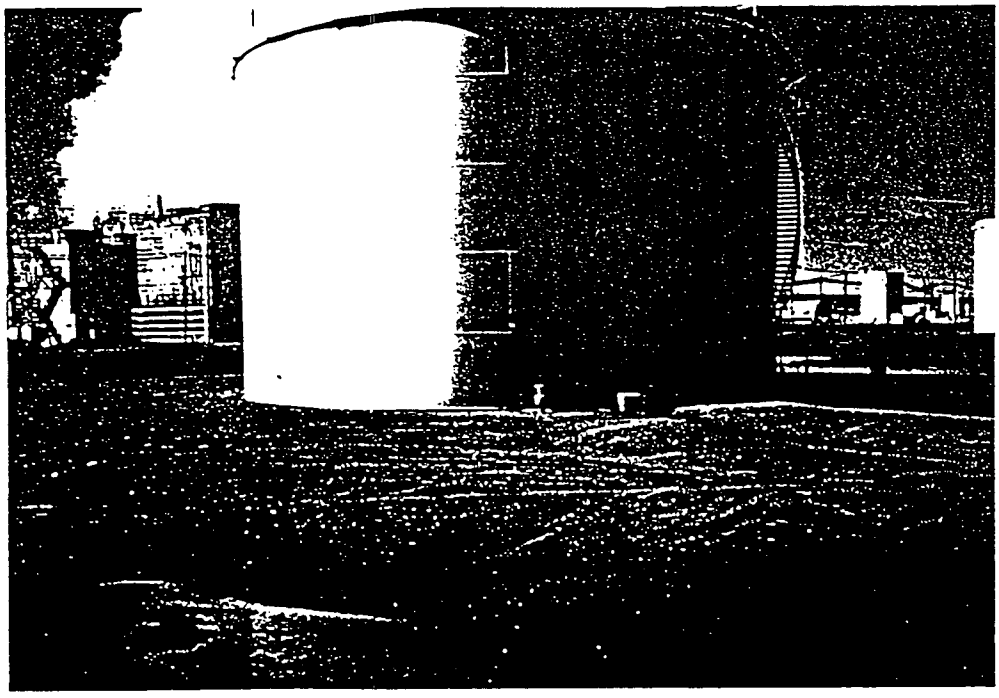
Draft Report Date - Approximately four months after completion of field work.



Applied Earth Sciences	NAME: GIANT REFINERY, Gallup, New Mexico	SITE MAP	FIGURE 1
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89		
	CHECKED BY: DATE:		



Applied Earth Sciences		NAME	FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 12-6-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	TANK FARM



View looking southwest.

View of Tank 570, located in the Tank Farm.
From VSI Report - January 1987

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Fire Training Area

LOCATION: Figure 1, No. 42

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and a completion of a contamination characterization study. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The unit characterization is described in Workplan B, Section 1(b). The waste characterization is described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Fire Training Area

LOCATION: Figure 1, No. 42

B. SOURCE CHARACTERIZATION:

1. Type of unit - Fire Training Area

(a) Is unit history accurately known __X___ yes ____no

(b) If no, discuss plans for additional data collection:

2. Type(s) of wastes in unit:

Oil and Water

(a) Is waste history accurately known __X__ yes ____ no

(b) If no, discuss plans for additional waste

characterizariton: __

(c) List potential indicator parameters for wastes:

Oil and Grease, TPH

No metal analyses are to be conducted at this time. the TPH, oil and grease content are adequate indicators of the constituents of the waste handled at this SWMU.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Fire Training Area

LOCATION: Figure 1, No. 42

C . CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a) (1). All sampling and analytical methods are listed in Generic RFI work plan.

___X_ Soil _____ Ground Water _____ Air _____ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Four verticle soil borings will be collected to a depth of 5 feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals:

0 -1/2
3 -3-1/2
4-1/2 -5

A detailed sampling procedure is outlined in the Generic Sampling Plan and referenced below:

Section 3.4 Soil Sampling Techniques
Section 4.0 Sample Labeling
Section 5.0 Decontamination Procedures
Section 6.0 Sample Custody
Section 7.0 Analytical Procedures

Proposed Number of Samples

Four borings to a depth of five feet with three sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Fire Training Area

LOCATION: Figure 1, No. 42

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Locations are shown on the attached figures. A photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

TPH, Oil and Grease

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Fire Training Area

LOCATION: Figure 1, No. 42

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil ___X___ Ground Water _____ Air _____ Surface-Water

Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more thorough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Fire Training Area

LOCATION: Figure 1, No. 42

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

Name_____

Work Task_____

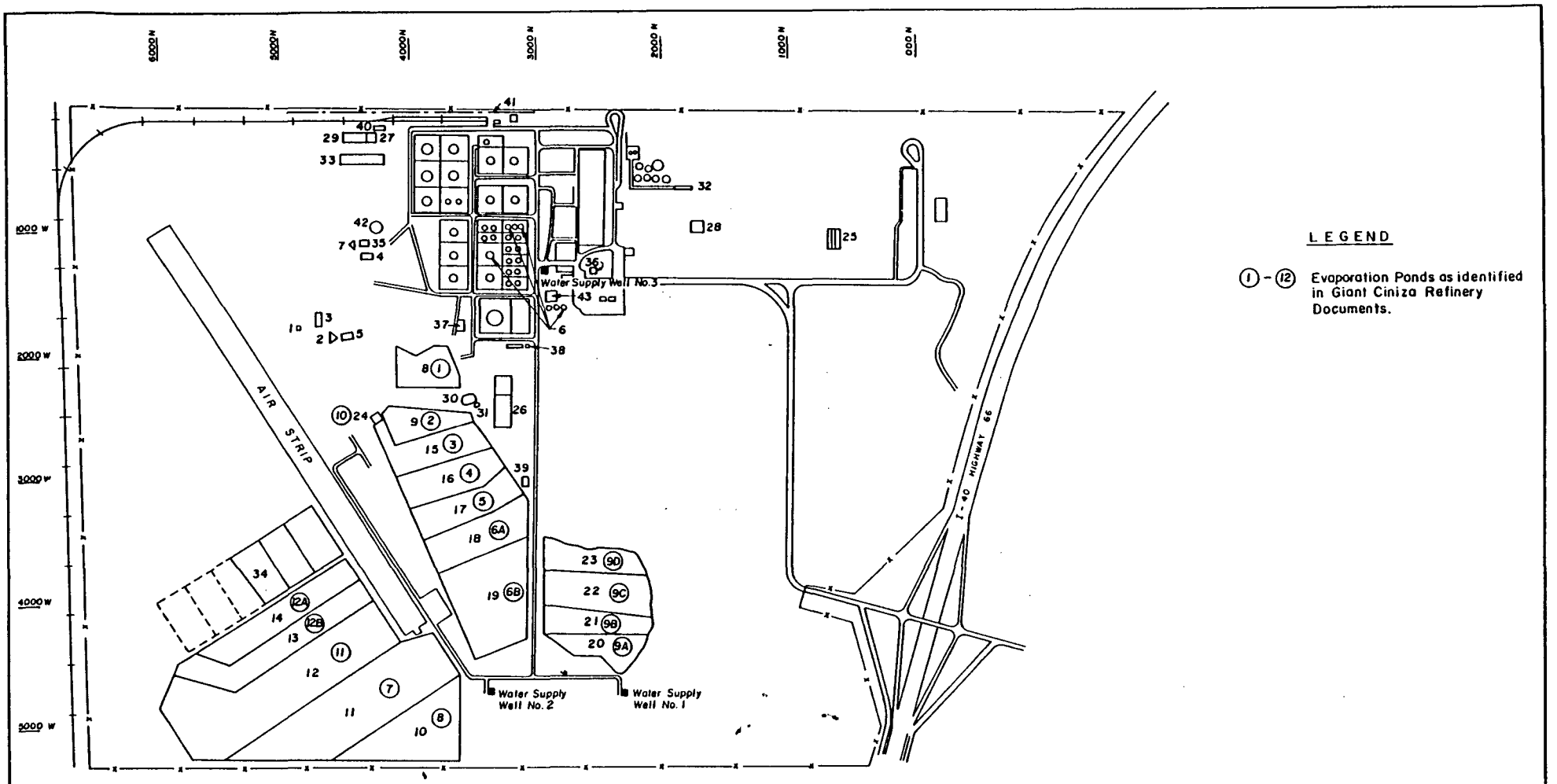
E. SCHEDULE

Completion of Release Verification - Six months following recommended sampling schedule

Completion of Source Characterization - Six months following recommended sampling schedule

Beginning Date of contaminant Characterization - will comply with attached schedule

Draft Report Date -Approximately four months after completion of field work



LEGEND

(1) - (12) Evaporation Ponds as identified in Giant Ciniza Refinery Documents.

1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
11. Evaporation Pond
12. Evaporation Pond
13. Evaporation Pond
14. Evaporation Pond
15. Evaporation Pond
16. Evaporation Pond
17. Evaporation Pond
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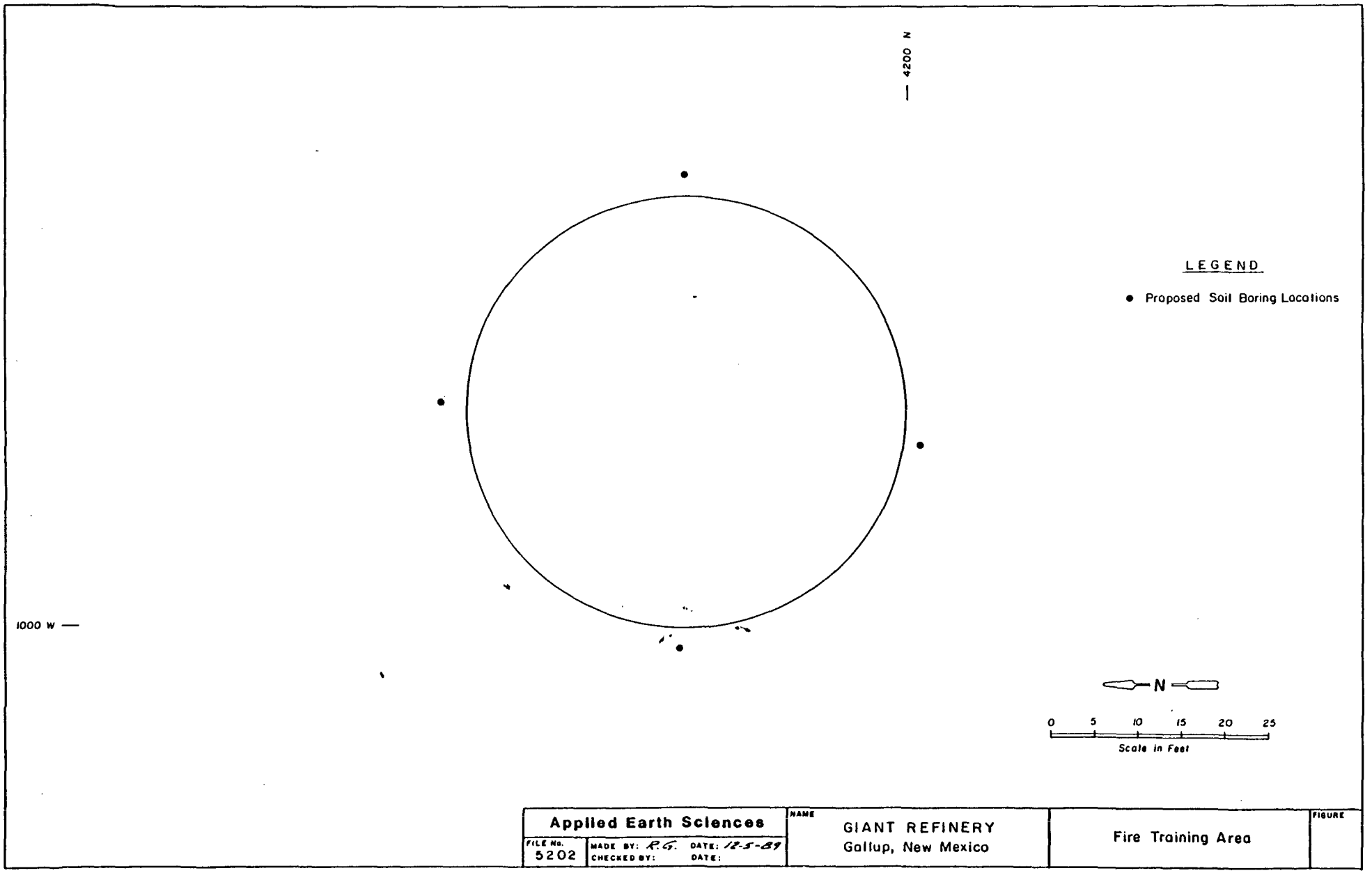
19. Evaporation Pond
20. Evaporation Pond
21. Evaporation Pond
22. Evaporation Pond
23. Evaporation Pond
24. Drainage Ditch
25. Sewage Lagoon
26. Sewage Lagoon
27. Sewage Lagoon
28. Sewage Lagoon
29. Railroad Rack Lagoon
30. Sludge Pit
31. Sludge Pit
32. Asphalt Pit
33. Inactive Land Treatment
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

N

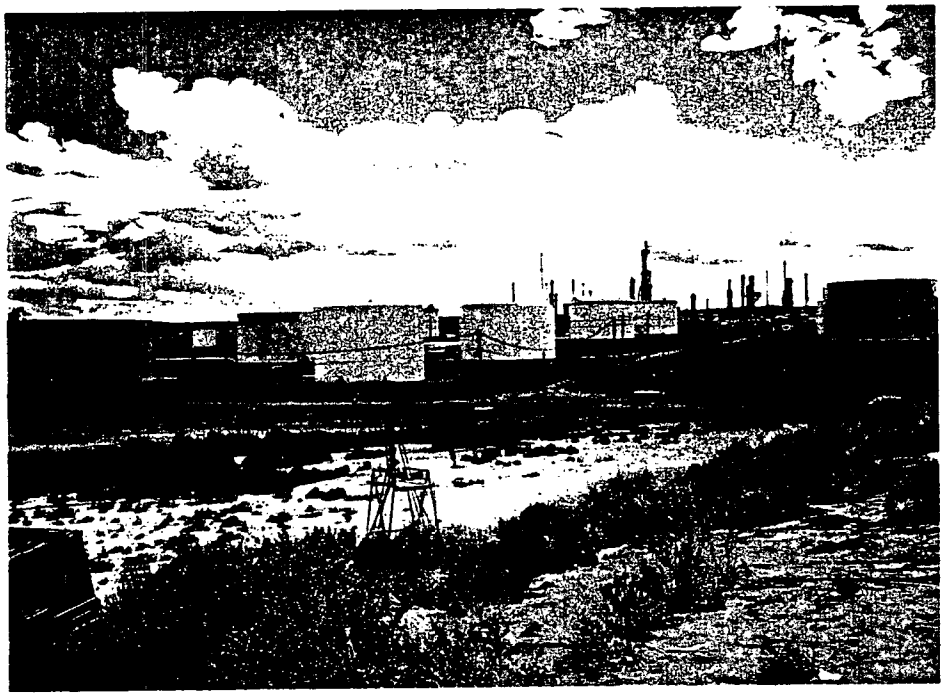
0 500 1000

Scale in Feet

Applied Earth Sciences		NAME: GIANT REFINERY Gallup, New Mexico	SITE MAP	FIGURE 1
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:			


4200 N
1000 W
LEGEND
Proposed Soil Boring Locations
N
0 5 10 15 20 25
Scale in Feet
Applied Earth Sciences
FILE No. 5202
MADE BY: R.G. DATE: 12-5-89
CHECKED BY: DATE:
NAME
GIANT REFINERY
Gallup, New Mexico
Fire Training Area
FIGURE

Fire Training Area - February 1989



Tank Farm in Background,
Fire Training Area in Foreground, August 1989

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Railroad Rack Lagoon

LOCATION: Figure 1, No. 29

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and the implementation of field investigations to evaluate the nature and extent of possible releases. Workplan C describes the field investigation in detail. The unit characterization is described in Workplan B, Section 1(b). The waste characterization will be accomplished by sampling the waste and identifying its analytical constituents. Plans for additional waste characterization are described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Railroad Rack Lagoon

LOCATION: Figure 1, No. 29

B. SOURCE CHARACTERIZATION:

1. Type of unit - Railroad Rack Lagoon

(a) Is unit history accurately known ___ yes _X_ no

(b) If no, discuss plans for additional data collection:

Record search to determine the unit location, type, design, features, operating practices, period of operation, age, and general physical conditions.

2. Type(s) of wastes in unit:

Washdown from tank cars and small product spills.

(a) Is waste history accurately known ___ yes _X_ no

(b) If no, discuss plans for additional waste characterization:

Record search of past practices to determine the type of waste placed in the unit, its physical and chemical characteristics and the migration and dispersal characteristics of the waste.

(c) List potential indicator parameters for wastes:

BTEX, TPH, TDS, pH, and Skinner list

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Railroad Rack Lagoon

LOCATION: Figure 1, No. 29

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.f.(a) (1). All sampling and analytical methods are listed in the Generic RFI workplan.

__X__ Soil _____ Ground Water _____ Air _____ Surface Water

Methodology for assessment of vertical and horizontal extent of contamination:

Three vertical and three angle soil borings will be collected to a depth of 11 feet below ground surface. One vertical soil boring shall be adjacent to the point of discharge. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals:

5 - 5-1/2 ft.
8 - 8-1/2 ft.
10-1/2 - 11 ft.

Additionally, seven vertical borings to a depth of 5 feet below ground surface shall be taken downstream from the discharge point of the railroad lagoon. Three soil borings shall be along the "discharge stream", with the remaining four taken in the "fanning out" or delta area. Samples will be collected at the following intervals:

0 - 1/2 ft.
2 - 2-1/2 ft.
4-1/2 - 5 ft.

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4	Soil Sampling Techniques
Section 4.0	Sampling Labeling
Section 5.0	Decontamination Procedures
Section 6.0	Sample Custody
Section 7.0	Analytical Procedures

Proposed Number of Samples:

Three vertical and three angle borings to a depth of 11 feet with three sample intervals in each boring and seven vertical borings to a depth of 5 feet with three sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Railroad Rack Lagoon

LOCATION: Figure 1, No. 29

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Locations are shown on the attached figures. The railroad rack lagoon is shown on sheet 1 with the streams and delta area on sheet 2. A photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criterial as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five foot CME Tubes, backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

Skinner list constituents

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Railroad Rack Lagoon

LOCATION: Figure 1, No. 29

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.3.(a) (1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil _____ Ground Water _____ Air __X__ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

(a) Collect grab sample of surface water of drainage from lagoon.

Proposed Number of Samples:

One sample set

Sample Location (and depth):

Location is shown on attached figure. Exact sampling location will be based on field observations. Samples will be collected at the surface.

Sample Collection Methods:

A grab sample will be collected from the discharge of the lagoon using appropriate sample jars. If drainage is not occurrring, no sample will be collected. A detailed sampling procedure is outlined in the Generic Sampling Plan and referenced below:

Section 3.3	Surface Water Sampling Techniques
Section 4.0	Sample Labeling
Section 5.0	Decontamination Procedures
Section 6.0	Sample Custody
Section 7.0	Analytical Procedures

Contaminant Description; specific constituents to be quantified:

pH, TDS, BTEX, TPH

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Railroad Rack Lagoon

LOCATION: Figure 1, No. 29

C. CONTAMINATION CHARACTERIZATION: (continued)

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully observed after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Railroad Rack Lagoon

LOCATION: Figure 1, No. 29

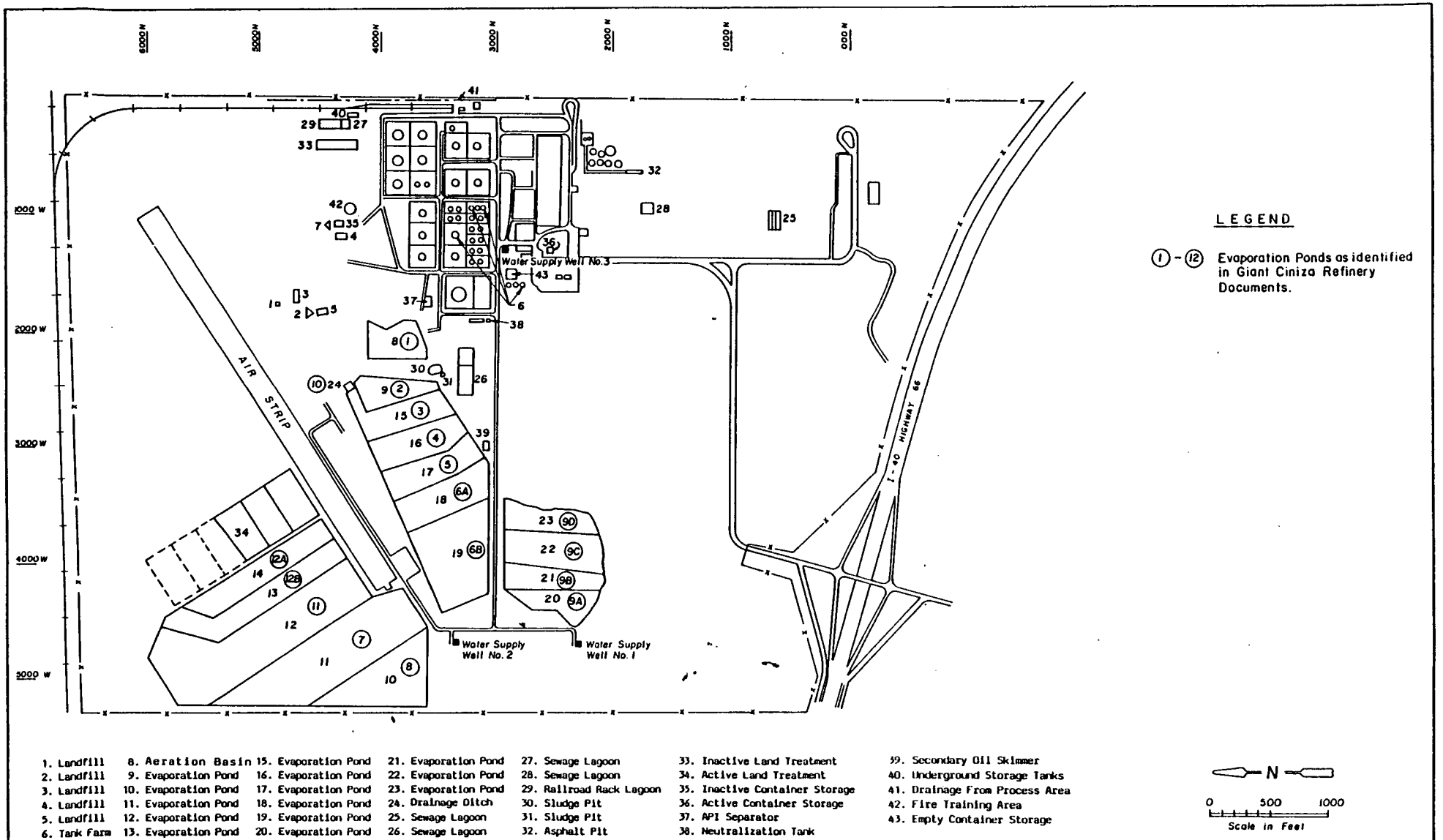
C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil ___X__ Ground Water _____ Air _____ Surface-Water

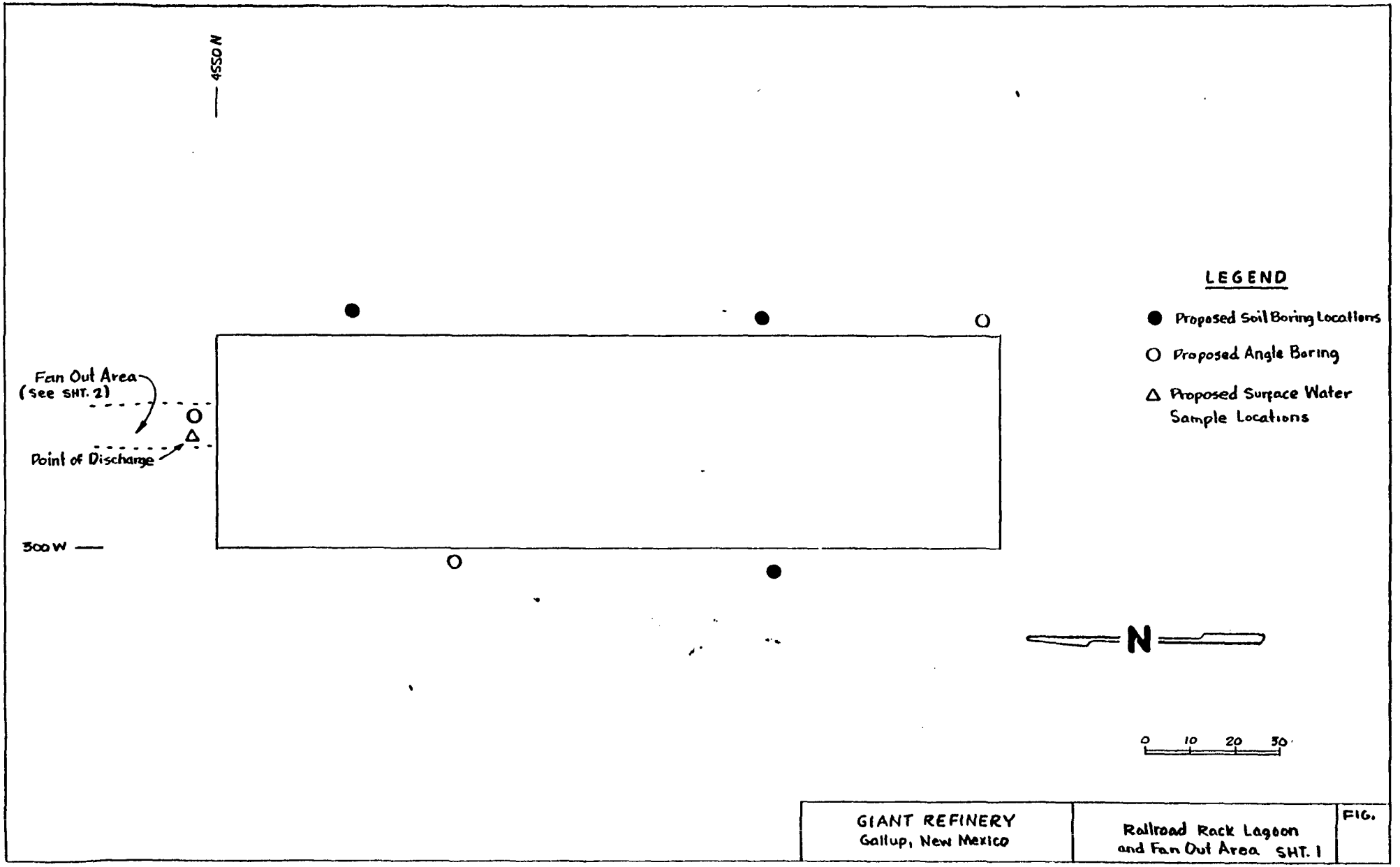
Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more thorough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

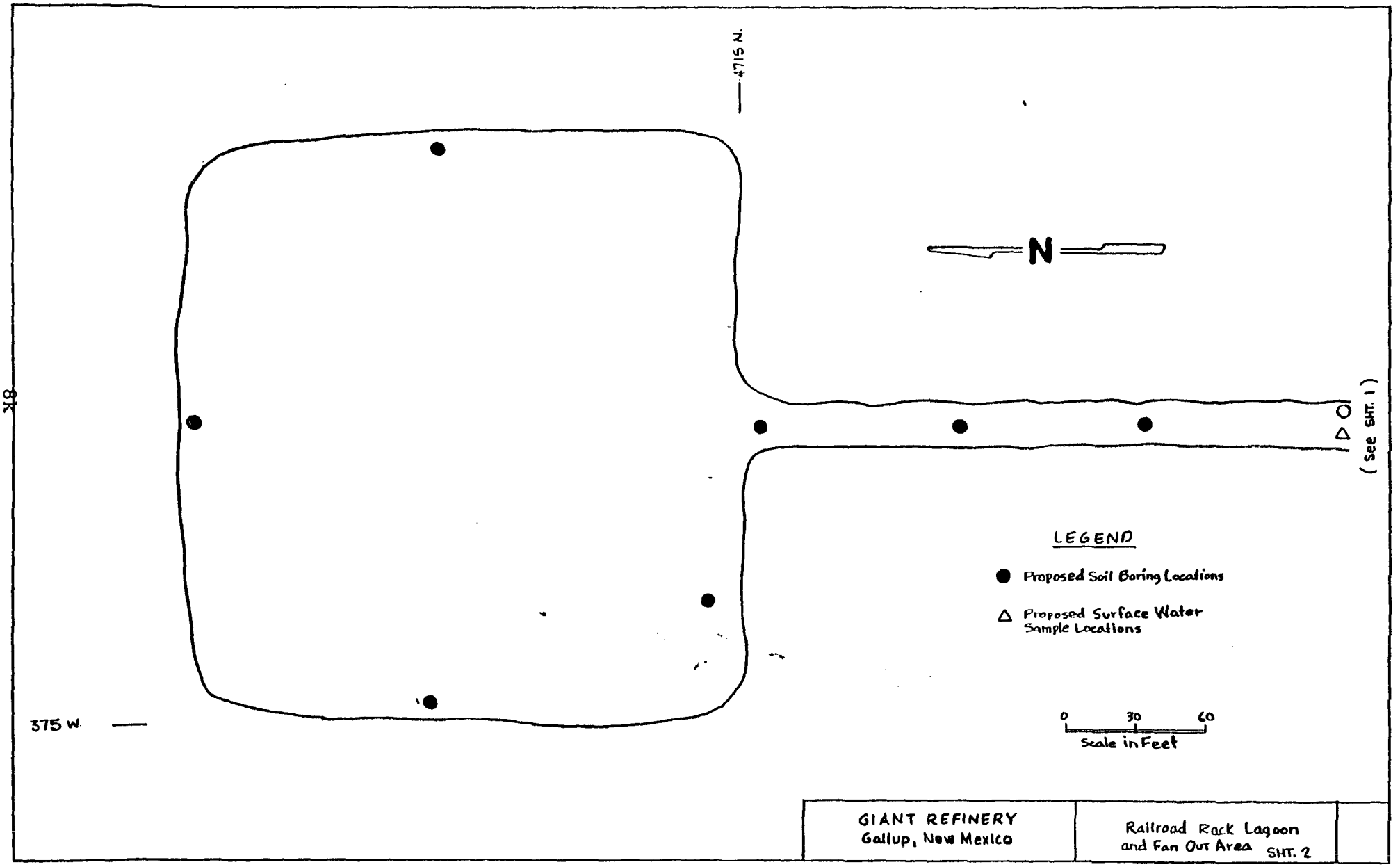


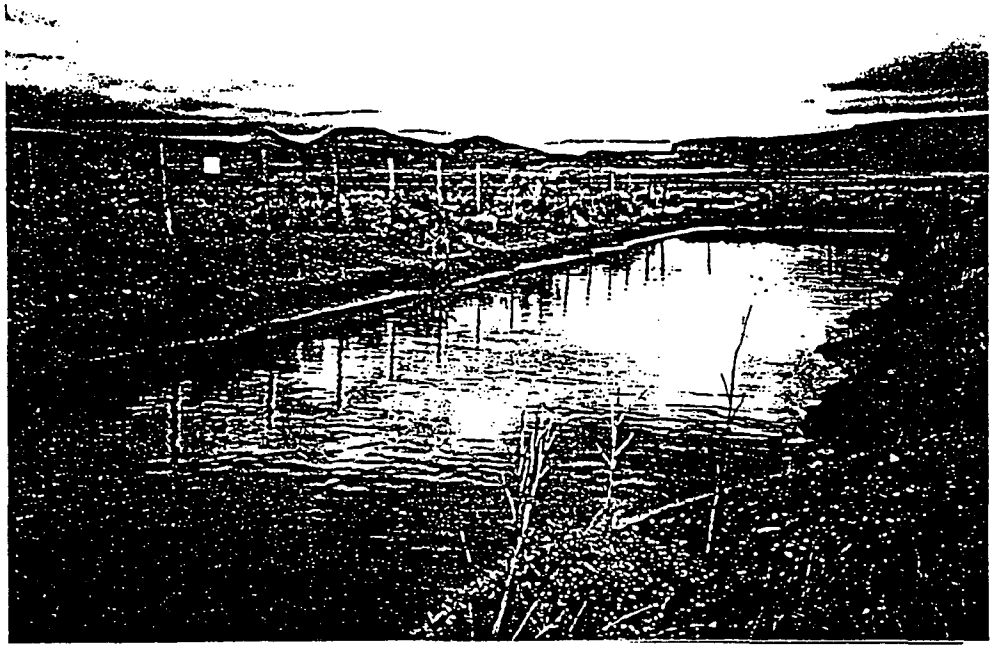
1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
11. Evaporation Pond
12. Evaporation Pond
13. Evaporation Pond
14. Evaporation Pond
15. Evaporation Pond
16. Evaporation Pond
17. Evaporation Pond
18. Evaporation Pond
19. Evaporation Pond
20. Evaporation Pond
21. Evaporation Pond
22. Evaporation Pond
23. Evaporation Pond
24. Drainage Ditch
25. Sewage Lagoon
26. Sewage Lagoon
27. Sewage Lagoon
28. Sewage Lagoon
29. Railroad Rack Lagoon
30. Sludge Pit
31. Sludge Pit
32. Asphalt Pit
33. Inactive Land Treatment
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

Applied Earth Sciences		NAME: GIANT REFINERY, Gallup, New Mexico	SITE MAP	FIGURE 1
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89			
	CHECKED BY: DATE:			



GIANT REFINERY Gallup, New Mexico	Railroad Rack Lagoon and Fan Out Area SHT. 1	FIG.


4715 N.
N
8X
(See SHT. 1)
LEGEND
Proposed Soil Boring Locations
Proposed Surface Water Sample Locations
0 30 60
Scale in Feet
375 W
GIANT REFINERY
Gallup, New Mexico
Railroad Rack Lagoon and Fan Out Area SHT. 2



View looking north from south end.

North end.

Railroad Rack Lagoon from VSI Report
January 1987

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Inactive Land Treatment Area and Associated Drainage Ditch*

LOCATION: Figure 1, No. 33

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.
5) Statistical comparison of background metals data.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and a completion of a soil contamination characterization study. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The unit characterization is described in Workplan B, Section 1(b). The waste characterization is described in Workplan B, Section 2(b).

* The Permit lists the Inactive Land Treatment Area and Ditch as separate SWMU's, however, the proximity of the two units (10 to 20 feet) suggest that they be studied together.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Inactive Land Treatment Area and Associated Drainage Ditch

LOCATION: Figure 1, No. 33

B. SOURCE CHARACTERIZATION:

1. **Type of unit** - Inactive Land Treatment Area/Drainage Treatment Area

(a) **Is unit history accurately known** ___yes _X_no

(b) **If no, discuss plans for additional data collection:**

Record search to determine the unit location, type, design features, operating practices, period of operation, age, and general physical conditions.

2. **Type(s) of waste in unit:**

API separator sludge, tank bottoms, waste oil, and slop oils in land treatment area, intermittent runoff in ditch.

(a) **Is waste history accurately known** ___yes _X_no

(b) **If no, discuss plans for additional waste characterization:**

Record search of past practices to determine the type of waste placed in the unit, its physical and chemical characteristics and the migration and dispersal characteristics of the waste.

(c) **List potential indicator parameters for wastes:**

Background metals and 8240 and 8270 priority pullutants

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Inactive Land Treatment Area and Associated Drainage Ditch

LOCATION: Figure 1, No. 33

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

__X__Soil ___Ground Water ___Air ___Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Seven vertical soil borings will be collected to a depth of $7\frac{1}{2}$ feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals.

0 - $\frac{1}{2}$ft
3 - $3\frac{1}{2}$ft
5 - $5\frac{1}{2}$ft
7 - $7\frac{1}{2}$ft

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4 Soil Sampling Techniques
Section 4.0 Sample Labeling
Section 5.0 Decontamination Procedures
Section 6.0 Sample Custody
Section 7.0 Analytical Procedures

Proposed Number of Samples:

Seven borings to a depth of $7\frac{1}{2}$ feet with four sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Inactive Land Treatment Area and Associated Drainage Ditch

LOCATION: Figure 1, No. 33

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Location are shown on the attached figure. A photograph of the SWMU is also attached. Three sample locations are planned in the drainage ditch which lies just west of the inactive land treatment area. Four samples are also planned to be conducted through the inactive land treatment area. Exact sampling location will be based on field observations. Recognizable point so discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

Background metals and 8240 and 8270 priority pollutants.

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Inactive Land Treatment Area and Associated Drainage Ditch

LOCATION: Figure 1, No. 33

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

NAME:_____

WORK TASK:_____

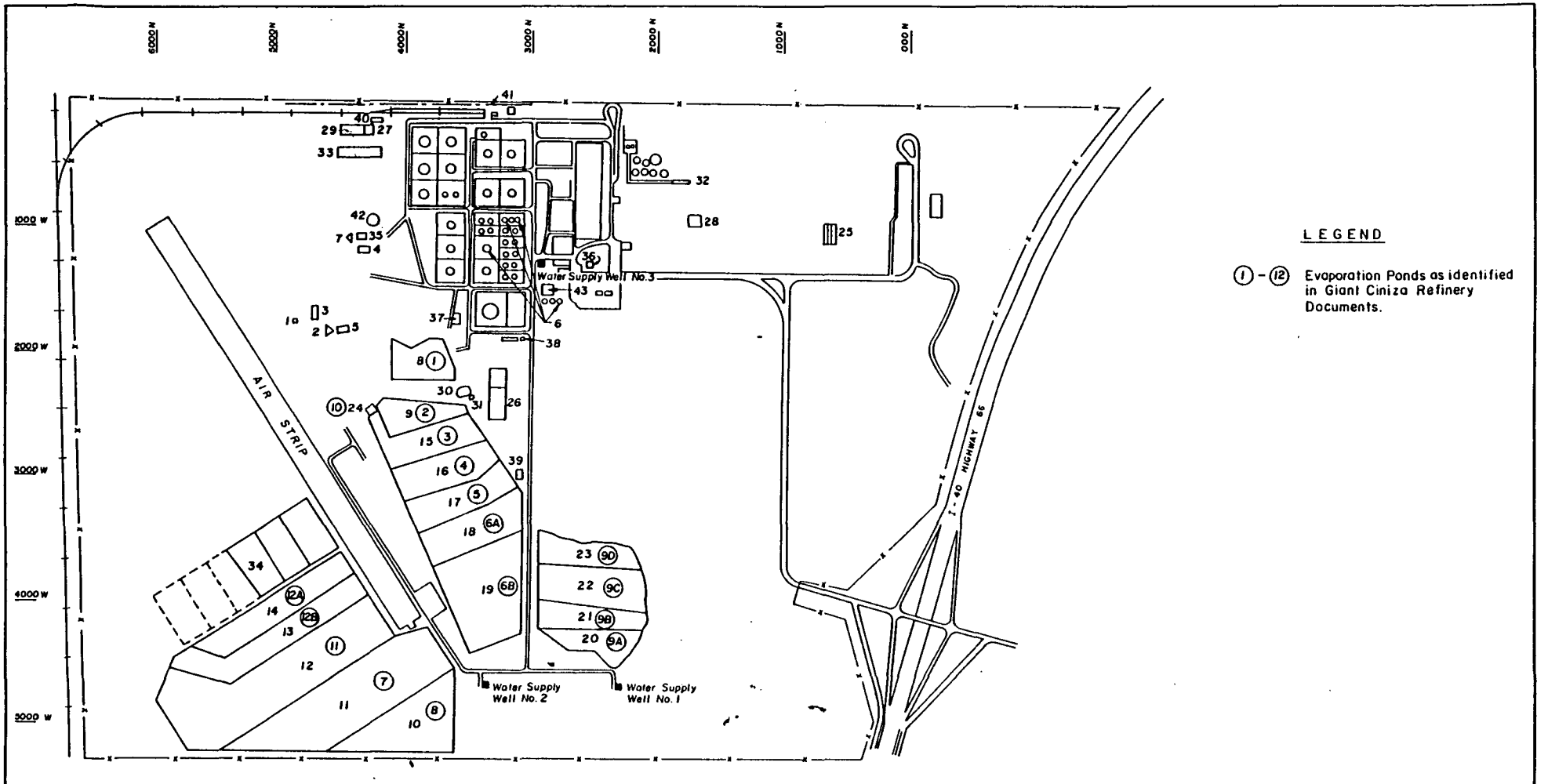
E. SCHEDULE:

Completion of Release Verification - Six Months Following recommended sampling schedule

Completion os Source Characterization - Six Months Following recommended sampling schedule

Beginning Date of Contaminant Characterization - Will comply with attached schedule

Draft Report Date - Approximately four months after completion of Field Work



1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
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31. Sludge Pit
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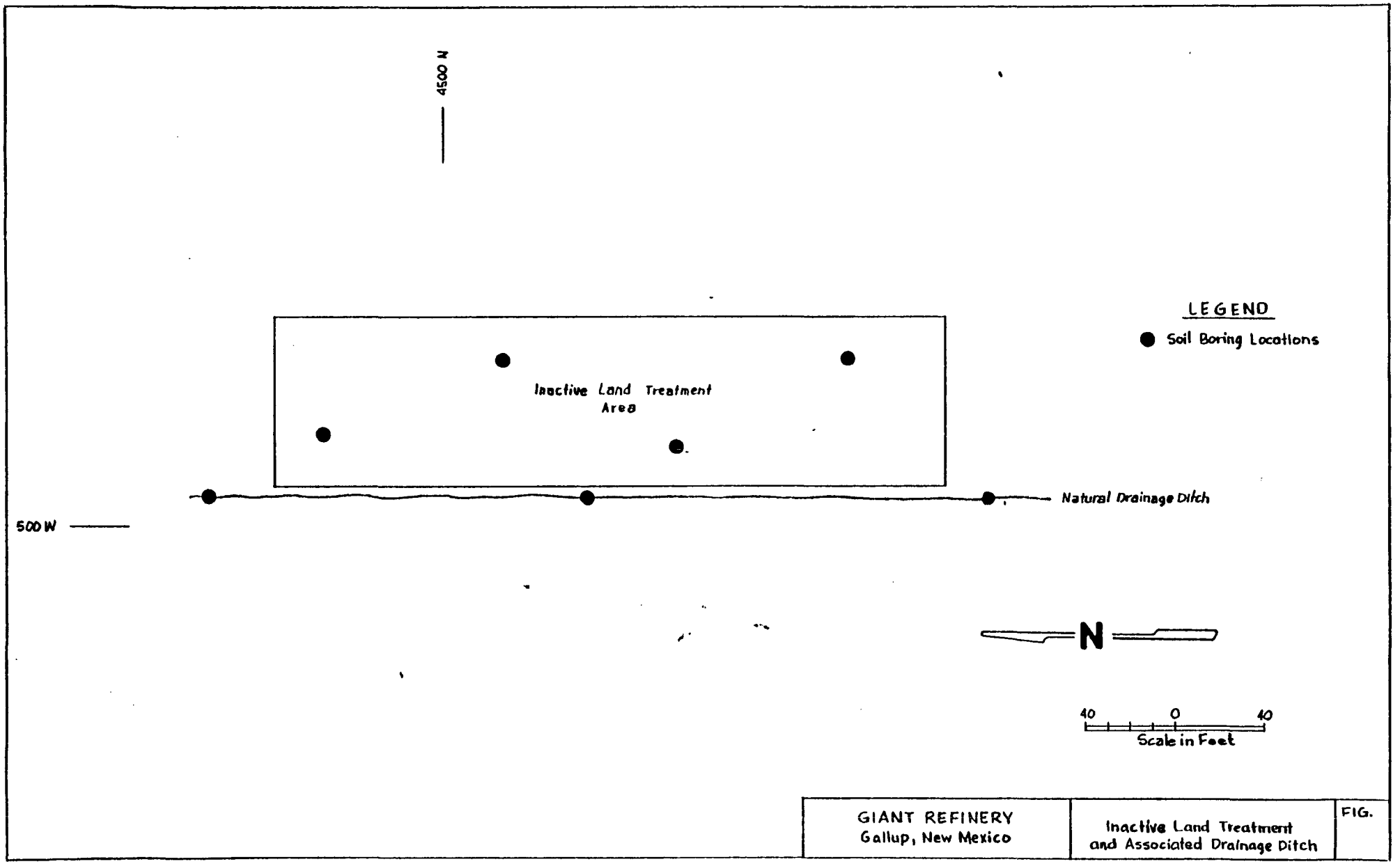
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

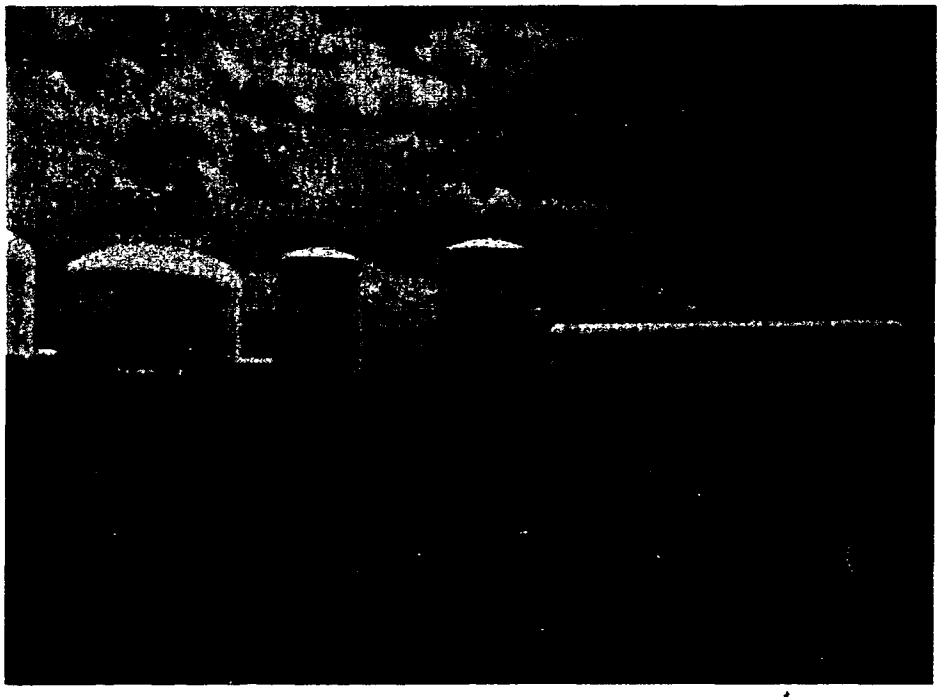
Applied Earth Sciences	NAME: GIANT REFINERY, Gallup, New Mexico	SITE MAP	FIGURE 1
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89		
	CHECKED BY: DATE:		

(F)9



GIANT REFINERY Gallup, New Mexico	Inactive Land Treatment and Associated Drainage Ditch	FIG.

(8)6



Inactive Land Treatment Area
August 1989

Drainage Near Inactive Land
Treatment Area From VSI Report - January 1987

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Two Sludge Pits

LOCATION: Figure 1, Nos. 30 and 31

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.
5) Statistical comparison of background metals.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and a soil contamination characterization study. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The unit characterization is described in Workplan B, Section 1(b). The waste characterization is described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Two Sludge Pits

LOCATION: Figure 1, Nos. 30 and 31

B. SOURCE CHARACTERIZATION:

1. Type of unit - Sludge Pit

(a) Is unit history accurately known ___**yes** _X_**no**

(b) If no, discuss plans for additional data collection:

Record search to determine to unit locations, type, design features, operating practices, period of operation, age, physical conditions and method used to close the unit.

2. Type(s) of wastes in unit:

API separator sludge and slop oil emulsion solids.

(a) Is waste history accurately known ___**yes** _X_**no**

(b) If no, discuss plans for additional waste characterization:

Record search of past practices to determine the type of waste place in the unit; its physical and chemical characteristic, and the migration and dispersal characteristics of the waste.

(c) List potential indicator parameters for wastes:

Background metals, EPA 8240 and 8270 priority pollutants.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Two Sludge Pits

LOCATION: Figure 1, Nos 30 and 31

C. CONTAMINATION CHARACTERIZATION:

Methodology for assessment of vertical and horizontal extent of contamination:

Four vertical soil borings will be collected inside the boundaries of the two sludge pits to a depth of 13 feet below ground surface. Samples will be collected at the following intervals:

0 - $\frac{1}{2}$ft
3 - $3\frac{1}{2}$ft
6 - $6\frac{1}{2}$ft
9 - $9\frac{1}{2}$ft
$12\frac{1}{2}$ -13 ft

One vertical soil boring will be collected at the discharge of the overflow pipe. Samples will be collected at the following intervals.

0 - $\frac{1}{2}$ft
3 - $3\frac{1}{2}$ft

All the samples will be collected by the methods described in the Generic Sampling Plan.

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4 Soil Sampling Techniques
Section 4.0 Sample Labeling
Section 5.0 Decontamination Procedures
Section 6.0 Sample Custody
Section 7.0 Analytical Procedures

Proposed Number of Samples:
Four vertical borings inside the pit to a depth of 13 feet with 5 sample intervals and one vertical boring outside the pit near the overflow pipe to a depth of $3\frac{1}{2}$ feet with 2 sample intervals.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Two Sludge Pits

LOCATION: Figure 1, Nos. 30 and 31

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Location is shown on attached figure. A photograph of the SWMU is also attached. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five foot CME Tubes, backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

Background metals, EPA 8240 and 8270 priority pollutants

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI Workplan
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU:

LOCATION: Figure 1, Nos 30 and 31

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

NAME:_____

WORK TASK:_____

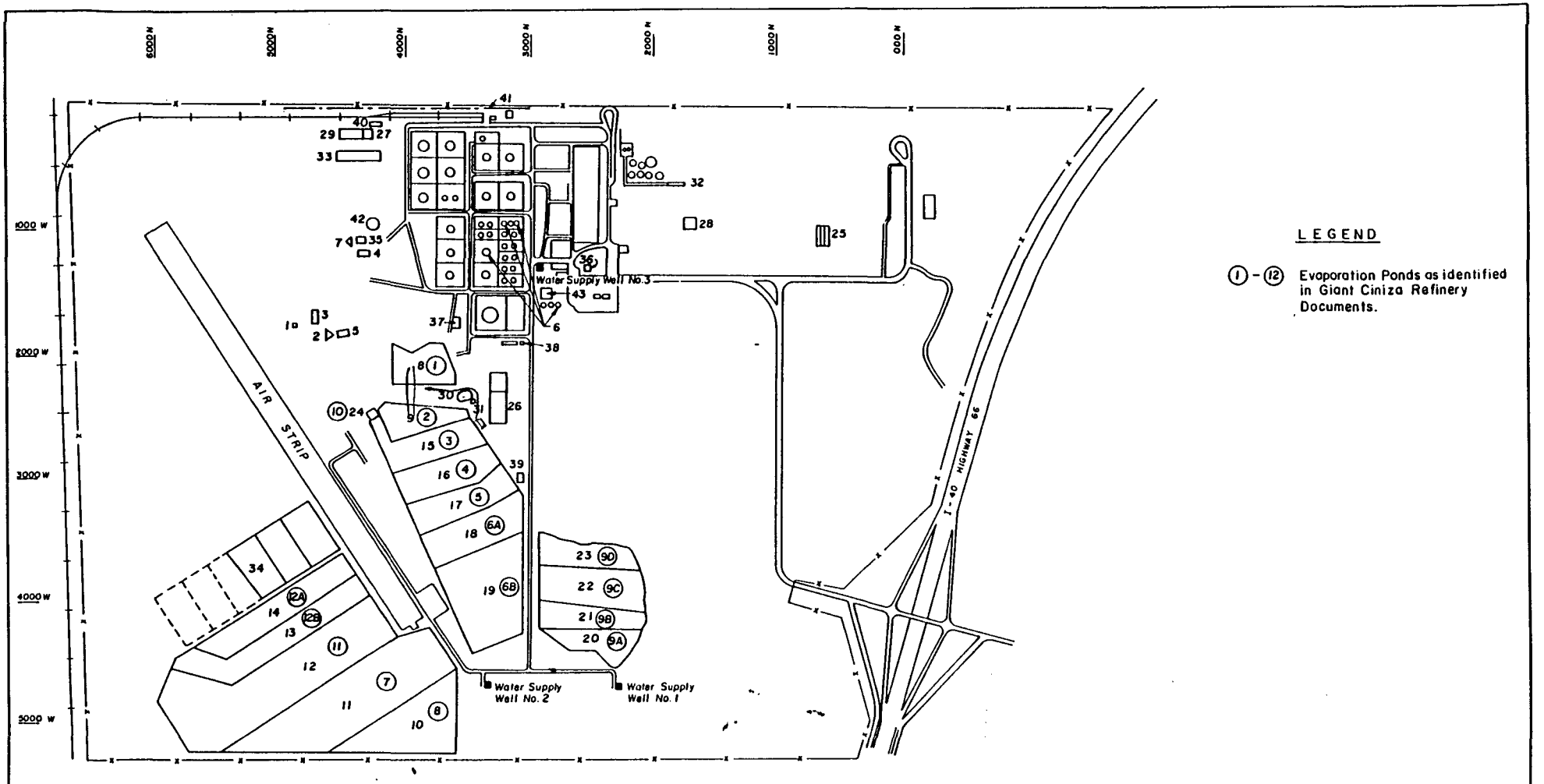
E. SCHEDULE:

Completion of Release Verification - Six Months Following recommended sampling schedule

Completion of Source Characterization - Six Months Following recommended sampling schedule

Beginning Date of Contaminant Characterization - Will Comply with attached schedule

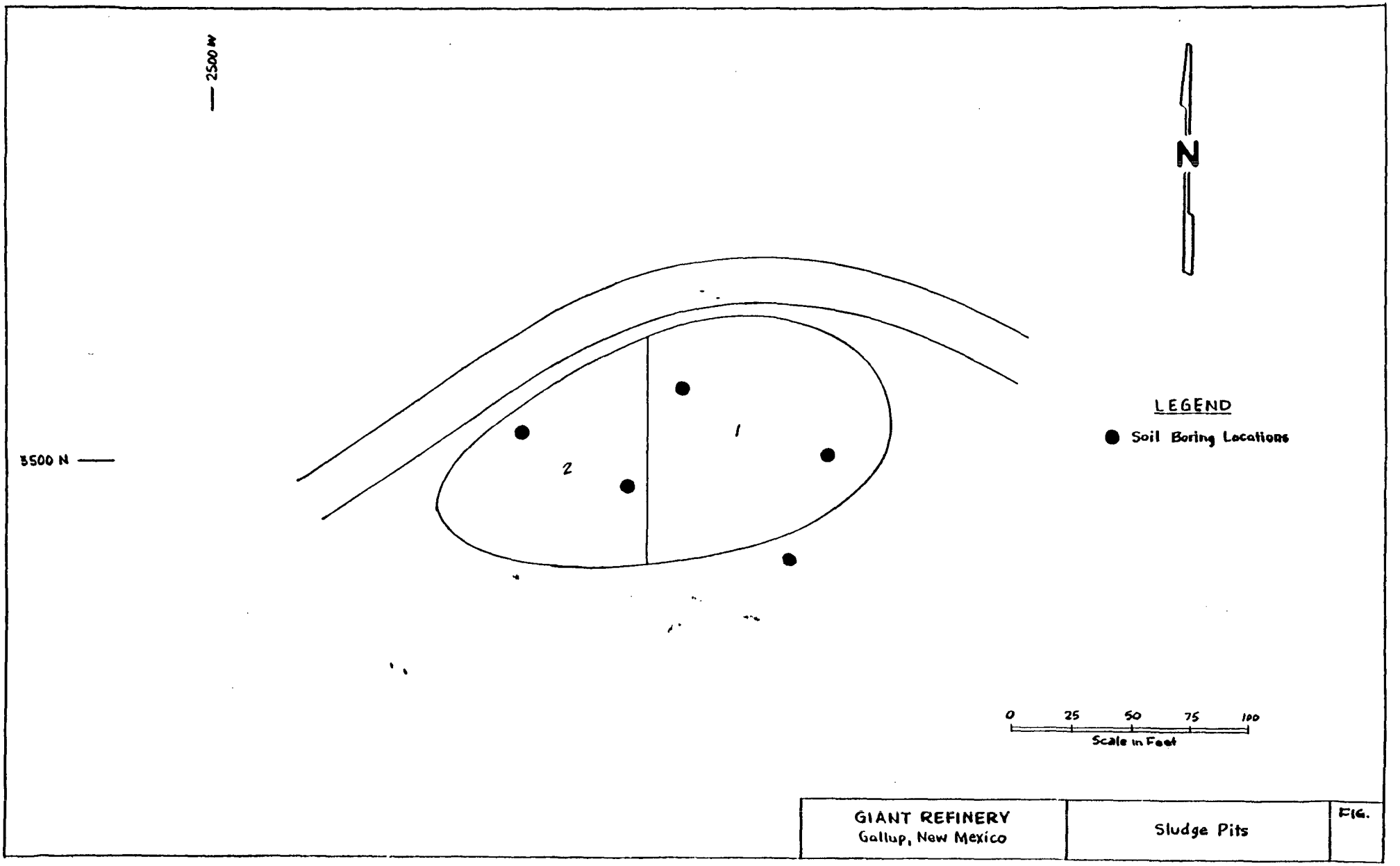
Draft Report Date - Approximately four months after completion of Field Work



1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
11. Evaporation Pond
12. Evaporation Pond
13. Evaporation Pond
14. Evaporation Pond
15. Evaporation Pond
16. Evaporation Pond
17. Evaporation Pond
18. Evaporation Pond
19. Evaporation Pond
20. Evaporation Pond
21. Evaporation Pond
22. Evaporation Pond
23. Evaporation Pond
24. Drainage Ditch
25. Sewage Lagoon
26. Sewage Lagoon
27. Sewage Lagoon
28. Sewage Lagoon
29. Railroad Rack Lagoon
30. Sludge Pit
31. Sludge Pit
32. Asphalt Pit
33. Inactive Land Treatment
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

Applied Earth Sciences	NAME: GIANT REFINERY Gallup, New Mexico	SITE MAP	FIGURE 1
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89		
	CHECKED BY: DATE:		

10(f)



GIANT REFINERY Gallup, New Mexico	Sludge Pits	FIG.

10(8)

Sludge Pits - February 1989

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Secondary Oil Skimmer and Associated Drainage Ditch

LOCATION: Figure 1, No. 39

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred and a completion of a soil contamination characterization study. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The unit characterization is described in Workplan B, Section 1(b). The waste constituent is described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Secondary Oil Skimmer and Associated Drainage Ditch

LOCATION: Figure 1, No. 39

B. SOURCE CHARACTERIZATION:

1. **Type of unit -** Oil Skimmer to retain possible oil from runoff in ditch; divert water into Pond 5.

(a) **Is unit history accurately known** __X__ yes _____ no

(b) **Discuss plans for additional data collection:**

Record search to determine to unit locations, type, design features, operating practices, period of operation, age, and physical conditions.

2. **Type(s) of wastes in unit:**

Storm water that may contain hydrocarbons as a free phase.

(a) **Is waste history accurately known** __X__ yes _____ no

(b) **Discuss plans for additional waste characterization:**

Record search of past practices to determine the type of waste placed in the unit, its physical and chemical characteristics and the migration and disposal characteristics of the waste.

(c) **List potential indicator parameters for wastes:**

Skinner list constituents

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Secondary Oil Skimmer and Associated Drainage Ditch

LOCATION: Figure 1, No. 39

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

__X__Soil ___Ground Water ___Air ___Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

The waste from the oil skimmer will be transferred to the API Separator. The oil skimmer will be removed and steam cleaned. Two vertical soil borings will be collected to a depth of $3\frac{1}{2}$ feet below ground surface. The samples will be collected by the methods described in the Generic Sampling Plan. Samples will be collected at the following intervals:

0 - $1\frac{1}{2}$ft
3 - $3\frac{1}{2}$ft

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4	Soil Sampling Techniques
Section 4.0	Sample Labeling
Section 5.0	Decontamination Procedures
Section 6.0	Sample Custody
Section 7.0	Analytical Procedures

Proposed Number of Samples:

Two borings to a depth of $3\frac{1}{2}$ feet with two sample intervals in each boring.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Secondary Oil Skimmer and Associated Drainage Ditch

LOCATION: Figure 1, No. 39

C. CONTAMINATION CHARACTERIZATION: (continued)

Sample Location (and depth):

Locations are shown on the attached figure. A photograph of the SWMU is also attached. One boring is planned in the drainage ditch immediately upgradient of the tank with the second boring beneath the tank location. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Backhoe and/or hand auger

Contaminant Description; specific constituents to be quantified:

Skinner list constituents

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Secondary Oil Skimmer and Associated Drainage Ditch

LOCATION: Figure 1, No. 39

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

NAME:_____

WORK TASK_____

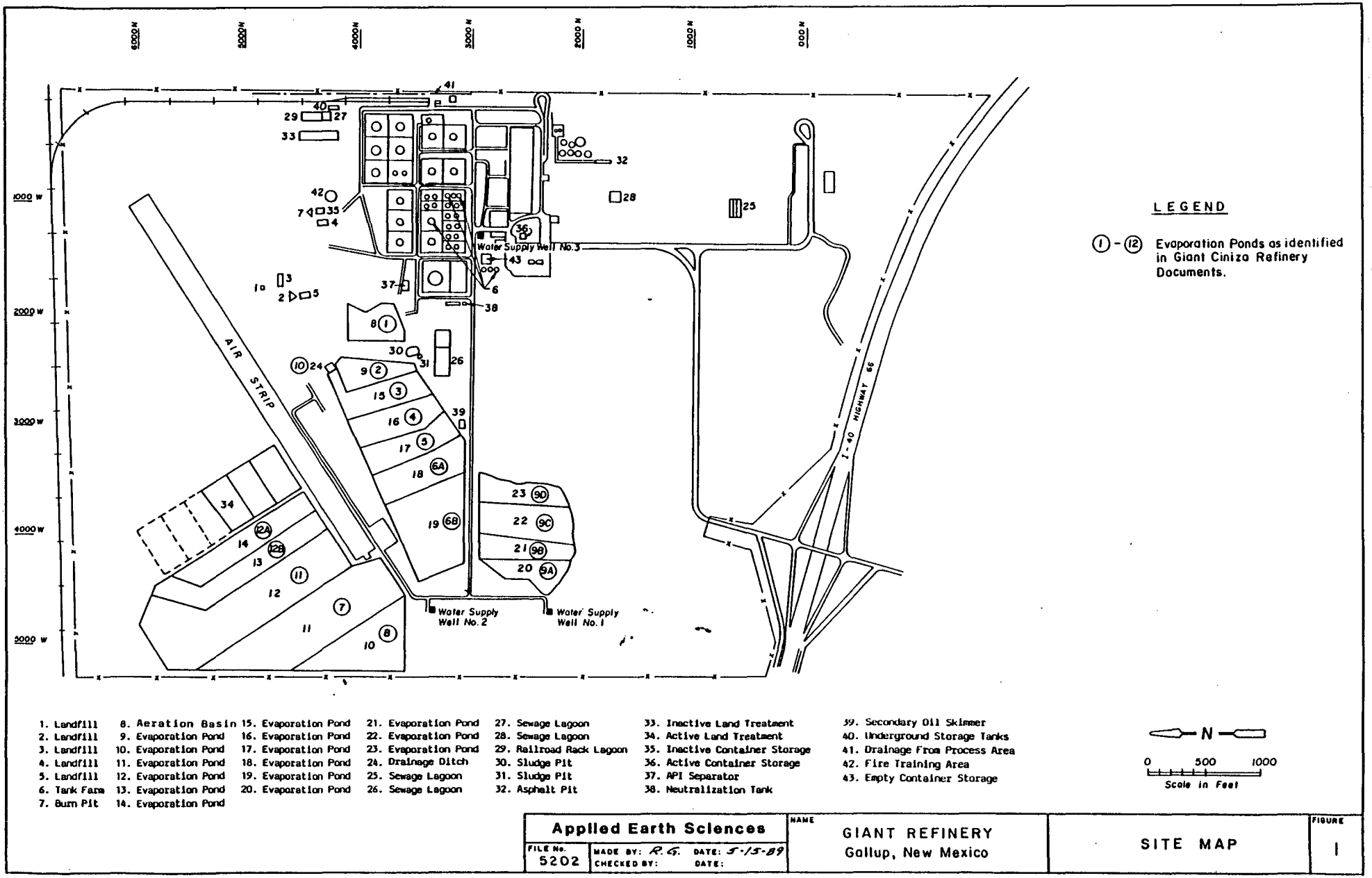
E. SCHEDULE:

Completion of Release Verification - Six Months Following recommended sampling schedule

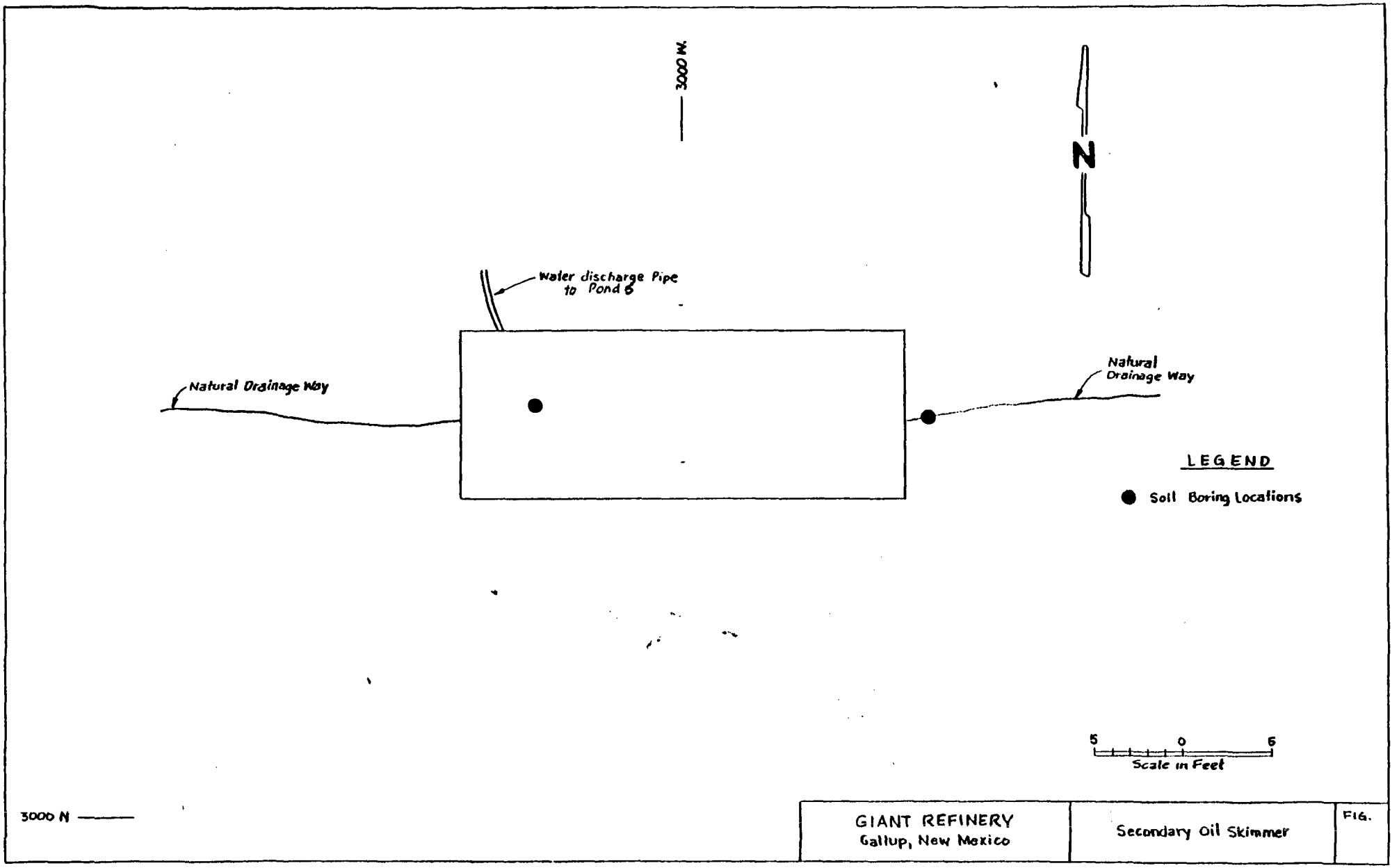
Completion of Source Characterization - Six Months Following recommended sampling schedule

Beginning Date of Contaminant Characterization - Will comply with attached schedule

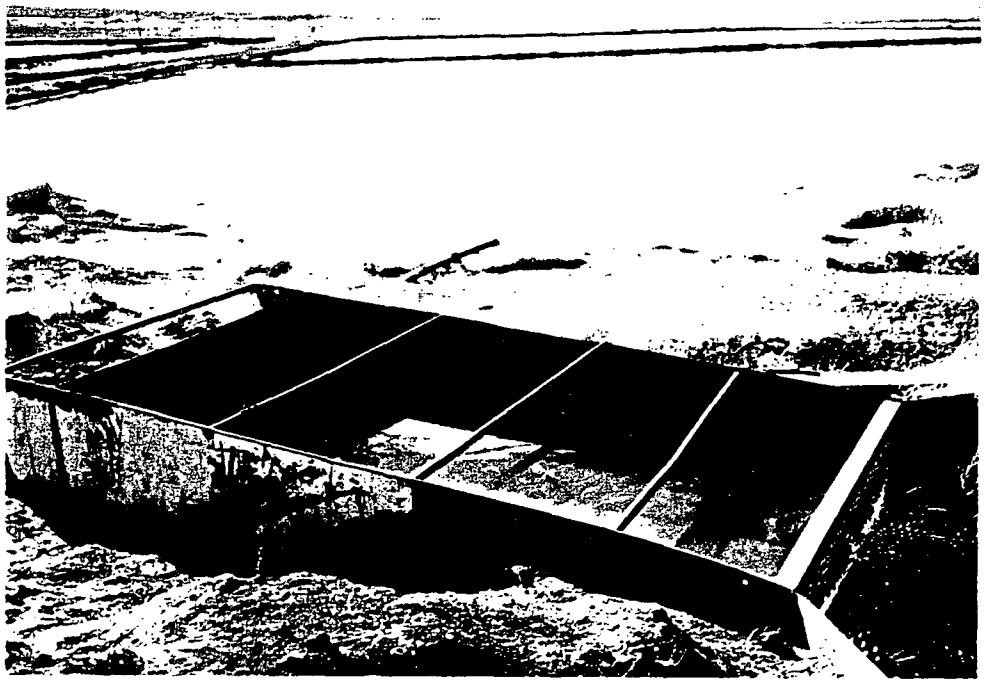
Draft Report Date - Approximately four months after completion of Field Work



Applied Earth Sciences	NAME	GIANT REFINERY Gallup, New Mexico	SITE MAP	FIGURE 1
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89			
	CHECKED BY: DATE:			



GIANT REFINERY Gallup, New Mexico	Secondary Oil Skimmer	FIG.



Secondary Oil Skimmer - February 1989

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Contact Wastewater Collection System

LOCATION: Plate 1

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5 (a)(1).

Has a known release been documented at this unit___yes _X_no
If yes, state facts_____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.

2) Interview plant personnel to document system construction.

3) Visual inspection methods to be specified to inspect portions of pipeline.

4) Soil borings will be located, if necessary, to investigate subsurface releases if the line inspection locates leaking pipes.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The unit characterization is described in Workplan B, Section 1(b). The waste characterization is described in Workplan B, Section 2(b).

The main portion of the sewer line will be inspected to check system integrity. Laterals will also be randomly selected and inspected. The specific method for the sewer line inspection will be approved by EPA before investigation of this SWMU begins.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Contact Wastewater Collection System

LOCATION: Plate 1

B. SOURCE CHARACTERIZATION:

1. Type of unit - Contact Wastewater Collection System

(a) Is unit history accurately known _____ yes __X__ no

(b) If no, discuss plans for additional data collection:

Record search to determine unit locations, type, design features, operating practices, period of operation, age, and physical conditions.

2. Type(s) of wastes in unit:

Contact wastewater from storage tanks and refining processes.

(a) Is waste history accurately known _____ yes __X__ no

(b) If no, discuss plans for additional waste characterization:

Record search of past practices to determine the type of waste place in the unit; its physical and chemical characteristics, and the migration and dispersal characteristics of the waste.

(c) List potential indicator parameters for wastes:

None are currently planned.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Contact Wastewater Collection System

LOCATION: Plate 1

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_X_ Soil ___ Ground Water ___ Air ___ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

No soil samples are planned until the results of the sewer line inspection.

Proposed Number of Samples:

No borings are planned at this time unless the line inspection of the sewers locates leaking pipes.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Contact Wastewater Collection System

LOCATION: Plate 1

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA Permit NMD000333211 C.5.(a)(1). All sampling and analytical methods are listed in Generic RFI workplan.

_____ Soil ___X__ Ground Water _____ Air _____ Surface-Water

Methodology:

A ground water contamination characterization study will not be completed at this time. There are no wells located in the vicinity of a SWMU that could indicate whether or not a release has occurred. Therefore, a more thorough soil sampling program will be utilized to determine whether a release has occurred. If the soil sampling results indicate a significant release then the installation of wells adjacent to a specific SWMU may be required.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Contact Wastewater Collection System

LOCATION: Plate 1

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordinator: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

NAME:_____

WORK TASK_____

E. SCHEDULE:

Completion of Release Verification - Six Months Following recommended sampling schedule

Completion of Source Characterization - Six Months Following recommended sampling schedule

Beginning Date of Contaminant Characterization - Will comply with attached schedule

Draft Report Date - Approximately four months after completion of Field Work

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Drainage Ditch between APIS Evaporation Ponds and Neutralization Tank Evaporation Ponds (Inappropriately labeled as an Evaporation Pond in Previous Documents)

LOCATION: Figure 1, No. 24

A. RELEASE VERIFICATION:

A study will be conducted at each SWMU listed for release verification in HSWA Permit NMD000333211 C.5(a)(1).

Has a known release been documented at this unit ____ yes __X__ no

If yes, state facts _____

_____

If no, detail plans to check for release:

1) Record search to determine if release has occurred.
2) Interview plant personnel.
3) Visual inspection.
4) Soil contamination characterization.

Methodology for release verification and source characterization:

Release verification will be accomplished by a complete review of facility records to confirm that no release has occurred. Source characterization will be accomplished by characterizing the waste constituents and a description of the unit. The unit characterization is described in Workplan B. Section 1(b). The waste characterization is described in Workplan B, Section 2(b).

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Drainage Ditch between APIS Evaporation Ponds and Neutralization Tank Evaporation Ponds (Inappropriately labeled as an Evaporation Pond in Previous Documents)

LOCATION: Figure 1, No. 24

B. SOURCE CHARACTERIZATION:

1. Type of unit - Drainage Ditch

(a) Is unit history accurately known _X_ yes ____ no

(b) Discuss plans for additional data collection:

Record search to determine the unit location, type, design features, operating practices, period of operation, age and general physical conditions.

2. Type(s) of wastes in unit:

Treated contact wash water from the discharge of Ponds 2 and 3 (API separator; boiler house blow down neutralization tank effluent).

(a) Is waste history accurately known ____ yes _X_ no

(b) If no, discuss plans for additional waste characterization:

Record search of past practices to determine the type of waste placed in the unit, its physical and chemical characteristics and the migration and dispersal characteristics of the waste.

(c) List potential indicator parameters for wastes:

Skinner List Constituents

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Drainage Ditch between APIS Evaporation Ponds and Neutralization Tank Evaporation Ponds (Inappropriately labeled as an Evaporation Pond in Previous Documents)

LOCATION: Figure 1, No. 24

C. CONTAMINATION CHARACTERIZATION:

Assessment of the SWMU will pertain to the specified media listed in HSWA permit NMD000333211 C.5. (a) (1). All sampling and analytical methods are listed in Generic RFI workplan.

__X__ Soil _____ Ground Water _____ Air _____ Surface-Water

Methodology for assessment of vertical and horizontal extent of contamination:

Three vertical soil borings will be collected to a depth of 4 feet below ground surface. Vertical borings were selected because the ditch is only 12 feet wide, a maximum of 18 inches deep and there are no dikes, thus allowing samples to be collected adjacent to the waters edge. The samples will be collected by the methods discribed in the Generic Sampling Plan. Samples will be collected at the following intervals:

2 - 2-1/2 ft.
3-1/2 - 4 ft.

A detailed sampling procedure is outlined in the Generic Sampling Plan and is referenced below:

Section 3.4 Soil Sampling Techniques
Section 4.0 Sample Labeling
Section 5.0 Decontamination Procedures
Section 6.0 Sample Custody
Section 7.0 Analytical Procedures

Proposed Number of Samples:

Three borings to a depth of five feet with two sample intervals in each boring.

SWMU: Drainage Ditch between APIS Evaporation Ponds and Neutralization Tank Evaporation Ponds (Inappropriately labeled as an Evaporation Pond in Previous Documents)

LOCATION: Figure 1, No. 24

C. CONTAMINATION CHARACTERIZATION: (Continued)

Sample Location (and depth):

Location is shown on attached figure. No photograph of the SWMU is available. Exact sampling location will be based on field observations. Recognizable points of discharge will be based on such criteria as:

1) stained soil
2) stressed vegetation
3) significant discharge patterns

Sample Collection Methods:

Five foot CME Tubes,backhoe, and/or hand auger

Contaminant Description; specific constituents to be quantified:

Skinner List Constituents

Plans if contamination is not adequately characterized after initial sampling and analysis:

If extent of contamination is not fully defined after initial sampling, additional sampling locations will be proposed.

SITE SPECIFIC RFI WORKPLAN
RCRA Facilities Investigation
Giant Refinery
Gallup, New Mexico

SWMU: Drainage Ditch between APIS Evaporation Ponds and Neutralization Tank Evaporation Ponds (Inappropriately labeled as an Evaporation Pond in Previous documents)

LOCATION: Figure 1, No. 24

D. LIST OF PARTICIPANTS:

Giant Industries Project Manager: Environmental Manager

Onsite Safety Coordintor: Safety Director

Contract Laboratory: ENSECO

Other Contractors:

Name _____

Work Task _____

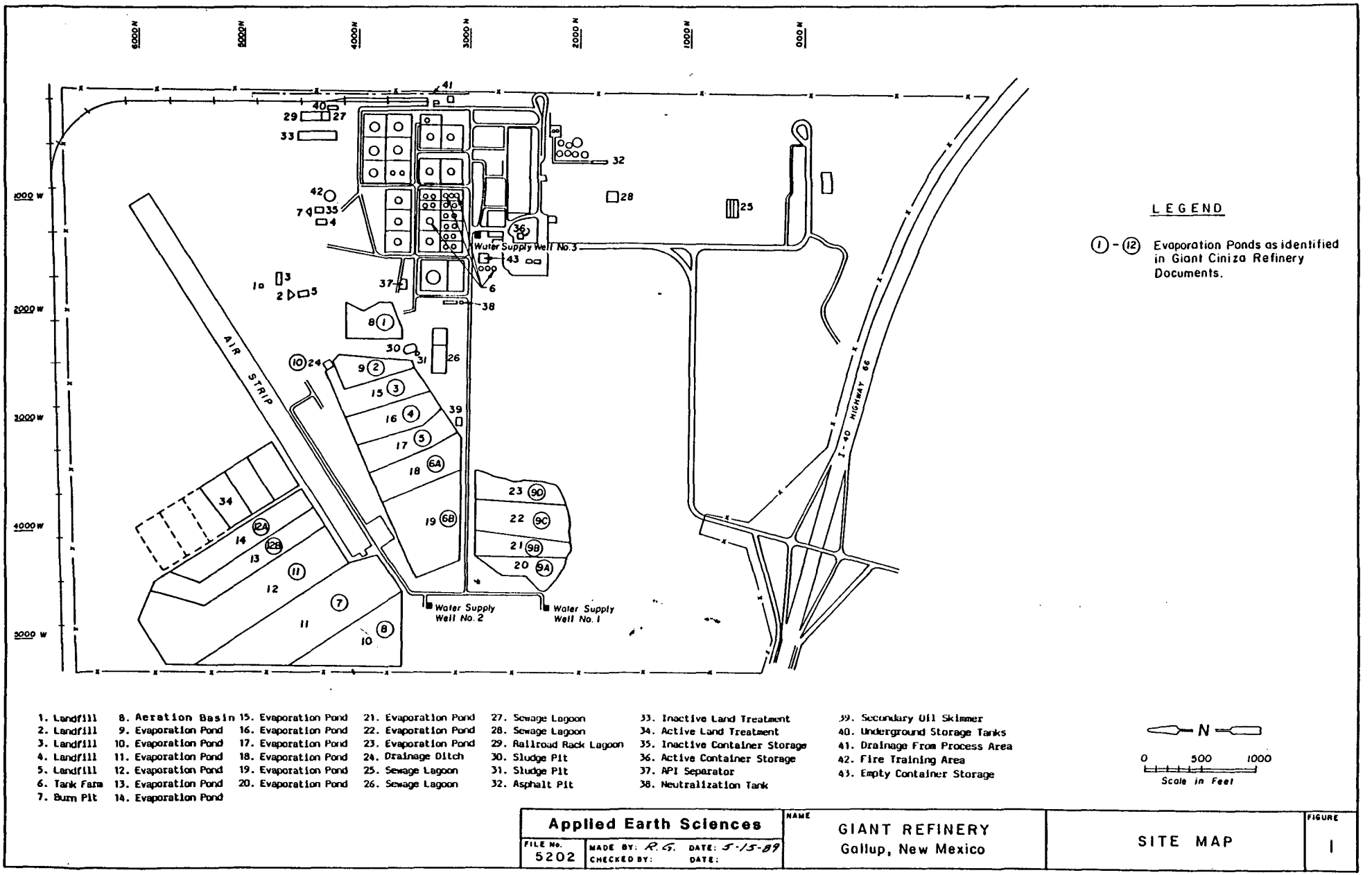
E. SCHEDULE

Completion of Release Verification - Six Months Following recommended sampling schedule

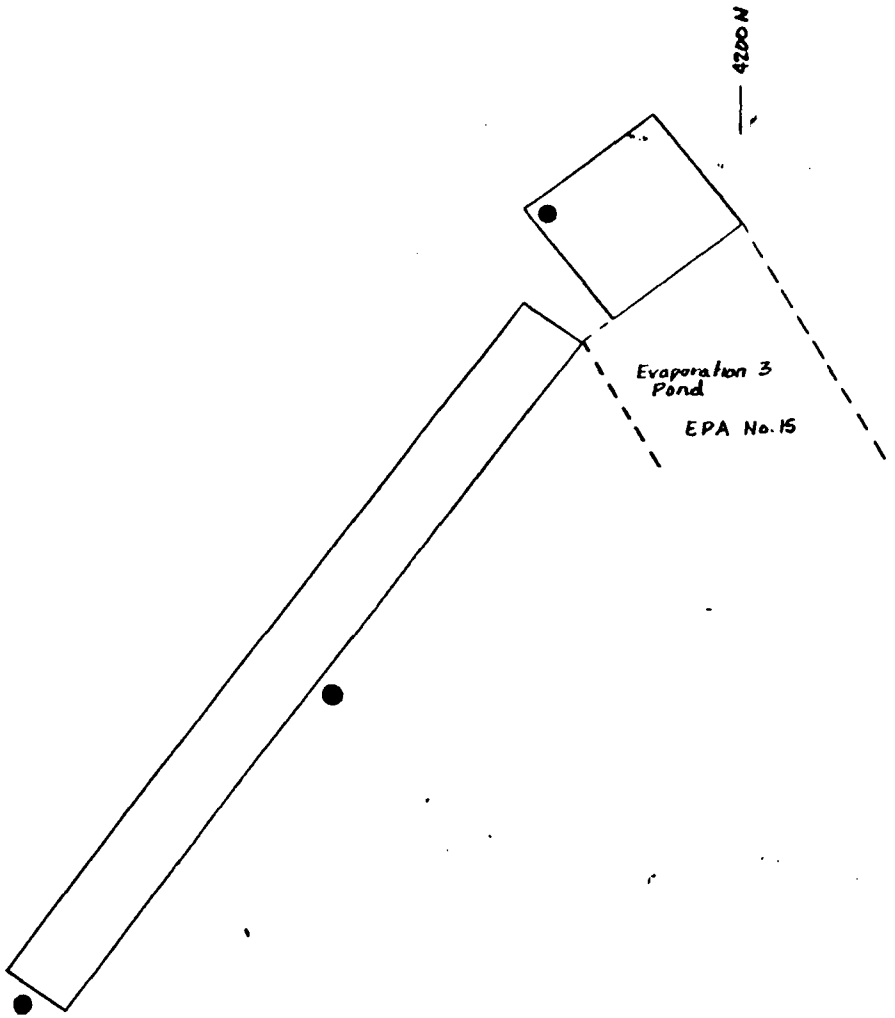
Completion of Source Characterization - Six Months Following recommended sampling schedule

Beginning Date of Contaminant Characterization -will comply with attached schedule

Draft Report Date - Approximately four months after completion of Field Work.



Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	SITE MAP	1



N

LEGEND

● Soil Boring Locations

20 10 0 20

Scale in Feet

GIANT REFINERY Gallup, New Mexico	Drainage Ditch Between API 5 and Neutralization Ponds	FIG

SITE SPECIFIC INVESTIGATION SCHEDULE

I. Phase I

SWMU #8- Railroad Rack Lagoon
SWMU #9- Inactive Land Treatment Area and Associated Drainage Ditch
SWMU #6- Tank Farm
SWMU #10- Two Sludge Pits
SWMU #12- Contact Wastewater Collection System

A. June 1990 - July 1990
Sample SWMU #6, SWMU #8, SWMU #9, and SWMU #10.

B. August 1990
Analytical received for item A

C. September 1990
Test a portion of the lines for SWMU #12

D. November 1990
Submit draft report to EPA for Phase I

E. January 1991
Submit final report to EPA for Phase I

II. Phase II

SWMU #1- Aeration Basin
SWMU #2- Evaporation Ponds
SWMU #13- Drainage Ditch between APIS Evaporation Ponds Neutralization Tank Evaporation Ponds

A. May 1991
Sample SWMU #1, SWMU #2, and SWMU #13

B. July 1991
Analytical received for item A

C. October 1991
Submit draft report to EPA for Phase II

D. December 1991
Submit final report to EPA for Phase II

III. Phase III

SWMU #3- Empty Container Storage Area
SWMU #4- Burn Pit
SWMU #5- Four Landfills
SWMU #7- Fire Training Area
SWMU #11- Secondary Oil Skimmer and Associated Drainage Ditch
SWMU #12- Contact Wastewater Collection System

A. May 1992
Sample SWMU #3, SWMU #4, SWMU #5, SWMU #7, and SWMU #11
Test the remainder of the lines for SWMU #12

B. July 1992
Analytical received for item A

C. October 1992
Submit draft report to EPA for Phase III

D. December 1992
Submit final report to EPA for Phase III

APPENDIX A

HSWA PERMIT
NMD00033211

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202

November 7, 1988

28

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

RE: Transmittal of Hazardous Waste Permit for Giant Refining Company
EPA I.D. Number NMD000333211

Dear Mr. Stokes:

Enclosed is a copy of your permit to operate a hazardous waste facility, under the Hazardous and Solid Waste Amendments of 1984 (HSWA). Also enclosed is EPA's response to comments from Giant Refining Company concerning the HSWA portion of the permit.

The New Mexico Environmental Improvement Division (NMEID) and the Environmental Protection Agency (EPA) have entered into a joint permitting agreement, whereby permits may be issued in New Mexico in accordance with the New Mexico Hazardous Waste Management Regulations, as well as HSWA. The agreement will remain effective until the State hazardous waste program receives authorization under the Resource Conservation and Recovery Act to administer HSWA. In order for an applicant to have a fully effective permit, both the NMEID and the EPA must issue a permit.

This letter transmits a copy of your HSWA permit with the necessary EPA signature for permit issuance. NMEID is sending you the permit issued by the State. The HSWA permit will be effective on the date indicated on the permit. The conditions of this HSWA permit may be appealed within 30 days of your receipt of this letter, pursuant to 40 CFR 124.19.

If you have any questions, please contact William K. Honker of my staff at (214) 655-6785.

Sincerely yours,

Allyn M. Davis

Allyn M. Davis
Director
Hazardous Waste Management Division

RECEIVED
NOV 14 1988
Giant Refining Co.
Ciniza Refinery

Enclosure

cc: Jack Ellvinger
New Mexico Environmental Improvement Division

RESPONSE TO COMMENTS
HSWA PERMIT
GIANT REFINING COMPANY
NMD000333211

I. Background Information

1. Facility Location: Route 3, Box 7, Gallup, New Mexico

2. Facility Activity and Waste Handling: Giant Refining Company operates a petroleum refinery which processes crude oil into fuels, kerosene and asphalt products. Hazardous waste generated at Giant are oily wastes typical of the refining industry. Wastes generated include slop oil emulsion solids, heat exchanger bundle cleaning sludge, API separator sludge and leaded tank bottoms. These wastes are land applied to a seven acre land treatment area which consists of three cells for degradation and immobilization of the hazardous constituents within the treatment zone.

3. Public Notice: The public notice of the proposed permit satisfied the public notice requirements specified in 40 CFR 124.17. The public notice announcement was published on August 28, 1988 in the Gallup Independent and broadcast on a radio station in the Gallup area. In addition, this announcement was sent to the facility appropriate State agencies, and interested parties. The public comment period closed on October 14, 1988.

II. Changes Made in Finalizing the HSWA Permit

Below are the changes which EPA made in the Giant HSWA draft permit.

1. Page 3; Condition A.5: The second sentence is changed to read, "Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of RCRA . . ."

2. Page 3; Condition A.9: This permit condition is corrected to reflect regulatory requirements and reads as follows: "In the event of noncompliance with this permit, the permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment."

3. Page 5; Condition A.13: The first sentence of this permit condition is changed to reflect regulatory requirements and reads as follows: "The Permittee shall maintain records to show compliance with the permit for at least three (3) years from the date of the sample, measurement, report, certification or application required by the conditions of this permit."

4. Page 6; Condition A.18: The first and last sentences of this condition have been revised to reflect the time period for reporting is calendar days. The first sentence reads, "A written submission shall also be provided within five (5) calendar days... The last sentence reads as follows, "The Permittee need not comply with the five day written notice requirement if the Regional Administrator waives that requirement and the Permittee submits a written report within fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances.

5. Page A-5; Task II.C.2: This condition has been clarified to specify the media of investigation. It reads as follows, "The Permittee shall conduct a Groundwater Investigation to characterize any plumes of contamination in the aquifer underneath the facility."

6. Page A-7; Task IV: The second sentence of the first paragraph is revised to read, "The Permittee shall analyze the technologies, based on literature review, vendor contacts, and past experience to determine the testing requirements."

7. Page A-8; Task V.B.4: This permit condition is clarified to read as follows: "Summaries of all contacts with representatives of the local community, public interest groups or State government during the reporting period regarding hazardous waste activities."

8. Page A-8; Task VI.B.7: This condition is clarified to read, "Changes in personnel involved in hazardous waste activities during the reporting period."

9. Page A-17; Task VIII.A.3: A typographical error is corrected in this condition, and the condition reads as follows: "Implementability-corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and"

III Significant HSWA Comments Received

No significant comments were raised during the public comment period. The only comments received were from Giant Refining Company. All comments were for clarification of language and correction of typographical errors in the draft permit.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION VI

HAZARDOUS WASTE PERMIT (HAZARDOUS AND SOLID WASTE AMENDMENTS, 1984)

PERMITTEE: Giant Refining Company

OWNER: Giant Refining Company

LOCATION: Giant Refinery

Route 3, Box 7

Gallup, New Mexico

ID NUMBER: NMD000333211

EFFECTIVE DATE: December 15, 1988

EXPIRATION DATE: December 15, 1998

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6901, et seq.) and the Hazardous and Solid Waste Amendments of 1984 (HSWA), a permit is issued to Giant Refining Company (hereafter called the Permittee) to operate a hazardous waste disposal facility at the location stated above.

The Permittee must comply with all the terms and conditions of this permit. This permit consists of the conditions contained herein (including the attachments). Said conditions are needed to insure that the permittee's hazardous waste management activities comply with all applicable, Federal, statutory and regulatory requirements. Applicable requirements are those which are found in, referenced in or incorporated into that version of the RCRA or the regulations promulgated pursuant to the RCRA that are in effect on the date this permit is issued. (See 40 CFR 270.32 (c).)

This permit is issued in part pursuant to the provisions of Sections 201, 202, 203, 206, 212, 215, and 224 of HSWA which modified Sections 3004 of RCRA. These require corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage, or disposal facility seeking a permit, regardless of the time at which the waste was placed in such unit and provide the authority to review and modify the permit at any time. The decision to issue this permit is based on the assumption that all information contained in the permit application is accurate and that the facility will be

operated as specified in the permit application. Any inaccuracies found in the information may be grounds for termination or modification of this permit (see 40 CFR 270.41, 270.42 and 270.43) and potential enforcement action.

Under Federal Law, this permit is effective on the effective date specified above unless a petition to the Administrator of the U.S. Environmental Protection Agency is filed in accordance with the requirements of 40 CFR 124.19.

Issued this 7th day of November, 1988

by Allyn M. Davis

Allyn M. Davis, Director
Hazardous Waste Management Division

CONTENTS

A. STANDARD

A.1 Effect of Permit.

The Permittee is allowed to manage hazardous waste in accordance with the conditions of this permit. Any treatment, storage, or disposal of any hazardous waste not authorized in this permit is prohibited. A full RCRA permit consists of this permit which addresses the provisions of the Hazardous and Solid Waste Amendments of 1984 (HSWA) and the State of New Mexico permit which addresses the portion of the RCRA program for which the State is authorized. Compliance with a full RCRA permit during its term of effectiveness will be considered compliance, for purposes of enforcement, with Subtitle C of the Resource Conservation and Recovery Act (RCRA), except for those requirements not included in the permit which become effective by statute, or which are promulgated under 40 CFR 268 restricting the placement of hazardous waste in or on the land. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under Section 7003 of RCRA (42 U.S.C. 6973), Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law governing protection of public health or the environment.

A.2 Permit Actions.

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR Parts 270.41, 270.42, 270.43, and in HSWA Section 212. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the permittee, does not stay the applicability or enforceability of any permit condition. Review of any application for a permit renewal shall consider improvements in the state of control and measurement technology as well as changes in applicable regulations.

A.3 Duration of Permit.

This permit is effective until the expiration date unless terminated, revoked, or reissued. This permit will be reviewed by EPA five (5) years after the effective date. At that time, this permit will be modified as necessary to ensure compliance with then current requirements.

A.4 Severability.

The provisions of this permit are severable. If any provision

of this permit is held invalid, the remainder of this permit shall not be affected thereby. If the application of any provision of this permit is held invalid, the application of such provision to other circumstances shall not be affected thereby.

A.5 Duty to Comply.

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of RCRA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.

A.6 Duty to Reapply.

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit a new application for a new permit at least one hundred eighty (180) days before this permit expires. In addition, the Permittee must submit, one hundred eighty (180) days prior to five (5) years from the effective date, any additional information and proposed process changes to modify this permit to ensure compliance with the current requirements and to consider improvements in the state of control and measurement technology.

A.7 Permit Expiration.

This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has complied with Permit Condition A.6 and through no fault of the Permittee, the Regional Administrator has not issued a new permit as set forth in 40 CFR Part 124.15.

A.8 Need To Halt Or Reduce Activity Not A Defense.

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

A.9 Duty to Mitigate.

In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

A.10 Proper Operation and Maintenance.

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, adequate spare parts inventory, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of a back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of the permit.

A.11 Duty to Provide Information.

The Permittee shall furnish to the Regional Administrator, within a reasonable time, any relevant information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

A.12 Inspection and Entry.

The Permittee shall allow the Regional Administrator, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

A.13 Retention of Records.

The Permittee shall maintain records to show compliance with this permit for at least three (3) years from the date of the sample, measurement, report, certification, or application required by the conditions of this permit. This time period is automatically extended during the course of any unresolved enforcement action. This time period may be extended at the request of the Regional Administrator at any time.

A.14 Notices of Planned Physical Facility Changes.

The Permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions of solid waste management units at the permitted facility. Physical alterations or additions shall include all hazardous and solid waste activities and underground tanks. Construction of new solid waste management units may not begin until a permit or permit modification has been issued.

A.15 Anticipated Noncompliance.

The Permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with HSWA permit requirements.

A.16 Transfer of Permits.

This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to 40 CFR Part 270.41(b)(2) or 270.42(d). Before transferring ownership or operation of the facility, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Part 264 and 40 CFR Part 270.

A.17 Twenty-four Hour Reporting of Hazardous Noncompliance.

The Permittee shall report to the Regional Administrator any noncompliance with this HSWA permit which may endanger human health or the environment. Any information shall be provided orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within twenty-four (24) hours:

(a) Information concerning release of any hazardous waste or constituents of hazardous waste that may cause an endangerment to public drinking water supplies; and

(b) Any information of a release or discharge of hazardous waste or constituents of hazardous waste,

or of a fire or explosion from the facility, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause shall include:

(i) Name, address, and telephone number of the owner or operator;

(ii) Name, address, and telephone number of the facility;

(iii) Date, time, and type of incident;

(iv) Name and quantity of material(s) involved;

(v) The extent of injuries, if any;

(vi) An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

(vii) Estimated quantity and disposition of recovered material that resulted from the incident.

A.18 Follow-up Written Report of Hazardous Noncompliance.

A written submission shall also be provided within five (5) calendar days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times), and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Permittee need not comply with the five day written notice requirement if the Regional Administrator waives that requirement and the Permittee submits a written report within fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances.

A.19 Other Noncompliance.

At the time monitoring reports are submitted, the Permittee shall report all other instances of noncompliance with HSWA permit conditions not otherwise required to be reported. The reports shall contain the information listed in Permit Condition A.17.

A.20 Other Information.

Where the Permittee becomes aware that he or she failed to

submit any relevant facts on solid waste management units in the permit application, or submitted incorrect information required by HSWA, or in any report to the Regional Administrator, the Permittee shall promptly submit such facts or information.

A.21 Signatory Requirement.

All reports or other information requested by the Regional Administrator shall be signed and certified according to 40 CFR Part 270.11.

B. SPECIFIC CONDITIONS

B.1 Specific Waste Ban and Waste Analysis

The permittee shall not land dispose any hazardous wastes restricted by 40 CFR 268 unless:

(a) the waste meets treatment standards specified in 40 CFR 268.40,41 42,or 43 (51 Federal Register 40642,11/7/86);

(b) a variance from the treatment standards has been granted pursuant to 40 CFR 268.44;

(c) a petition has been granted for a case-by-case extension to the effective date, pursuant to 40 CFR 268.5 (51 Federal Register 40639, 11/7/86);

(d) a "no-migration" petition has been granted pursuant to 40 CFR 268.6 (51 Federal Register 40640, 11/7/86); or

(e) the land treatment unit is exempt under 40 CFR 268.4 (51 Federal Register 40639, 11/7/86).

The Permittee shall modify the Waste Analysis Plan as appropriate to comply with the additional requirements of 40 CFR 268.7 (51 Fed. Reg. 40641 (November 7, 1986) as amended by 52 Fed.Reg. 21016 (June 4, 1987)). Changes to the Waste Analysis Plan will be processed as minor modifications to this permit, pursuant to 40 CFR 270.42.

B.2 Waste Minimization.

The permittee shall certify annually by October 1 for the previous year ending August 31:

(a) That the permittee has a program in place to reduce the volume and toxicity of all hazardous wastes which are generated by the permittee's facility's operation to the degree determined to be economically practicable; and

(b) That the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment.

The Permittee shall include this certification in the operating record.

B.3 Dust Suppression.

As stated in 40 CFR 266.23(b), the permittee shall not use waste or used oil, or other material which is contaminated with dioxin or other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment.

B.4 Solid Waste Management Units (SWMUs)

The permittee shall immediately notify the Regional Administrator of any release of hazardous waste or hazardous constituents that may have occurred from any Solid Waste Management Unit (SWMU) at the facility regardless of when the release occurred or may have occurred, and regardless of when the waste was placed in any unit. A release occurring from any SWMU will constitute grounds for a major permit modification as necessary to incorporate into the permit appropriate corrective action, or other actions as deemed necessary by the Regional Administrator. Pursuant to such permit modification the permittee shall then take timely corrective action for such releases. Also, if the permittee becomes aware of any SWMU not identified in the RCRA Facility Assessment Report dated August 25, 1987 the permittee must:

(a) immediately notify the Regional Administrator in accordance with condition A.19, and

(b) Within forty-five (45) days of becoming aware of Solid Waste Management Unit, submit a preliminary assessment of information regarding the SWMU(s) to determine if there has been or is currently a release from the unit(s). Information to be submitted shall be in accordance with 40 CFR 270.14(d), (52 FR 45799, December 1, 1987). The permittee is to contact the Regional Administrator for guidance regarding the required information to be submitted. Based upon this information, the Regional Administrator may modify this permit accordingly.

B.5 Definitions

(a) Release -
any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous waste.

(b) Solid waste management unit -
"any unit at the facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous wastes" (50 FR 278702, July 15, 1985). The SWMUs definition includes container storage units; tanks; surface impoundments; waste piles; land treatment units; landfills; incinerators; underground injection wells; physical, chemical and biological treatment units; recycling units; and areas contaminated by routine and systematic discharges from process areas.

C. CORRECTIVE ACTIONS

1. Requirements

This permit implements Section 3004(U) of RCRA (Section 206 of the Hazardous and Solid Waste Amendments of 1984) and Federal regulations promulgated as 40 CFR 264.101, requiring corrective action as necessary to protect human health and the environment from all releases of hazardous waste or hazardous constituents from any SWMU, regardless of when the waste was placed in the unit.

2. Terms, Procedures, Schedules

The Permittee shall undertake and complete each of the actions to the satisfaction of the Regional Administrator (RA) in accordance with the terms, procedures, and schedules which are set forth in permit condition C.5 (Corrective Action for Continuing Releases), and Attachment 1, Corrective Action Plan (CAP).

3. Workplans and Reports

The Permittee shall submit to the RA for review and approval the draft workplans and draft reports required by permit condition C.5 and by Task V and Task IX of the CAP. Upon the RA approval of such plans and reports, the plans and reports will become final and be incorporated into this permit. If the RA disapproves any portion of the plans or reports that portion disapproved shall be modified according to EPA comment. If the RA determines that any plans or reports are grossly deficient, the Permittee will be so notified and deemed to be in violation of this permit.

4. Certifications

Failure to submit the required information or falsification of any submitted information is grounds for termination of this permit 40 CFR 270.43. The permittee shall certify all information submitted as required by 40 CFR 270.11(d).

5. Corrective Action for Continuing Releases

This section of the permit requires the Permittee to perform a RCRA Facility Investigation (RFI) and Corrective Measures Study (CMS) to address releases from SWMUs to specified media (i.e., soil, groundwater, surface water, and air). The Permittee shall propose corrective measures as warranted by the results of the approved RFI Report and the approved CMS Report.

(a) Scope of Work for a RFI

(1) The Scope of Work for a RFI at Giant Refinery detailed on pages A-1 through A-9 in Attachment 1, attached to this permit, is hereby incorporated into this permit as though fully set forth herein. The scope of the RFI shall include the following units in the specified media:

(i) Aeration Basin - soil, groundwater, air

(ii) Evaporation Ponds - soils, groundwater, air

(iii) Tank Farm - soil, groundwater

(iv) Fire Training Area - soil, groundwater

(v) Empty Container Storage Area - soil, groundwater

(vi) Railroad Rack Lagoon - soil, groundwater, surface water

(vii) Four (4) Landfills - Release Verification

(viii) Burn Pit - Release Verification

(ix) Two (2) sludge Pits - Release Verification

(x) Inactive Land Treatment Area - Release Verification

(xi) Secondary Oil Skimmer and Associated Drainage Ditch - Release Verification

(xii) Contact Wastewater Collection System - Release Verification

(xiii) Drainage Ditch near the Inactive Land Treatment Area - Release Verification

(xiv) Drainage Ditch between APIS Evaporation Ponds and Neutralizaton Tank Evaporation Ponds - Release Verification.

(2) The Permittee shall submit all plans and reports required by the RFI to the RA and the Director of the New Mexico Environmental Improvement Division (Director) according to the schedule detailed as Facility Submission Summary, page A-9 of Attachment 1, under the Scope of Work for a RCRA Facility Investigation.

(3) The Permittee shall prepare the RFI Work Plan and undertake the facility investigations in accordance with the following:

(i) Development of the RFI Work Plan and reporting of data shall be in accordance with EPA 530/SW-87-001, RFI Guidance;

(ii) The RA and the Director reserve the right to split samples. The Permittee shall notify the RA and the Director at least 10 days prior to any sampling activity;

(iii) Any deviations from the approved RFI Work Plan which are necessary during the facility investigation shall be fully documented and described in the quarterly reports and in the draft RFI report.

(b) Scope of Work for a CMS

(1) The Scope of Work for a CMS at Giant Refinery detailed in pages A-10 through A-19 in Attachment 1, attached to this permit is hereby incorporated into this permit as though fully set forth herein.

(2) If the RA determines the need for corrective measures based on the results of the approved RFI Report, RA will notify the permittee of this in writing. The Permittee shall submit all plans and reports required by the CMS to the RA and the Director according to the schedule detailed as Facility Submission Summary, page A-19 of Attachment 1, under Scope of Work for a Corrective Measures Study.

D. SCHEDULES OF COMPLIANCE

1. All plans and reports required in permit condition C., CORRECTIVE ACTIONS, shall contain time schedules for including interim milestones for completing specified activities. The time between interim milestones shall not exceed one year.

2. Extensions of the due date for submittals may be granted, by the RA based on the permittee's written request demonstrating that sufficient justification for the extension exists.

3. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) calendar days following each schedule date as required by 40 CFR 270.30 (1) (5)

4. Any failure by the permittee to adhere to the milestones established in the approved RFI Work Plan, RFI Schedule, or the CMS Schedule shall constitute a violation of this permit.

5. The Permittee shall submit a copy of all draft and final plans and draft and final reports to the Director at the time such plans and reports are submitted to the RA.

E. PERMIT MODIFICATION

If the RA finds that corrective measures are warranted after the approval of the RFI Report and CMS Report, the RA will propose a permit modification to this permit to incorporate corrective measures designed to protect human health and the environment from releases of hazardous waste or constituents released from SWMU(s) at the facility. The permit will be modified pursuant to 40 CFR 270.41 and will include financial assurance for corrective measures implementation as required by 40 CFR 264.101.

Attachment 1

Corrective Action Plan

CAP

SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION (RFI)

GIANT REFINING COMPANY

PURPOSE

The purpose of this RCRA Facility Investigation is to verify and determine the nature and extent of releases of hazardous waste or constituents from solid waste management units, and to gather all necessary data to support the Corrective Measures Study. The permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA Facility Investigation at Giant Refining Company. The Permittee shall follow this Scope of Work in conducting the RFI. If the Permittee believes that certain requirements are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided.

SCOPE

The RCRA Facility Investigation consists of five tasks:

Task I: RFI Workplan Requirements

- A. Data Collection Quality Assurance Plan
- B. Data Management Plan
- C. Health and Safety Plan
- D. Community Relations Plan

Task II: Facility Investigation

- A. Release Verification
- B. Source Characterization
- C. Contamination Characterization
- D. Potential Receptor Identification

Task III: Investigation Analysis

- A. Data Analysis
- B. Protection Standards

Task IV: Laboratory and Bench-Scale Studies

Task V: Reports

- A. Preliminary and Workplan
- B. Progress
- C. Draft and Final

TASK I: RFI WORKPLAN REQUIREMENTS

The Permittee shall prepare a RCRA Facility Investigation (RFI) Workplan. This RFI Workplan shall include the development of several plans, which shall be prepared concurrently. The RFI Workplan includes the following:

A. Data Collection Quality Assurance Plan

The Permittee shall prepare a plan to document all monitoring procedures so as to ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following:

a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

b. Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;

2. Sampling and Field Measurements

The Sampling Field Measurements Section of the Data Collection Quality Assurance Plan shall at least discuss:

a. Selecting appropriate sampling and field measurements locations, depths, etc.;

b. Providing a statistically sufficient number of sampling and field measurements sites;

c. Determining conditions under which sampling or field measurements should be conducted;

d. Determining which parameters are to be measured and where;

e. Selecting the frequency of sampling and length of sampling period;

f. Selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected;

g. Measures to be taken to prevent contamination of sampling or field measurements equipment and cross contamination between sampling points;

h. Documenting field sampling operations and procedures.

i. Selecting appropriate sample containers;

j. Sample preservation; and

k. Chain-of-custody.

3. Sample Analysis

   a. Chain-of-custody procedures;

   b. Sample storage procedures and holding times;

   c. Sample preparation methods;

   d. Analytical procedures;

   e. Calibration procedures and frequency;

   f. Data reduction, validation and reporting; and

   g. Internal quality control checks, laboratory performance and systems audits and frequency.

B. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

2. Tabular Displays

3. Graphical Displays

C. Health and Safety Plan

D. Community Relations Plan

The Permittee shall prepare a plan, for the dissemination of information to the public regarding investigation activities and results.

TASK II: FACILITY INVESTIGATION

The Permittee shall conduct those investigations necessary to: define the source (Source Characterization); define the degree and extent of contamination (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of technical quality that will support the development and evaluation of the corrective measure alternative or alternatives during the Corrective Measures Study.

The facility investigation activities shall follow the plans set forth in Task I. All sampling and analyses shall be conducted in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Release Verification

The Permittee shall collect analytical data to identify the location and sources of suspected releases associated with the SWMUs designated in permit condition C.5(a)(1). The data shall be of adequate technical quality and detail to support the development of unit or source specific plans to further characterize any confirmed releases.

B. Source Characterization

The Permittee shall collect analytical data to completely characterize the wastes and the areas where wastes have been placed, including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineered barriers). This shall include quantification of the following specific characteristics, at each SWMU and for each media listed in Task II.C.

1. Unit/Disposal Area characteristics:

    a. Location of unit/disposal area;
    b. Type of unit/disposal area;
    c. Design features;
    d. Operating practices (past and present);
    e. Period of operation;
    f. Age of unit/disposal area;
    g. General physical conditions; and
    h. Method used to close the unit/disposal area.

2. Waste Characteristics:

    a. Type of waste placed in the unit;
    b. Physical and chemical characteristics; and
    c. Migration and dispersal characteristics of the waste.

The Permittee shall document the procedures used in making the above determinations.

C. Contamination Characterization

The Permittee shall collect analytical data on soils in the vicinity of the facility. This data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes. Data shall include time and location of sampling, media sampled, concentrations found, and conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility for the units designated for that media in permit condition C.5(a)(1):

1. Soil Contamination

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release. The investigation shall include the following information:

a. A description of the vertical and horizontal extent of contamination.

b. A description of contaminant and soil chemical properties within the contaminant source area and plume.

c. Specific contaminant concentrations.

d. The velocity and direction of contaminant movement.

e. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations.

2. Groundwater Contamination

The Permittee shall conduct a Ground-water Investigation to characterize any plumes of contamination in the aquifer underneath the facility. This investigation shall at a minimum provide the following information:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;

b. The horizontal and vertical direction of contamination movement;

c. The velocity of contaminant movement;

d. The horizontal and vertical concentration profiles of Appendix IX constituents in the plume(s);

e. An evaluation of factors influencing the plume movement; and

f. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

3. Surface-Water Contamination

The permittee shall conduct surface-water investigation to characterize contamination in surface-water bodies resulting from contaminant releases at the facility. The investigation shall include the following:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plumes originating from the facility, and the extent of contamination in underlying sediments.

b. The horizontal and vertical direction and velocity of contaminant movement;

c. An evaluation of the physical, biological, and chemical factors influencing contaminant movement;

d. An extrapolation of future contaminant movement; and

e. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, and specific contaminant concentrations.

The permittee shall document the procedures used in making the above determinations.

4. Air Contamination

The permittee shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere. The investigation shall provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of release; and

c. The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

The permittee shall document the procedures used in making the above determinations

D. Potential Receptors

The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples may be needed. Data on observable effects in ecosystems may also need to be obtained.

TASK III: INVESTIGATION ANALYSIS

The Permittee shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g, quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study.

A. Data Analysis

The Permittee shall analyze all facility investigation data outlined in Task II and prepare a report on the type and extent of contamination at the facility including sources and migration pathways. The report shall describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area.

B. Relevant Protection Standards

The Permittee shall identify all relevant and applicable standards for the protection of human health and the environment (e.g. National Ambient Air Quality Standards, Federally-approved state water quality standards, etc.).

TASK IV: LABORATORY AND BENCH-SCALE STUDIES

The Permittee shall conduct laboratory and/or bench scale studies to determine the applicability of a corrective measure technology or technologies to any contamination plumes identified in Task III above. The Permittee shall analyze the technologies, based on literature review, vendor contacts, and past experience to determine the testing requirements.

The Permittee shall develop a testing plan identifying the types(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

TASK V: REPORTS

A. Workplan

The Permittee shall submit to the RA the RCRA Facility Investigation Workplan (Task I) as described in the Permit.

B. Progress

The Permittee shall at a minimum provide the RA with signed, quarterly progress reports containing:

1. A description and estimate of the percentage of the RFI completed;

2. Summaries of all findings;

3. Summaries of all changes made in the RFI during the reporting period;

4. Summaries of all contacts with representatives of the local community, public interest groups or State government during the reporting period regarding hazardous waste activities.

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken to rectify problems;

7. Changes in personnel involved in hazardous waste activities during the reporting period;

8. Projected work for the next reporting period; and

C. Draft and Final

The RCRA Facility Investigation Report shall be developed in draft form for the RA's review. The RCRA Facility Investigation Report shall be developed in final format incorporating comments received on the Draft RCRA Facility Investigation Report.

Five copies of all reports, required by this permit including the Task I workplan and both the Draft and Final RCRA Facility Investigation Reports (Task II-III) and the Laboratory and Bench Scale Studies (Task IV) report shall be provided by the Permittee to the RA.

FACILITY SUBMISSION SUMMARY

A summary of the information reporting requirements contained in the RCRA Facility Investigation Scope of Work is presented below:

Facility Submission	Due Date
RFI Workplan (Task I)	90 days after the written notification from the RA Approval
Draft RFI Report (Tasks II and III)	According to the schedule in the approved RFI Workplan
Final RFI Report (Tasks II and III)	30 days after EPA comment on Draft RFI Report
Laboratory and Bench-Scale Studies (Task IV)	Concurrent with Final RFI Report

SCOPE WORK FOR A CORRECTIVE MEASURE STUDY (CMS)

GIANT REFINING COMPANY

PURPOSE

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at Giant Refining Company. The permittee will furnish the personnel, materials, and services necessary to prepare the corrective measure study, except as otherwise specified.

SCOPE

The Corrective Measure Study consists of four tasks:

Task VI: Identification and Development of the Corrective Measure Alternative or Alternatives

- A. Description of Current Situation
- B. Establishment of Corrective Action Objectives
- C. Screening of Corrective Measures Technologies
- D. Identification of the Corrective Measure Alternative or Alternatives

Task VII: Evaluation of the Corrective Measure Alternative or Alternatives

- A. Technical/Environmental/Human Health/Institutional
- B. Cost Estimate

Task VIII: Justification and Recommendation of the Corrective Measure or Measures

- A. Technical
- B. Human Health
- C. Environmental

Task IX: Reports

- A. Draft
- B. Final

TASK VI: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation the Permittee shall identify, screen and develop the alternative or alternatives for removal, containment treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. The Permittee shall make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee, in conjunction with the RA, shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RCRA Facility Investigation, EPA guidance, and the requirements of any applicable Federal statutes.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RCRA Facility Investigation to identify technologies which are applicable at the facility. The Permittee shall screen corrective measure technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations. Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

   Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternatives

The Permittee shall develop the corrective measure alternatives based on the corrective action objectives. The Permittee shall rely on engineering practice to determine which of technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies in the development of the alternative.

TASK VII: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR ALTERNATIVES

The Permittee shall describe each corrective measure alternative that passes through the Initial Screening in Task VI and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall address applicable cost estimates described in Task VII.B in developing cost estimates for each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical:

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

a. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

i) Operation and maintenance requirement include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Permittee should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

i) Constructability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities, and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental:

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short-and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health:

The Permittee shall assess each alternative in terms of the extent of which it mitigates short and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants onsite, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to the RA.

4. Institutional:

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, State and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and direct (nonconstruction and overhead) costs.

a. Direct capital costs include:

i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.

ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

iv) Buildings and services costs; Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

i) Engineering expenses; Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:

   a. Operating labor costs; Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operation;

   b. Maintenance materials and labor costs; Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

   c. Auxillary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

   d. Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

   e. Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operation;

   f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

   g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies and permit renewal and reporting costs;

   h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

   i. Other costs: Items that do not fit any of the above categories.

TASK VIII: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The Administrative Authority will select the corrective measure alternative or alternatives to be implemented based on the results of Tasks VII and VIII. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance-corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and have proven effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing U.S. EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

TASK IX: REPORTS

The Permittee shall prepare a Corrective Measure Study Report presenting the results of Task VI through VIII and recommending a corrective measure alternative. Five (5) copies of the report shall be provided to the RA by the Permittee.

A. Draft Corrective Measures Study Report

The Report shall at a minimum include:

1. A description of the facility;

   a. Site topographic map & preliminary layouts.

2. A summary of the corrective measure or measures;

   a. Description of the corrective measure or measures and rationale for selection;

   b. Performance expectations;

   c. Preliminary design criteria and rationale;

   d. General operation and maintenance requirements; and

   e. Long-term monitoring requirements

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;

   a. Field studies (groundwater, surface water, soil, air); and

   b. Laboratory studies (bench scale, pick scale)

4. Design and Implementation Precautions;

   a. Special technical problems;

   b. Additional engineering data required;

   c. Permits and regulatory requirements;

   d. Access, easements, right-of-way;

   e. Health and safety requirements; and

   f. Community relations activities.

5. Cost Estimates and Schedules;

   a. Capital cost estimate;

   b. Operation and maintenance cost estimate; and

   c. Project schedule (design, construction, operation).

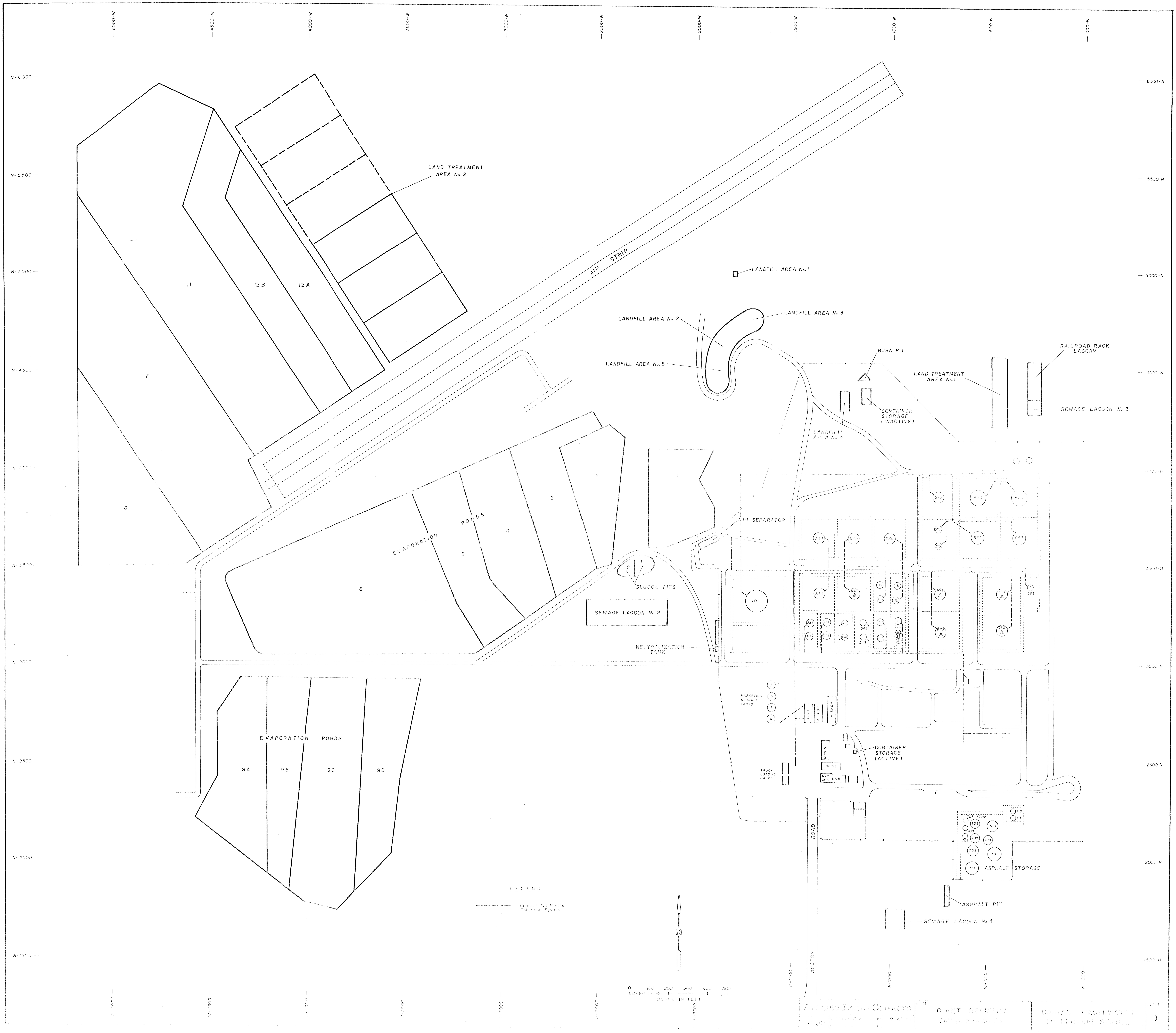
B. Final Report

The Permittee shall finalize the Corrective Measure Study Report incorporating comments received from the RA on the Draft Corrective Measure Study Report.

FACILITY SUBMISSION SUMMARY

A summary of the information reporting requirements contained in the Corrective Measures Study Scope of Work is presented below:

Facility Submission	Due Date
Draft CMS Report (Tasks VI, VII, and VIII)	90 days after written notification from the RA
Final CMS Report (Tasks VI, VII, and VIII)	30 days after EPA comment on the Draft CMS Report



LAND TREATMENT AREA No. 2
AIR STRIP
11
12 B
12 A
7
8
LANDFILL AREA No. 1
LANDFILL AREA No. 2
LANDFILL AREA No. 3
LANDFILL AREA No. 5
LANDFILL AREA No. 4
BURN PIT
CONTAINER STORAGE (INACTIVE)
LAND TREATMENT AREA No. 1
RAILROAD RACK LAGOON
SEWAGE LAGOON No. 3
EVAPORATION PONDS
1
2
3
4
5
6
API SEPARATOR
SLUDGE PITS
SEWAGE LAGOON No. 2
NEUTRALIZATION TANK
101
MARKETING STORAGE TANKS
LUBE
M. SHOP
W. SHOP
W. WHSE
WHSE
MKT OFF.
LAB
TRUCK LOADING RACKS
CONTAINER STORAGE (ACTIVE)
OFFICE
ROAD
ACCESS
ASPHALT STORAGE
ASPHALT PIT
SEWAGE LAGOON No. 4
EVAPORATION PONDS
9A
9B
9C
9D
LEGEND
Contact Wastewater Collection System
N
0 100 200 300 400 500
SCALE IN FEET
GIANT REFINERY
Gallup, New Mexico
PLATE 1