



GARY E. JOHNSON  
GOVERNOR

*State of New Mexico*  
**ENVIRONMENT DEPARTMENT**  
*Hazardous & Radioactive Materials Bureau*  
2044 Galisteo  
P.O. Box 26110  
Santa Fe, New Mexico 87502  
(505) 827-1557  
Fax (505) 827-1544



MARK E. WEIDLER  
SECRETARY

EDGAR T. THORNTON, III  
DEPUTY SECRETARY

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

February 12, 1996

Mr. David C. Pavlich  
Health, Safety and Environmental Manager  
Giant Refining Company  
Route 3, Box 7  
Gallup, NM 87301

Dear Mr. Pavlich,

**RE: Approval of Class I Permit Modification Request for change of Financial Assurance from Letter of Credit to Financial Test and Corporate Guarantee**

The New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) is in receipt of the January 5, 1996 permit modification fee assessed in HRMB's December 7, 1995 letter to Giant Refining Company (Giant).

HRMB has completed a review of Giant's Permit Modification request for administrative completeness and found it to be complete. The request is for change of Financial Assurance from Letter of Credit to Financial Test and Corporate Guarantee. NMED hereby approves Giant's Class I permit modification request. The effective date of approval is Giant's date of receipt of this letter. Giant is required to incorporate the enclosed copy of the new financial assurance mechanism into Giant's copy of the Operating Permit EPA ID #000333211-2 originally issued by NMED. Further, Giant is required to send a notice of the modification to all persons on the enclosed facility mailing list. This notification must be made within 90 (ninety) calendar days after the change is put into effect in compliance with 20 NMAC 4.1, Subpart IX, 40 CFR § 270.42(a)(ii).

As per request of the January 18, 1996 letter from Giant, HRMB is returning the Letter of Credit number LASB-221968 issued by Bank of America. This Letter is now unnecessary due to Giant's change to the mechanism of financial test and corporate guarantee.

Mr. David C. Pavlich  
February 12, 1996  
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If there are any questions please feel free to contact either  
Barbara Hoditschek or Michael Chacón at (505) 827-1561.

Sincerely,



Ed Kelley, Ph.D.  
Director, Water and Waste Management Division

Enclosures

cc: Benito J. Garcia, Chief, HRMB  
Barbara Hoditschek, RCRA Program Manager  
David Neleigh, EPA (6H-PN)  
Bob Sweeney, RCRA TCP  
Eloise Kubota, Bank of America, w/enclosure  
File-Reading and Red 96

**GIANT REFINING COMPANY**

**CINIZA REFINERY**

**RESOURCE CONSERVATION AND RECOVERY ACT**

**PERMIT NMD 000333211-2**

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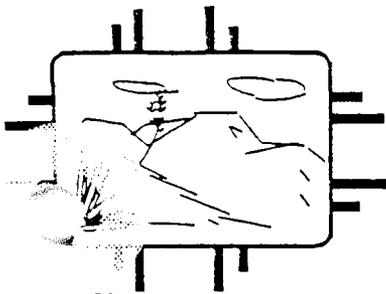
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NEW MEXICO  
HEALTH AND ENVIRONMENT  
DEPARTMENT

ENVIRONMENTAL IMPROVEMENT DIVISION  
Harold Runnels Bldg.-1190 St. Francis Drive  
Santa Fe, New Mexico 87503

Richard Mitzelfelt  
Director

GARREY CARRUTHERS  
Governor  
CARLA L. MUTH  
Secretary  
MICHAEL J. BURKHART  
Deputy Secretary

CERTIFIED MAIL P-484 098 963  
RETURN RECEIPT REQUESTED

February 17, 1989

Mr. John J. Stokes  
Refinery Manager  
Giant Refining Co.  
Rt. 3, Box 7  
Gallup, NM 87301

RECEIVED  
FEB 22 1989  
Giant Refining Co.  
Ciniza Refinery

RE: NMD 000333211

Dear Mr. Stokes:

In compliance with the Environmental Improvement Board order of February 10, 1989, your refinery operating permit NMD 000333211-2 is hereby modified by the revision of Permit Attachment F and Permit Attachment G. Enclosed you will find the modified attachments, marked NMD 000333211-2A. These attachments totally replace the attachments F and G included with my letter of November 4, 1988, "RCRA Operating Permit".

Please note in my "Response to Comments" of November 4, 1988, paragraphs 1.8 and 2.8 on page seven, that Giant was reminded that financial surety must be updated prior to the permit going into effect. If Giant does not have proper surety documentation on file with the Environmental Improvement Division within 30 days of receipt of this correspondence, I will have no alternative but to consider revocation of the permit. Please give this issue your immediate attention. Upon receipt of the surety documentation we will notify you of the effective date of the permit.

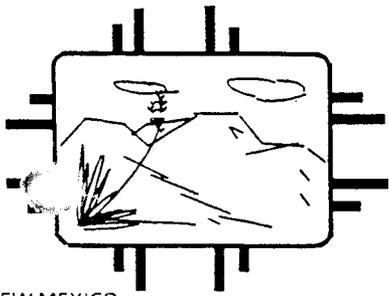
If you have any questions please call Mr. C. Kelley Crossman on my staff at 827-2923.

Sincerely,

Richard Mitzelfelt  
Director

RM:CKC:pv

cc: Janie Hernandez, EPA (6H-HS)



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DEPARTMENT

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Richard Mitzelfelt  
Director

GARREY CARRUTHERS  
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Secretary  
MICHAEL J. BURKHART  
Deputy Secretary

November 29, 1988

Mr. Robert McClenahan  
Giant Refining Co.  
Rt. 3, Box 7  
Gallup, NM 87301

RE: NMD 000333211-2

Dear Mr. McClenahan:

As we discussed on November 28, 1988, I wish to clarify the meaning of the first sentence in the second paragraph, Section 1.2., page 2 of Permit Attachment F. The subject sentence begins "At closure time, all vessels, exchangers, towers...". The key to understanding the meaning of this sentence is the phrase within it, "... wastes classified as hazardous..." and HWMR-5, Part II, Section 261.4(c). It is not the intention of the State that the refinery needs to cease production as a part of closure of the land treatment area (LTA), unless the company intends to close the refinery proper. The regulatory cite above clarifies that the devices cited in the closure plan are only subject to the plan when they contain wastes. Thus, active production need not be stopped solely for closure of the LTA. It is considered likely that closure of the LTA will occur in conjunction with a change from a disposal facility to a generator only, not closure of the refinery itself. The cited sentence however, would also apply in this latter circumstance, should Giant choose to totally close.

You also inquired about the cite to HWMR-5, Part V, Section 264.119 in Permit Attachment F, Section 1.2.1.4. on page 4. The regulatory cite you suggested, HWMR-5, Part V, Section 264.276, applies to growth of food chain crops during the active life of the LTA, not after closure. If Giant wishes to grow such vegetation after closure, then the proper demonstration in accordance with your cited section must be made. The closure plan does not contemplate crop growth since this was not suggested by Giant, nor has the demonstration been made. Thus the outright prohibition in the closure plan and the cite of section 264.119. Should Giant desire to explore this option, a modification to the closure plan should be requested. See HWMR-5, Part V, Section 264.118.

Mr. Robert McClenahan  
November 29, 1988  
Page Two

Finally, you inquired about the use of a 60 centibar standard in Permit Attachment F, Section 2.1.4., page 16. This reference to a minimum soil moisture necessary for plant growth is based on our best estimate of that needed to sustain, without irrigation, the planted cover. Should operational data be acquired which will show that other values are more appropriate, the EID will certainly consider such a change, either as a post-closure plan modification or during the post-closure care permit process. In the same sentence, the bi-monthly irrigation plan is conditional "... may be necessary..", based on our current knowledge. Thus this sentence could certainly be revised if additional data become available.

I trust that the above explanation of the intent of the subject sentences resolved your concern. If you have any questions please call me at (505) 827-2923.

Sincerely,

  
C. Kelley Crossman  
Permitting Supervisor  
Hazardous Waste Section

CKC/pv

**GIANT REFINING COMPANY**

**CINIZA REFINERY**

**RESOURCE CONSERVATION AND RECOVERY ACT**

**PERMIT NMD 000333211-2**

# Hazardous Waste Facility Permit

PERMITTEE:  
Giant Refining Company

ID NUMBER:  
NMD 000333211

LOCATION: East Interstate Highway 40  
Gallup, New Mexico 87301

PERMIT NUMBER:  
NMD 000333211-2

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 New Mexico Hazardous Waste Act (Section 74-4-4.2 NMSA, 1978, as amended 1987) a permit is issued to Giant Refining Company (hereafter called the Permittee) to operate a land treatment unit at the location stated above, further identified as Sections 28 and 33, Township 15 North, Range 15 West, New Mexico Prime Meridian.

The Permittee must comply with all the terms and conditions of this permit. This permit consists of the conditions contained herein including the attachments. Applicable provisions of regulations cited are those which are in effect on the date of issuance of this permit, New Mexico Hazardous Waste Management Regulations (HWMR-5). This permit shall become effective in accordance with HWMR-5, Part IX, Sections 902.F. and 902.G. and shall run for a period of ten years.

This permit is based on the provisions of HWMR-5. This permit is also based on the assumption that all information contained in the land treatment 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 the termination or modification of this permit and potential enforcement action.

Signed this fourth day of November, 1988

by Richard Mitzelfelt  
Richard Mitzelfelt, Director

New Mexico  
Health and Environment Department  
Environmental Improvement Division

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MODULE I  
STANDARD CONDITIONS

A. EFFECT OF PERMIT

The Permittee is allowed to treat and dispose of hazardous waste in accordance with the conditions of this permit. Any treatment or disposal of hazardous waste not authorized in this permit is prohibited. Compliance with this permit constitutes compliance, for purposes of enforcement, with the New Mexico Hazardous Waste Act (Section 74-4-1 et seq. NMSA, 1978, as amended, 1987) and the New Mexico Hazardous Waste Management Regulations (HWMR-5). A complete Resource Conservation and Recovery Act (RCRA) permit consists of this permit and a US EPA permit issued under the provision of the Hazardous and Solid Waste Amendments of 1984 (HSWA) which addresses the portion of the RCRA program for which the state is not authorized. 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. 6974), Section 206(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), Sections 74-4-1 et seq. NMSA 1978, (as amended 1987), or any other law governing protection of public health or the environment.

B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in HWMR-5, Part IX, Sections 270.30(f) and 270.43. 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 improvement in the state of control and measurement technology as well as changes in applicable regulations.

C. REVIEW OF PERMIT

In accordance with HWMR-5, Part IX, Section 270.50(d), this permit shall be reviewed by the Director or his representative five (5) years after the effective date. At that time, this permit may be modified, suspended, revoked, or terminated pursuant to HWMR-5, Part IX, Section 902.B.2. Nothing in permit paragraph I.C. limits any permit action allowed by statute or regulation, or as provided elsewhere in this permit.

NOV 93

D. SEVERABILITY

The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply. The permittee shall comply, in accordance with HWMR-5, Part IX, Section 270.30(a), 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 the New Mexico Hazardous Waste Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.
2. Duty to Reapply. In accordance with HWMR-5, Part IX, Section 270.30(b), if the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee shall submit a complete application for a new permit at least 180 days before this permit expires.
3. Permit Extension. This permit and all conditions herein shall expire at the end of ten years after the effective date. If the Permittee has applied for a renewal in accordance with permit paragraph I.E.2. above, the extension provisions of HWMR-5, Part IX, Section 270.51 apply.
4. Need to Halt or Reduce Activity Not a Defense. In accordance with HWMR-5, Part IX, Section 270.30(c), 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.
5. Duty to Mitigate. In accordance with HWMR-5, Part IX, Section 270.30(d), the Permittee shall take all reasonable steps to minimize or correct any adverse impact on human health or the environment resulting from noncompliance with this permit.
6. Proper Operation and Maintenance. In accordance with HWMR-5, Part IX, Section 270.30(e), 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, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. Duty to Provide Information. In accordance with HWMR-5, Part IX, Section 270.30(h), the Permittee shall furnish to the Director, within a reasonable time, any relevant information which he 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 Director, upon request, copies of records required to be kept by this permit.
8. Inspection and Entry. In accordance with HWMR-5, Part IX, Section 270.30(i), the Permittee shall allow the Director or any 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 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 facility, 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 purpose of assuring permit compliance or as otherwise authorized by the New Mexico Hazardous Waste Act, any substances or parameters at any location.
9. Monitoring. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be accepted and appropriate method such as described in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, 1986, as revised, or equivalent. Laboratory methods must be specified in SW-846, as revised; Standard Methods for the Examination of Water and Wastewater, Fifteenth Edition, 1980 and 1981 Supplement, or current edition; or an equivalent method as specified in Permit Attachment A.
10. Notice of Planned Physical Facility Changes. The Permittee shall give notice to the Director, as soon as possible, of any planned physical alteration or additions to the permitted facility.

Physical alterations or additions shall include all changes to hazardous and solid waste activities, and the addition of any underground tanks. Construction of new units may not begin until a permit or permit modification has been issued.

11. Certification of Construction or Modification. The Permittee may not commence treatment or disposal of waste at the modified facility until:
  - a. The Permittee has submitted to the Director, by certified mail or hand delivery, a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
  - b. (i) The Director or his designee has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or  
(ii) The Director, or his designee, has either waived the inspection or has not, within 15 days, notified the Permittee of his intent to inspect.
12. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
13. Transfer of Permit. This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to HWMR-5, Part IX, Section 270.40. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of HWMR-5 and HSWA.
14. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in Attachment H. to this permit shall be submitted no later than 14 calendar days following each schedule date.
15. Other Information. Whenever the permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the Permittee shall promptly submit such facts or information. The term "Permit Application" includes any information submitted on solid waste management units.

F. SIGNATORY REQUIREMENTS

All reports or other information requested by the Director shall be signed and certified as required by HWMR-5, Part IX, Section 270.11.

G. CONFIDENTIAL INFORMATION

The Permittee may claim confidential, in accordance with HWMR-5, Part IX, Section 270.12, any information required to be submitted by this permit.

H. DOCUMENTS TO BE MAINTAINED AT FACILITY

The Permittee shall maintain at the facility, until closure certification is accepted by the EID, the following documents and amendments, revisions, and modifications to these documents:

1. This Permit and its attachments;
2. Waste Analysis Plan required by HWMR-5, Part V, Section 264.13 and this permit;
3. Personnel training documents and records required by HWMR-5, Part V, Section 264.16 and this permit;
4. Contingency Plan required by HWMR-5, Part V, Section 264.51 and this permit;
5. Closure Plan required by HWMR-5, Part V, Section 264.112 and this permit;
6. Cost estimate for facility closure required by HWMR-5, Part V, Section 264.142 and this permit;
7. Operating record required by HWMR-5, Part V, Section 264.73 and this permit;
8. Inspection schedules required by HWMR-5, Part V, Section 264.15 and this permit; and
9. Post-Closure Plan required by HWMR-5, Part V, Section 264.118. and this permit.

I. PERMIT CONSTRUCTION

1. Cites. Whenever paragraphs of this permit or of the Hazardous Waste Management Regulations are cited, such cite includes all subordinate sections of the cited paragraph. When subordinate sections are cited, such cite includes all subsections of the cited subparagraph, but not preceding subsections. All such cites shall be considered an inclusion by reference in accordance with HWMR-5, Part IX, Section 270.32(e).
2. Gender. Whenever the pronoun "he" is used in reference to the Director of the Environmental Improvement Division or the Permittee, it is to be read as "she" in any instance where the object of the reference is female.

3. Definitions. The definitions promulgated in HWMR-5, Part I and Part IX, Section 270.2, shall apply to words used in this permit.

MODULE II  
GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF THE FACILITY

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release to air, soil or surface water of hazardous waste constituents which could threaten human health or the environment.

B. REQUIRED NOTICE

1. Foreign Wastes. This permit does not allow the Permittee to accept wastes from a foreign source. If the Permittee is to receive hazardous waste from a foreign source, he shall apply for and receive a permit modification in accordance with HWMR-5, Part IX, Section 270.41, if appropriate, prior to accepting such waste.
2. Off-Site Wastes. This permit does not allow the Permittee to accept regulated wastes from an off-site source. If the Permittee is to receive hazardous waste from an off-site source he shall apply for and receive a permit modification in accordance with HWMR-5, Part IX, Section 270.41, as appropriate, prior to accepting such waste.

C. WASTE ANALYSIS

1. Waste Analysis Plan. The Permittee shall follow the procedures described in Permit Attachment A., with the addition of permit paragraph II.C.3 below.
2. Quality Assurance. The Permittee shall verify his waste analysis as part of his quality assurance program. The quality assurance program shall be in accordance with current accepted practices such as specified in Test Methods for Evaluating Solid Waste: Physical/Chemical methods, SW-846, 1986, as revised, or equivalent methods approved by the Director; and at a minimum, shall ensure that the Permittee maintains proper functional instruments, uses approved sampling and analytical methods, verifies the validity of sampling and analytical procedures, and performs correct calculations.
3. Reanalysis. All wastes listed in permit paragraph III.B. below shall be reanalyzed biennially. Whenever the refinery process(es) or feedstock source(s) change, affected listed wastes shall be reanalyzed. All parameters in Table A.3 of Permit Attachment A. shall

be included in any reanalysis.

D. SECURITY

The Permittee shall comply with the security provisions described in Permit Attachment B.

E. INSPECTION REQUIREMENTS

The Permittee shall follow Permit Attachment C. and shall remedy any deterioration or malfunction of equipment of structure discovered by an inspection as required by HWMR-5, Part V, Section 264.15(c).

F. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by HWMR-5, Part V, Section 264.16. This training program shall follow Permit Attachment D. The training manual shall be updated, whenever necessary, so as to remain current and accurate. A dated copy of the revised training program will be submitted to the Director for the permit files and permit modification in accordance with HWMR-5, Part IX, Section 270.42. prior to its implementation.

G. REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of HWMR-5, Part V, Section 264.17.

H. PREPAREDNESS AND PREVENTION

1. Required Equipment. At a minimum, the Permittee shall equip the facility with the equipment set forth in Permit Attachments C. and E.
2. Testing and Maintenance of Equipment. The Permittee shall maintain the equipment specified in permit paragraph II.H.1. above as necessary to assure its proper operation in time of emergency.
3. Access to Communications or Alarm System. The Permittee shall maintain access to the communication or alarm system as required in HWMR-5, Part V, Section 264.34.

I. CONTINGENCY PLAN

1. Implementation of the Plan. The Permittee shall carry out the provisions of Permit Attachment E and HWMR-5, Part V, Section 264.56 whenever there is a fire, explosion, or release of hazardous waste or constituents from the hazardous waste management facility which threatens or could threaten human health or the environment.
2. Amendment of the Plan. The Permittee shall review as required by HWMR-5, Part V, Section 264.54, and immediately amend, if necessary, the Contingency Plan.

3. Copies of the Plan. The Permittee shall comply with the requirements of HWMR-5, Part V, Section 264.53. A dated copy of any amended contingency plan will be submitted to the Director for the permit files and permit modification in accordance with HWMR-5, Part IX, Section 270.42 prior to its implementation.
4. Emergency Coordinator. The Permittee shall comply with the requirements of HWMR-5, Part V, Section 264.55 concerning the emergency coordinator.

J. MANIFEST SYSTEM

The Permittee shall comply with the manifest requirements of HWMR-5, Part V, Sections 264.71 and 264.72 for any hazardous wastes received by the Permittee or shipped off-site for treatment, storage, or disposal.

K. RECORDKEEPING AND REPORTING

1. Facility Operating Record.

- a. In accordance with HWMR-5, Part V, Section 264.73, the Permittee shall maintain at the facility until closure, a written record of waste, soil, decontamination wash water, groundwater, and soil pore-moisture analyses. The following information shall be recorded:
  - (i) The dates, exact place, and times of sampling or measurements;
  - (ii) The individual who performed the sampling or measurements;
  - (iii) The dates analyses were performed;
  - (iv) The individuals who performed the analyses;
  - (v) The analytical techniques or methods used; and
  - (vi) The results of such analyses.
- b. The Permittee shall maintain at the facility until the end of the post-closure care period, a written record of waste disposal activities. The following information shall be recorded:
  - (i) Waste description;
  - (ii) Disposal date;
  - (iii) Quantity disposed;
  - (iv) Disposal location
- c. The Permittee shall maintain at the facility a written record of

Contingency Plan implementation reports. The record shall contain at least the information required in permit paragraph II K.2.b. below. The records shall be kept until certification of closure.

- d. The Permittee shall keep at the facility a written record of all inspections conducted in accordance with Permit Attachment C. These records shall be maintained for a minimum period of three years from the date of the last action taken as a result of the inspection.
- e. The Permittee shall keep at the facility a record of landfarm pH and nutrient analysis and adjustment. The date and amount of soil nutrients added and date and method of pH adjustment shall be recorded. Soil moisture measurements and adjustments shall be recorded.
- f. The Permittee shall keep at the facility training documents and records as required by HWMR-5, Part V, Sections 264.16(d) and 264.16(e). Records of training shall be kept on all current employees until closure certification and for three years after an employee leaves the facility, unless transferred within the company. Training records of transferred employees will be handled in accordance with company policy.
- g. The Permittee shall keep at the facility the current closure and post-closure cost estimates. The date of the estimate shall be recorded with the estimate. Previous estimates need not be retained.
- h. The Permittee shall maintain at the facility a copy of all biennial reports submitted in accordance with permit paragraph II.K.2 below. These copies shall be kept until the end of the post- closure care period.
- i. The retention period for all records required by this permit is extended automatically during the course of any unresolved enforcement action regarding the facility, or directed by the Director.

2. Reports.

- a. The Permittee shall comply with the Biennial Report requirements of HWMR-5, Part V, Section 264.75.
- b. In accordance with HWMR-5, Part V, Section 264.56 and Part IX, Section 270.30(1)(6), the Permittee shall report to the Director any noncompliance with the permit which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the permittee becomes aware of the circumstances. This report shall include the following:

- (i) Information concerning the release of any hazardous waste which may endanger public or private drinking water supplies.
- (ii) Information concerning the release or discharge of any hazardous waste, or of a fire or explosion at the hazardous waste management facility, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause shall include:
  - (a) Name, address, and telephone number of the owner or operator;
  - (b) Name, address, and telephone number of the facility;
  - (c) Date, time and type of incident;
  - (d) Name and quantity of materials involved;
  - (e) The extent of injuries, if any;
  - (f) An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and
  - (g) Estimated quantity and disposition of recovered material that resulted from the incident.

The 24-hour report shall be made by calling (505) 827-2929 during normal duty hours, or (505) 827-9329, the 24-hour emergency line after hours.

- c. The Permittee shall provide to the Director within five (5) working days of the time the Permittee becomes aware of the circumstances, a written report on the event(s) reported orally in permit paragraph II.K.2.b above. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times) whether the noncompliance has been corrected; and if not, 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 Director waives the requirement and the Permittee submits a written report with fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances. The written report shall be submitted by certified mail to:

EID Director  
Harold Runnels Building  
1190 St. Francis  
Santa Fe, NM 87503

- d. The Permittee shall notify the Director in writing within seven days of determining that there has been a statistically significant increase, or pH decrease, for any unsaturated zone or ground water monitoring parameter. The notification shall summarize the sampling data history for the parameter(s) exhibiting the reportable change.
  - e. If the Permittee chooses to exercise the ground water monitoring variance provisions of HWMR-5, Part V, Sections 264.98(i) or 264.99(j), the reporting requirements of those sections shall be met.
  - f. Additional reports described by HWMR-5, Part V, Section 264.100(g) shall be submitted if required.
  - g. The Permittee shall provide to the Director revised cost estimates for closure care within seven (7) calendar days of the date of the revision. Annual revisions for inflation shall include the inflation factor used to calculate the new estimate.
  - h. The Permittee shall provide to the Director the documentation appropriate to the financial assurance option selected for closure in accordance with HWMR-5, Part V, Section 264.143; post-closure in accordance with HWMR-5, Part V, Section 264.145; and liability in accordance with HWMR-5, Part V, Section 264.147. Current documentation shall be incorporated into Permit Attachment I by permit modification in accordance with HWMR-5, Part IX, Section 270.42.
  - i. Other Noncompliance. The Permittee shall report all other instances of noncompliance not otherwise required to be reported above, at the time monitoring reports required by this permit are submitted. The reports shall contain the information listed in permit paragraph II.K.2.b. above.
  - j. The Permittee shall annually report the ground water monitoring results in accordance with Permit Attachment G.
  - k. The Permittee shall submit the required additional data in accordance with permit Attachment H.
3. Post-Closure Period Records and Reports.
- a. The person holding the position of Environmental Coordinator for the Permittee, or his successor title, during the post-closure care period until issue of a post-closure care permit, will keep a record of all post-closure inspections, repairs, sampling, analysis results, and cost estimates. The record shall also contain the determination of significant increase calculations for the monitoring data and annual determination of ground water flow rate and direction.

- b. The results of monitoring analyses will be reported to the EID within 30 calendar days of their receipt by the Permittee.

L. CLOSURE

1. Performance Standard. The Permittee shall close the facility as required by HWMR-5, Part V, Section 264.111 and in accordance with the Closure Plan, Permit Attachment F.
2. Amendment of Closure Plan. The Permittee shall amend Permit Attachment F. in accordance with HWMR-5, Part V, Section 264.112(c) whenever necessary.
3. Notification of Closure. The Permittee shall notify the Director at least 60 days prior to the date he expects to begin closure.
4. Time Allowed For Closure. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste in accordance with the schedule specified in Permit Attachment F. The Permittee shall complete closure activities in accordance with the schedule specified in Permit Attachment F.
5. Disposal or Decontamination of Equipment. The Permittee shall properly dispose of or decontaminate all facility equipment as required by Permit Attachment F.
6. Certification of Closure. The Permittee shall certify that the facility has been closed in accordance with the specifications in Permit Attachment F. within sixty days of closure.

M. COST ESTIMATE FOR FACILITY CLOSURE

1. Annual Adjustment. The Permittee must adjust for inflation, in accordance with HWMR-5, Part V, Section 264.142(b) the closure cost estimate.
2. Plan Changes. The Permittee must revise, in accordance with HWMR-5, Part V, Section 264.142(c), the closure cost estimate whenever there is a change in the facility's Closure Plan.

N. FINANCIAL ASSURANCE FOR FACILITY CLOSURE

The Permittee shall demonstrate continuous compliance with HWMR-5, Part V, Section 264.143 by providing documentation of financial assurance, in the format required by HWMR-5, Part V, Section 264.151, in at least the amount of the cost estimates required by permit paragraph II.M. above. Changes in the financial assurance mechanism must be approved by the Director before they are effective. Any assurance method authorized by HWMR-5, Part V, Section 264.143 may be used.

O. POST CLOSURE

1. Post-closure Plan. The Permittee shall maintain the Post-Closure Plan, Permit Attachment F, in accordance with HWMR-5, Part V, Sections 264.117, 264.118, 264.119 and 264.120.
2. Financial Assurance. The Permittee shall provide, in accordance with the HWMR-5, Part V, Sections 264.144 and 264.145, financial assurance for post-closure activities. Whenever the Post Closure Plan is amended, raising the Post-Closure cost estimate, the financial assurance shall be similarly adjusted, if necessary, to cover the cost estimate. Changes in the financial assurance mechanism must be approved by the Director before they are effective. Any assurance method authorized by HWMR-5, Part V, Section 264.145 may be used.
3. Implementation. The Post-Closure Plan shall be implemented upon closure completion by Giant and followed until final action on a post-closure care permit is taken by the Director.

P. LIABILITY REQUIREMENTS

The Permittee shall demonstrate continuous compliance with the requirements of HWMR-5, Part V, Section 264.147 and the documentation requirements of HWMR-5, Part V, Section 264.151, including the requirements to have and maintain liability coverage for sudden and non-sudden occurrences. Any assurance method authorized by HWMR-5, Part V, Section 264.147 may be used.

Q. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS.

The Permittee shall comply with HWMR-5, Part V, Section 264.148 whenever necessary.

R. GROUND WATER PROTECTION

The Permittee shall follow the ground water protection program described in Permit Attachment G.

1. Hazardous Constituents. The Permittee shall monitor at the indicated frequency the constituents given in Tables G-2 and G-3 of Permit Attachment G.
2. Ground Water Protection Standard. The maximum concentrations of hazardous constituents in the ground water at the point of compliance shall not exceed the values provided in Tables G-2 and G-3 of Permit Attachment G or as measured at the upgradient well MW-4.
3. Point of Compliance. The ground water protection standard in permit paragraph II.R.2. above shall apply at an imaginary vertical intercept with the first aquifer (the Sonsela, which is approximately 100 feet deep) along a line drawn through wells MW-1, MW-2 and MW-5.
4. Compliance Period. The compliance period shall begin when the detection monitoring program indicates an increase above background

concentration of any parameter listed in Permit Attachment G, Tables G-2 or G-3 in any down gradient well. An increase is defined in permit paragraph III.L.2. below. The change may be established by one resample and reanalysis for the parameter of concern. All sampling and analyses shall be done in accordance with Permit Attachment G. The compliance period shall end when specified by the Director.

5. Background Groundwater Quality. The background water quality standard concentrations are as listed in Permit Attachment G or as measured from the upgradient well OW-11 or until a new background well is installed in accordance with Permit Attachment H. The stipulated values may be adjusted by the Director as sufficient data are acquired to establish new background concentrations.

S. SPILLS

The Permittee shall take corrective action, as required by Section 74-4-4.2.B. NMSA 1978 (as amended), for all releases of hazardous wastes or constituents from any solid waste management unit at his facility. Corrective action may include, but shall not be limited to, the following: decontamination and/or removal of all releases, spills and leaks; immediate cleanup of release or spillage of hazardous waste, or constituent residue or listed chemicals which become wastes; prevention of surface-water or ground water contamination which could result from a release or spill; and, cleanup of any surface-water or ground water contamination which results from a release or spill.

T. PROHIBITION ON CROPS

The Permittee shall not allow food chain crops to be planted or grown on the land treatment area.

MODULE III  
SPECIFIC CONDITIONS FOR THE OPERATING PERIOD

A. PERMITTED TREATMENT UNIT

The Permittee is authorized to operate the land treatment area (LTA), which consists of three cells and a total of 7 acres, located as shown on Figure III.2, subject to the limitations described below. All hazardous waste treatment activities are to be confined to the authorized unit. The unit may be subdivided into three approximately equal cells.

B. AUTHORIZED WASTES

The Permittee is authorized to manage hazardous wastes listed in the application and described herein, subject to the limitations provided herein. Wastes include only those generated by Giant Industries activities. Hazardous wastes are limited to those within the Hazard Code Groups indicated below:

1. Hazard Code Groups. (Described in HWMR-5, Part II, Subpart C):

- |      |   |
|------|---|
| D001 | Ignitable materials generated by refinery operations, specifically filter clay from kerosene filters, unleaded fuels tank bottoms and soils contaminated by petroleum product spills occurring within the refinery grounds. Specifically excluded are spent degreasing solvents used within the plant and waste lubricants generated by refinery equipment and vehicles. A maximum of 50 tons of wastes annually. |
| D007 | Cooling Water Filter Sludge. A maximum of five tons annually.   |

2. Listed wastes. (Described in HWMR-5, Part II, Section 261.32):

- |      |   |
|------|---|
| K049 | Slop oil emulsion solids from slop oil tanks. A maximum of 200 tons of wastes annually. |
| K050 | Heat exchanger bundle cleaning sludge wastes. A maximum of 15 tons annually.            |
| K051 | API Separator sludge from the on-site separators. A maximum of 1000 tons annually.      |
| K052 | Tank bottoms (leaded) from leaded fuel tanks. A maximum of                              |

5 tons annually of newly generated wastes.

3. Hazardous Constituents to be Degraded. The constituents listed in Table III-1 shall be degraded, transformed or immobilized within the treatment zone.
4. Non-Hazardous Wastes. Soils and/or liquids contaminated with non-regulated hydrocarbon wastes from Giant Industries offsite activities may be land treated subject to the provisions of this permit so long as total hydrocarbon loading of the land treatment area is not exceeded.

C. RUN-ON AND RUN-OFF CONTROL SYSTEMS

The waste treatment areas shall be designed and constructed, operated, maintained, and managed to prevent washout of any hazardous waste and to prevent inundation of and discharges from the permitted unit. At a minimum, the Permittee shall maintain around the permitted unit a continuous dike which has a crest elevation of at least 3.0 feet above natural grade.

D. DECONTAMINATION OF EQUIPMENT

The Permittee shall ensure that any equipment or vehicles which have come in contact with wastes in the disposal area have been decontaminated prior to their movement out of the hazardous waste management facility. At a minimum, all contaminated vehicles shall have their undercarriages and tires or tracks washed, with all washing sufficient to prevent contamination of uncontaminated areas. All rinsewater shall be collected and routed to the plant's API separator or spread on the LTA in such a manner as to not allow ponding or leaking of hazardous constituents from the LTA.

E. LAND TREATMENT UNIT DESIGN

1. Flood Protection.

- a. The Permittee shall operate and maintain a run-on control system capable of preventing flow onto the treatment zone during peak discharge from at least a 100-year, 24-hour storm.
- b. The Permittee shall operate and maintain a run-off management system to collect and control at least the stormwater volume resulting from a 100-year, 24-hour storm.
- c. In order to maintain the design capacity of the run-on and run-off control systems, the Permittee shall ensure that any collection and holding facilities associated with the systems will be emptied or otherwise managed expeditiously after storms.
- d. The Permittee shall ensure that dike valves, piping and storm water pumps, if any, associated with the run-off collection

system are maintained in good functional condition at all times.

2. Treatment Zone. The land treatment zone for the permitted treatment unit shall meet the following design specifications:
  - a. A treatment zone depth not greater than 5 feet (1.524 meters) from the original soil surface, and
  - b. The maximum depth of the treatment zone shall be at least 3 feet (0.914 meter) above the seasonal high water table.
  - c. The zone of incorporation (ZOI) shall be the upper 12 inches of the treatment zone.

F. LAND TREATMENT UNIT OPERATION REQUIREMENTS

1. Standards. The Permittee shall establish and follow a written land treatment program that will ensure that the land treatment unit, when operated and monitored in accordance with the operating conditions specified in this permit, will meet the following performance standards:
  - a. All hazardous constituents placed in or on the treatment zone must be degraded, transformed, or immobilized within the treatment zone, and
  - b. The treatment program shall include a soil-core and soil-pore liquid monitoring plan that ensures that sampling results provide a reliable indication of the chemical makeup and the soil-pore liquid quality of the soil within and below the treatment zone.
2. Conditions. The Permittee shall operate and maintain the landfarm in accordance with the following conditions:
  - a. The unit shall receive an annual waste application maximum amount of 1275 tons of hazardous waste, distributed over the treatment areas so as to not exceed 10% by weight of oils and greases anywhere in the ZOI at any time. If non-regulated wastes are applied to the regulated unit, the total oil and grease load shall not exceed these limits.
  - b. The waste application frequency to any one cell's surface shall not exceed the maximum loading as shown in Table III-2.
  - c. Oily refinery waste liquids shall be collected from the various generation points by a vacuum truck or other suitable vehicle. Wastes will be evenly spread without significant pooling on to the surface of the LTA. The wastes will be incorporated into the soil at a maximum depth of 12 inches. The LTA will be twice tilled after each application with the waste mixed into the ZOI.

- d. Oily refinery waste solids may be collected and transported to the disposal area by open truck. If the material is dry enough to be dispersed during transit it shall be covered or wetted sufficiently to control dusting. Solid wastes shall be spread evenly on the LTA in three inch or less thickness layers. After spreading, the solid waste will be twice tilled into the ZOI.
- e. The active landfarm cell shall be tilled at least once per month during the degradation season, April 1 through October 31. Each time the cell is tilled, the material shall be turned and leveled. This frequency may be increased, as necessary, to enhance microbial or chemical reactions.
- f. Upon approval of this permit, and semi-annually thereafter, soil pH shall be determined. If the pH is less than 6.0, calcium oxide, or a suitable equivalent, shall be incorporated into the soil to achieve a pH range between 6.0 and 9.0. If the pH is greater than 9.0., hydrochloric acid, or a suitable equivalent, shall be added to the soil to achieve a pH range between 6.0 and 9.0 EPA Manual SW-846 procedure 9045 shall be used to determine soil pH.
- g. Land treatment plots shall be inspected, at least weekly, to determine if moisture control measures are necessary. The plots shall be tilled, as necessary, to eliminate excessive moisture or wetted with water to minimize wind dispersal of particulate matter. Soil moisture shall be maintained between 40 and 100 centibars, on a tensiometer installed at a depth of five and one-half feet, during the degradation season, April 1 through October 31, to maintain biological degradation within the ZOI.
- h. The carbon:nitrogen:phosphorus (C:N:P:) ratio in the ZOI shall be maintained, as necessary, to be sufficient to maintain degradation and to enhance microbial and chemical reactions within the treatment zone. The C:N:P: ratio in the ZOI shall be analyzed semi-annually.
- i. The landfarm surface elevation shall be surveyed biennially and the run-on/run-off dike elevation maintained as specified in permit paragraph III.C. above. The dike shall be reconstructed as necessary to maintain a minimum of 3 feet elevation above natural grade outside the LTA and at least 2 feet above the LTA surface.

G. SOIL-CORE MONITORING

The Permittee shall follow a soil-core monitoring plan in accordance with permit paragraph III.F.1.b. above which requires that the permittee completes, at a minimum, the following actions:

1. Applicability. The treatment unit described in permit paragraph III.A. above shall be sampled as specified below.

2. Sample Selection. Four soil core samples from the LTA ZOI shall be taken bimonthly during the degradation season, April 1 through October 31. Four soil core samples from the LTA shall be taken semi-annually from the unsaturated zone immediately below the treatment zone (BTZ). The sample locations shall be randomly selected using EPA-approved procedures. Soil cores shall not be selected within one foot of previously cored locations nor within three feet of lysimeter locations. Samples shall not be composited before analysis.
3. Analyses Parameters. ZOI samples shall be analyzed for total oil and grease to track loading rates. BTZ samples shall be analyzed for moisture content, pH, total organic carbon and the following constituents: ethyl benzene, m-xylene, o & p-xylene, o-cresol, m & p-cresol, pyrene, phenanthrene, 1-methylnaphthalene, benzo(a)pyrene, and chrysene. If the latter organic analyses show a statistically significant increase over background or previous samples, further analyses for the parameters in Table III.2 shall be performed.
4. Analytical Methods. EPA-approved analytical procedures shall be used for all analyses.
5. Commencement. The operational monitoring program for the LTA shall commence upon the effective date of this permit.
6. Corehole Backfill. All soil coreholes shall be back-filled to the surface with bentonite.

#### H. SOIL PORE-MOISTURE MONITORING

The Permittee shall follow a written soil-pore liquid monitoring plan in accordance with permit paragraph III.F.1.b. above which requires that the Permittee completes, at a minimum, the following actions:

1. Tensiometers. The land treatment unit shall be equipped with a minimum of one manometer tensiometer, or equivalent. The tensiometer shall be read as often as necessary, but no less than weekly, to determine the moisture content of the soil and to determine if a soil-pore liquid sample can be obtained. All tensiometer readings shall be entered in the facility records.
2. Lysimeters.
  - a. A minimum of two lysimeters locations shall be randomly selected in each active cell of the LTA. Two or more lysimeters may be installed at each location for reliability. The lysimeter installed for the land treatment demonstration may be used for this requirement if the sampling leads are reinstalled in accordance with the guidance below.
  - b. The bottom of the lysimeter shall be no greater than six inches below the bottom of the treatment zone. The lysimeter shall be

designed and installed according to the procedure as described in EPA/530-SW-86-040.

3. Duration. Throughout the operating life of the unit, the Permittee shall continue to determine the soil-pore liquid quality of the soil below the treatment zone. For purposes of this paragraph, the operating life shall end on the 91st day after the last waste application is made or after the Permittee has designed a date for implementation of Closure Plan, whichever is later.
  - a. Soil-pore liquid samples shall be collected quarterly from the lysimeter if moisture is present. The Permittee may determine the specific timing of sample collection based upon the permeability of the soil horizons within the treatment zone and information obtained from the tensiometer(s).
  - b. Soil-pore liquid samples shall be analyzed for the parameters specified in Table 3-2. *Modified parameters 3-2 T.C.*
  - c. The Permittee shall maintain aerobic conditions within each lysimeter by weekly removing any accumulated liquid in the bottom of the lysimeter.
  - d. The sample collected from multiple lysimeters installed at one location may be composited. If a sufficient volume of soil-pore liquid cannot be generated from a lysimeter array for analysis after a waste application or 0.5 inch precipitation event, the ability of that lysimeter to collect a leachate sample shall be determined within 30 calendar days of the attempted sampling event. The result of any testing shall be reported to the Director within 7 calendar days.
4. Lysimeter Replacement. If a lysimeter array is determined to be nonfunctional, a new location shall be selected and a new installation made, as in permit paragraph III.H.2. above, in time for the next sampling cycle.

I. GROUNDWATER MONITORING

The Permittee shall conduct groundwater monitoring in accordance with Permit Attachment G.

J. CHAIN OF CUSTODY

The Permittee shall assure through a chain of custody program that the possession and handling of ground water, soil-core and soil pore-liquid monitoring samples can be traced from the time of collection through analysis and final disposition. At a minimum, the program shall conform to the chain of custody program details described in Section 1.3 (Documentation of Chain of Custody) of Test Methods of Evaluating Solid Waste (SW-846) published by the EPA. The chain of custody program shall include the use of: sample labels, sample seals, a field log book, a chain

of custody record, samples analysis request sheets, and a laboratory log book.

K. QUALITY ASSURANCE/QUALITY CONTROL

The Permittee shall assure that the analyses required by this permit are performed in a laboratory which uses a quality control/quality assurance program which ensures that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented. A knowledgeable person who is not directly involved in the sampling or analysis must be assigned the responsibility of ensuring that the program details are properly implemented. At a minimum, the laboratory shall conform to the quality control/quality assurance program details described in Section Ten (Quality Control/Quality Assurance) of Test Methods for Evaluating Solid waste (SW-846) published by the U. S. Environmental Protection Agency (EPA) and the specific analytical methods referred by this permit. The Permittee shall maintain a copy of the quality control/quality assurance program at the facility. This program shall be updated to include current EPA-approved programs or techniques as they are developed.

L. STATISTICAL METHODS

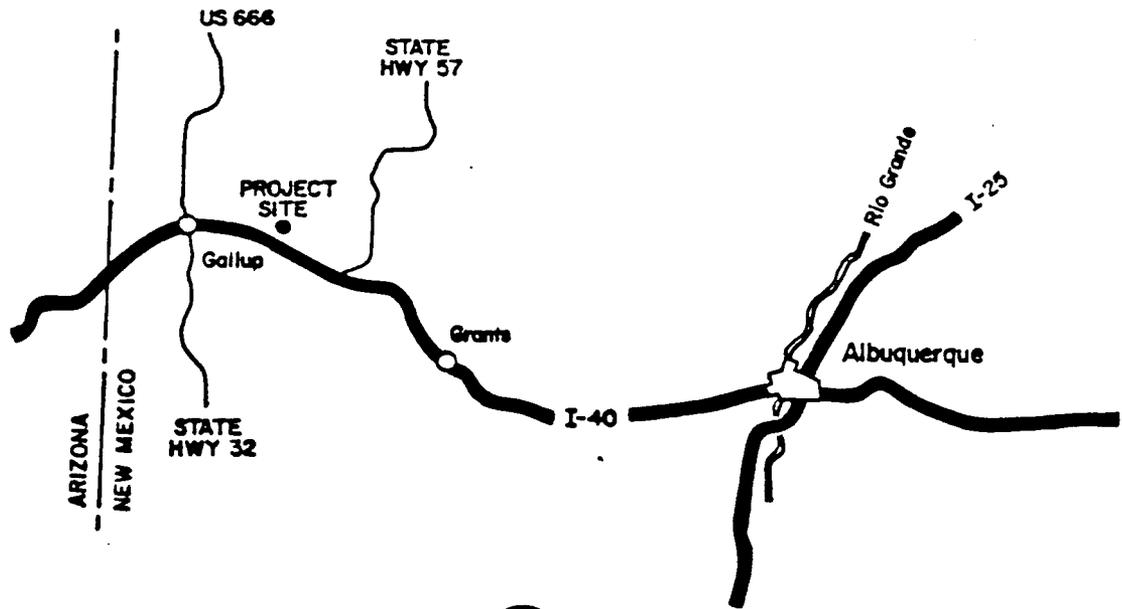
1. Frequency. The Permittee shall determine whether there has been a statistically significant change over background values for any hazardous constituent identified in Table III-2 or III-3, either in the ground water or below the treatment zone each time soil-core, soil pore liquid, and ground water sampling and analysis is conducted.
2. Approved Method. In determining whether a statistically significant increase has occurred, the Permittee shall use the Cochran's approximation to the Behrens-Fisher Student's T-test, HWMR-5, Part V, Appendix IV. In addition, data from an individual well or lysimeter shall be deemed to show a significant trend if four consecutive sampling events show an increase in concentration of any specific parameter, even if the t-test criterion above is not met.

M. PERMIT MODIFICATION

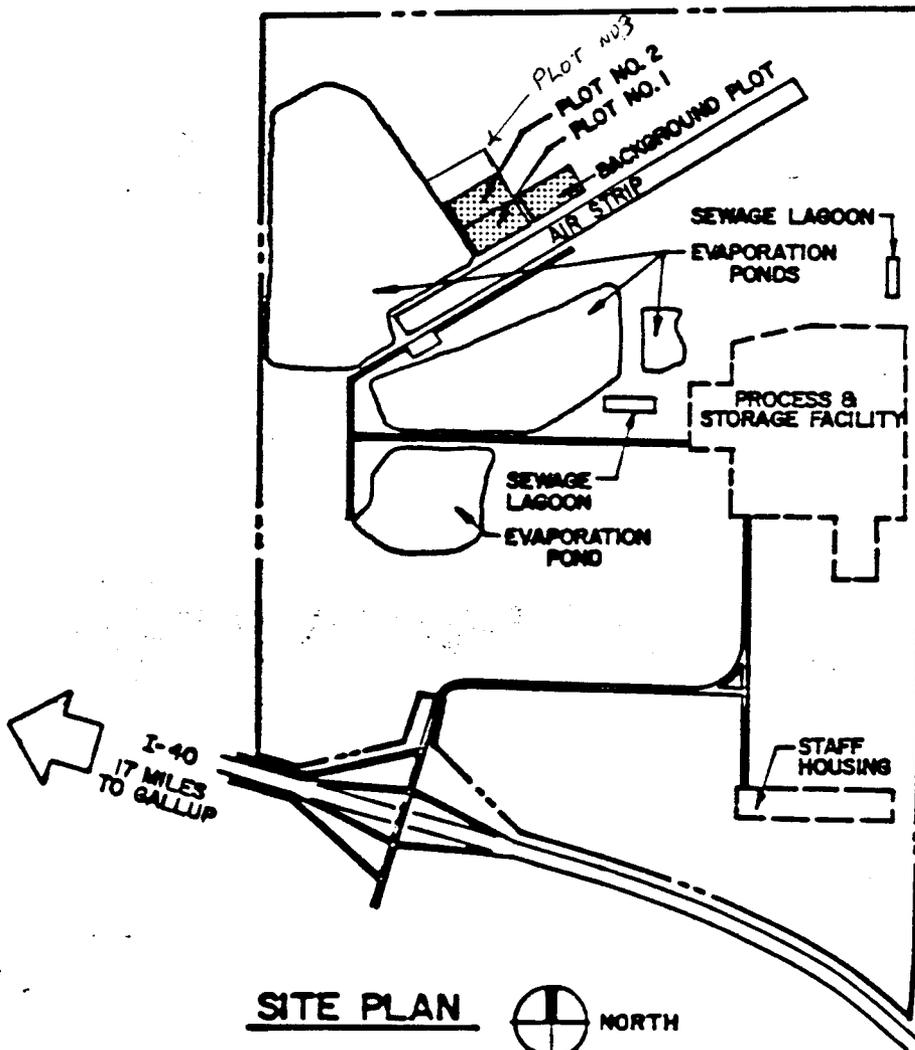
1. Modification for Cause. If the Permittee determines that there has been a statistically significant increase of any hazardous constituent in the unsaturated zone below the treatment zone, he shall notify the Director of this finding in writing within seven days of such determination. The notification must indicate which constituents have shown statistically significant increases. Within ninety (90) calendar days of the determination he shall submit to the Director an application for a permit modification to modify the operating practices at the facility in order to facilitate the success of degradation, transformation, and immobilization processes within the treatment zone.
2. Alternative demonstration. If the Permittee determines, pursuant to

permit paragraph III.K.2. above, that a statistically significant increase of hazardous constituents in the ground water below the treatment zone has occurred, he may demonstrate that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. In making this demonstration, the Permittee shall follow HWMR-5, Part V, Sections 264.98(i) or 264.99(j), as appropriate.

- a. The times for reports shall be in calendar days.
- b. The start date for report suspenses shall be the date of the determination by the Permittee of a significant change in any parameter.
- c. The Permittee shall continue to monitor the groundwater in accordance with this permit.



**VICINITY MAP**



**SITE PLAN**



**GIANT REFINING COMPANY - GALLUP, NM  
LAND TREATMENT  
VICINITY & SITE PLAN**

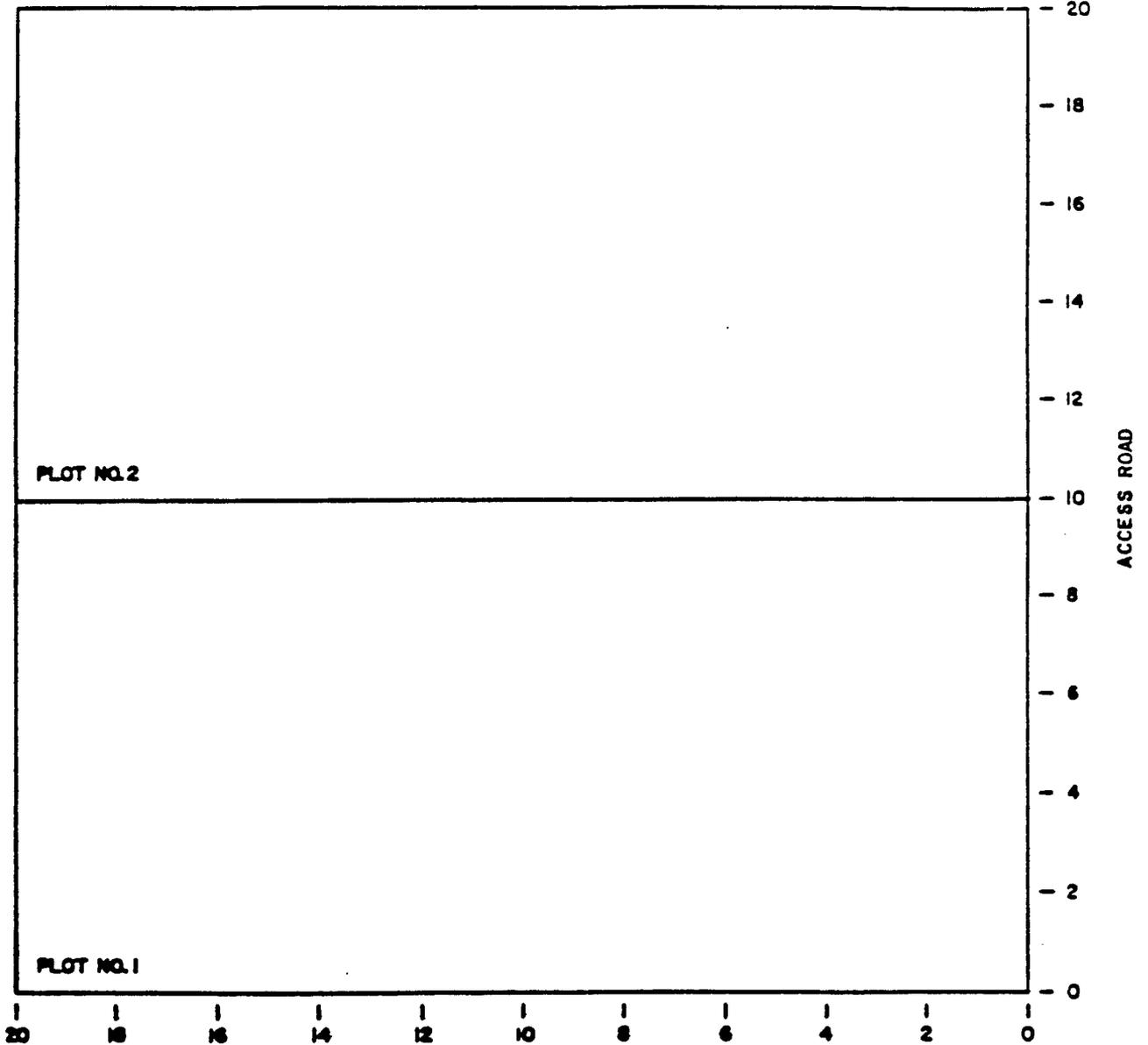
**FIGURE III.1**



**Lockwood, Andrews  
& Newnam, Inc.**

Engineering Architecture Planning Project Management

BERM PLOT 3 (Reserve)



ACCESS ROAD  
AREA PLAN  NORTH

FIGURE III.2



Lockwood, Andrews & Newnam, Inc.

GIANT REFINING COMPANY - GALLUP, NM

Engineering Architecture Planning Project Management

Table III-1

HAZARDOUS CONSTITUENTS TO BE DEGRADED

HEAT EXCHANGER CLEANING SLUDGE

1,1,1-trichloroethane  
naphthalene

API SEPARATOR SLUDGE

2-chlorophenol  
benzo(b) fluoranthene  
benzo(j) fluoranthene  
fluoranthene  
chloromethane  
methylene chloride  
1,1-dichloroethene  
1,1-dichloroethane  
trans-1,2-dichloroethene  
chloroform  
1,2-dichloroethane  
1,1,1-trichloroethane  
trichloroethene  
benzene  
1,1,2,2-tetrachloroethane  
tetrachloroethene  
toluene  
chlorobenzene  
ethylbenzene  
1,3-dichlorobenzene  
1,2-dichlorobenzene  
1,4-dichlorobenzene

SLOP OIL EMULSION

2-chlorophenol  
2,4,6-trichlorophenol  
fluoranthene  
benzene  
toluene  
ethylbenzene

Table III-2

TREATMENT LIMITING CONSTITUENTS

LIMITING LOADING RATES ON A WASTE BASIS

	lb/ac/yr	lb/ac/application
API Sludge	2,448,000	254,880
Heat Exchg. Sludge	17,000	1,770
Slop Oil	901,000	93,810
Leaded Tank Bottoms	34,000	3,540

APPLICATION LIMITING CONSTITUENTS

	Mlb/ac/application
pyrene	610
phenanthrene	11.8
1-methylnaphthalene	1500
chrysene	44.7
ethylbenzene	0.36
m-xylene	0.35
o & p-xylene	0.35
o-cresol	4.4
m & p-cresol	4.3

LOADING RATE ON A CONSTITUENT BASIS

	lb/ac/yr
pyrene	20,000
phenanthrene	4,000
1-methylnaphthalene	1,325
benzo(a)pyrene	1,160
chrysene	1,500
ethylbenzene	508
m-xylene	2,500
o & p-xylene	2,050
o-cresol	500
m & p-cresol	4,250

**GIANT REFINING COMPANY  
PERMIT NMD000333211-2  
ATTACHMENT A  
WASTE ANALYSIS PLAN**

GIANT REFINING COMPANY  
ATTACHMENT A  
WASTE ANALYSIS PLAN

The separator sludge is the largest volume waste stream generated on a regular basis at the refinery. In that this waste is generated from the separation of oil from the wastewater stream, the impact of all the refinery processes should be reflected in the waste analysis. The separator sludge should contain the same constituents as the slop oil emulsion solids in that the slop oil is recovered from the oil/water separator. The separator sludge should contain the same hazardous constituents as the tank bottoms or spill contaminated materials in that the petroleum present in tank bottoms or spill contaminated materials are also present in the separator sludge. Heat exchanger sludge and leaded tank bottoms are expected to contain chromium and lead in relatively greater concentrations than the separator sludge. However, these wastes are generated on a very sporadic basis.

Samples of slop oil solids, separator sludge and heat exchanger solids will be collected and analyzed for the hazardous constituents which may reasonably be expected to be present. The other potentially hazardous wastes applied to the landfarm will be analyzed when generated. It should be emphasized that the other oily wastes might reasonably be expected to contain the same hazardous constituents, and metal-bearing wastes would reasonably be expected to contain the same hazardous constituents, although elevated concentrations of lead and chromium are expected.

#### I. Waste Sampling

The initial component of the waste analysis plan is the establishment of procedures by which a representative sample of hazardous waste is obtained. Waste sampling at Giant is conducted in accordance with good management practices and federal guidelines.

All the hazardous wastes generated at the refinery have a sludge-like consistency. These wastes are transferred to the landfarms by vacuum truck. Wastes destined for the landfarm will be sampled directly from the vacuum truck. The turbulence induced by vacuum collection should produce a homogeneous waste mixture. In order to obtain a sample, the outlet line will be purged and a sample of the homogeneous waste mixture collected. Materials removed by purging will be returned to the source or the vacuum truck tank. One sample will be obtained from at least three truckloads per source if more than three truckloads are required, and the samples collected from each source during any given waste generation event will be composited and analyzed for the parameters of concern.

Once the sample is collected, it is placed in an appropriate container to preserve the chemical and physical integrity of the sample during transport and storage prior to analysis. Giant uses plastic or glass containers with the appropriate chemical preservatives to hold waste samples. The collected samples are delivered to the inhouse or contract laboratory as soon as possible and are analyzed within the required time frame. The sample container, sample preservatives and maximum holding times are defined by the analytical procedures to be used.

Prior to waste sampling, the Environmental Coordinator will designate what samples will be taken for analysis, using Table A.1. as a guide. The volume, in truckloads,

will be estimated and sufficient sample volume will be obtained to allow the desired analysis.

In multiple-truckload sampling, samples will be collected in clean glass containers with teflon (c) lined caps. Either dark-colored containers or aluminum foil-wrapped clear containers shall be used. Samples from each truckload for metal analysis shall be appropriately preserved with acids. All will be stored at 4 degrees Celcius through icebath or refrigeration. Samples for volatile organic analysis will be collected in 40 ml septum vials with teflon (c) liners and will not be composited in the field. Compositing will be done in the laboratory just prior to analysis.

## II. Analysis Parameters

The parameters for which the waste is analyzed are grouped into three groups, depending on the purpose for which the data are to be used.

1. Indicator parameters are used to calculate landfarm loading and waste distribution. Oil and grease, specific gravity and total organic carbon data allow monitoring of the landfarm loading so that excess organic material is not placed on the farm. Total nitrogen, pH and acidity/alkalinity data allows monitoring of the landfarm nutrient balance and provide an indication when fertilizer may be needed.
2. Landfarm lifetime considerations are derived from the cumulative metal deposition in the soil. Refinery wastes contain small amounts of chromium, lead, arsenic and other metals. Analysis to determine the quantity of trace metals in the waste allows monitoring to assure that the projected landfarm lifetime remains accurately known. It also has a collateral benefit as a monitor of facility degradation due to metal erosion.
3. The remainder of the analyses listed in Table A.1. serve as a check to establish which specific hazardous waste constituents have been treated in the unlikely event hazardous waste constituents are detected in the groundwater under the facility.

## III. Test Methods

Analytical testing is performed on each sample of hazardous waste obtained at the specified sampling frequency. Analyses are conducted on selected parameters which provide the information necessary to properly treat the waste. The waste constituents for which initial and routine analyses are conducted and the analytical test procedures which are used to determine constituent concentrations are shown in Table A.2. These test methods should not be considered the only viable procedures as the reference documents are updated periodically, and new methods added.

## IV. Sampling Frequency

Hazardous waste streams are sampled to ensure the characteristics of wastes, necessary to properly manage these wastes, are known. The waste sampling frequency is shown in Table A.3. A sample is collected for each waste stream the first time it is generated and a full range of analytical tests will be conducted on a waste sample from each source. If the process or operation generating the waste is changed, another waste sample for similar analyses will be obtained. Selected

analyses will be conducted on a sample of waste obtained each time the waste type is generated. This information will be used by Giant to maximize the degradation, transformation and immobilization of the hazardous constituents placed in or on the land treatment zone.

## V. Special Requirements

### 1. Slop Oil Emulsion Solids, K049

This solid waste is a listed hazardous waste due to the presence of lead and chromium. A sample of slop oil emulsion solids will be obtained, each time the slop tanks are cleaned, and tested for concentrations of lead and total chromium by using an acid digestion procedure to prepare the sample, followed by detection through flame or furnace atomic absorption (AA) spectroscopy. Normally, samples will be analyzed by flame AA methods which yield results in the ppm range. There may be some instances in which a more sensitive detection limit is desirable. In this instance the graphite furnace method will be used. Additionally, this waste is analyzed for oil content of the sample.

### 2. Heat Exchanger Bundle Cleaning Sludge, K050

This solid waste is a listed hazardous waste due to the presence of chromium. A sample of heat exchanger bundle cleaning sludge will be obtained each time the heat exchanger cleaning sump is used or the cooling tower basins cleaned. These wastes will be analyzed for the concentration of total chromium by using an acid digestion procedure to prepare the sample, followed by detection through flame or furnace atomic absorption spectroscopy. Normally, samples will be analyzed by flame AA methods which yield results in the ppm range. There may be some instances in which a more sensitive detection limit is desirable. In this instance, the graphite furnace method will be used. Additionally, the waste is analyzed for oil content of the sample.

### 3. Primary Oil/Solids/Water Separation Sludge, K051

This solid waste is a listed hazardous waste due to the presence of lead and chromium. Each time the separator is cleaned, a sample of sludge will be obtained and tested for concentration of lead and total chromium by using an acid digestion procedure to prepare the sample, followed by detection through flame or furnace atomic absorption spectroscopy. Normally, samples will be analyzed by flame AA methods which yield results in the ppm range. There may be some instances in which a more sensitive detection limit is desirable. In this instance, the graphite furnace method will be used. Additionally, this waste will be analyzed for oil content of the sample by ASTM methods.

### 4. Leaded Tank Bottoms, K052

This solid waste is a listed hazardous waste due to the presence of lead. A sample of tank bottoms will be obtained each time leaded gasoline tanks are cleaned and tested for the concentration of lead by using an acid digestion procedure to prepare the sample, followed by detection through flame or furnace atomic absorption spectroscopy. Normally, samples will be analyzed by flame AA methods which yield results in the ppm range. There may be some instances in which a more sensitive detection limit is desirable. In this instance, the graphite furnace method will be

used. Additionally, this waste will be analyzed for the oil content of the sample.

#### 5. Potentially Ignitable Wastes, D001

Miscellaneous wastes such as kerosene filter clay, tank bottoms and spill - contaminated materials are normally classified as nonhazardous. However, if the contaminating hydrocarbon has a flashpoint less than 140 degrees F, the waste could potentially exhibit the characteristic of ignitability. In this instance, a sample of the potentially ignitable waste will be obtained each time the material is generated and analyzed by the Pensky-Martens or Setaflash closed cup methods, as appropriate. If the flashpoint is below 140 degrees F, the sample will be analyzed for the full range of constituents as indicated in Table A.3. Additionally, this waste will be analyzed for oil content.

#### C. Chain of Custody Documentation

Giant uses a variety of integrated procedures to document the history of the waste sample from collection through analysis. These procedures ensure the integrity of the sample from collection to data reporting and help minimize the potential for sample misidentification.

##### 1. Sample Labels

All samples collected for analyses at Giant are labeled at the time of sampling. The labels include the following information:

- a. Name of collector
- b. Date and time of collection
- c. Point of collection
- d. Sample identification number

##### 2. Sampling Log Book

All samples collected for analyses at Giant are recorded in the Sampling Log Book. This Sampling Log Book is maintained by the Environmental Tester and each sample is recorded in the log at the time of sample collection. Entries in the log book include the following information:

- a. Date and time of sample collection
- b. Sample identification number
- c. Waste type (sludge, liquid, etc.)
- d. Waste generating unit
- e. Sampling point location
- f. Sampling method used
- g. Number and volume of sample
- h. Field observations and measurements
- i. Sampler signature

##### 3. Chain of Custody Record

Giant completes and maintains chain of custody forms to trace sample possession whenever samples are shipped to a contract laboratory. A copy of this form accompanies a sample to the testing laboratory to ensure that proper analyses are

performed and to inform the analyst of pertinent sampling data. The information provided on the form includes:

- a. Sample location
- b. Sample type
- c. Date and time of sample collection
- d. Sample volume
- e. Sample identification number
- f. Field information and special instructions
- g. Signatures of persons involved in the chain of custody and the dates of possession
- h. Signature of person shipping the sample and the method of shipment
- i. Signature of person receiving the sample and the date of receipt.

## VI. Quality Assurance

*Test Methods for Evaluating Solid Wastes, SW-846*, describes the information necessary to satisfy Quality Assurance/Quality Control (QA/QC) concerns. This document states that an acceptable QA/QC plan will denote the intended uses of the data, and the level of precision and accuracy necessary for these intended uses. The Waste Analysis Plan developed by Giant is designed to provide the information necessary to properly dispose of wastes through the land treatment process. An initial waste characterization is performed to quantify those 40 CFR Appendix VIII constituents believed present in the waste in order to identify parameters of concern for treatment. Subsequent waste characterization work is performed on a routine basis to quantify the concentration of selected operationally related constituents in wastes applied to the land treatment area.

Giant will prepare and follow a written QA/QC plan which includes provisions for a representative sampling program. The Waste Analysis Plan identifies the sampling device used for each waste, identifies the parameters for which analyses will be performed, states that the sample containers, preservatives and holding times appropriate for each analytical procedure will be used and identifies chain of custody procedures.

An acceptable QA/QC plan should include an analytical plan. The Waste Analysis Plan developed by Giant states that analyses will be conducted as outlined in the reference methods. A review of the reference methods reveals that each method has quality control procedures. Additionally, Giant will split samples for analysis by two different laboratories and duplicate samples for analysis by one laboratory as a means to confirm data accuracy. The API separator waste (K051) will annually be subject to QC split or duplicate analysis and the remaining wastes will be subject biennially. This should be sufficient as the production process is quite stable. If the process or input materials change then split or duplicate sample verification will be performed with the first sampling event after the change.

The decision to analyze samples inhouse or by a contract laboratory is a function of workload as well as inhouse analytical capabilities. QA/QC records for analyses performed onsite are available at the refinery. Before a contract laboratory is used for waste analysis, an assurance that the reference methods and QA/QC procedures will be followed is obtained. Further, the QA/QC records are available at the contract laboratory.

Table A.1.

SAMPLING VOLUMES

<u>Test</u>	<u>Sample Volume</u>	<u>Container</u>	<u>Preservation</u>
pH	250 ml	1	A
Conductance	250 ml	1	A
Oil percentage	1 liter	2,3,4	A
Specific Gravity	1 liter	2,3,4	A
Acidity/Alkalinity	500 ml	2,4	A
Total Organic Carbon	1 liter	3	B
Total Organic Halide	125 ml (2 samp)	6	B
Trace Metals	1 liter	4	C
Volatile Organics	40 ml (2 samp)	5	B
Acid-Extractable Organics	1 liter	2,3	B
Base-Neutral Organics	1 liter	2,3	B
Total Nitrogen	1 liter	2,3	D
Total Cyanide	500 ml	2,3	E,F
Hydrogen Sulfide	1 liter	2,3	E,G
Ignitability	250 ml	2,3,	A

Containers

- 1-beaker
- 2-clear glass
- 3-brown glass
- 4-cubitainer
- 5-septum vial
- 6-amber glass with septum cap

Preservation

- A-none
- B-ice to 4 degrees C
- C-Nitric acid
- D-Sulfuric Acid
- E-Sodium hydroxide
- F-ascorbic acid
- G-zinc acetate

Table A-2

## REFERENCE METHODS

<u>Analytical Parameter</u>	<u>Method Number</u>	<u>Reference</u>
<b>INDICATOR PARAMETERS</b>		
Oil content	Std. 2542, D96-73	3
Specific Gravity	213E	2
pH	9040	1, 2
Acidity/Alkalinity	402/403	2
Total Organic Carbon	505	2
Total Nitrogen	420A or B, 417A or G 418F	2
<b>TRACE ELEMENTS</b>		
Arsenic	3050, 7060, 7061, 6010, 303E	1, 2
Barium	3050, 7080, 6010, 303A	1
Beryllium	3050, 7090, 7091, 6010, 303A	1
Cadmium	3050, 7130, 7131, 6010, 303A	1
Chromium	3050, 7190, 7191, 6010, 303A	1, 2
Lead	3050, 7420, 7421, 6010, 303A	1, 2
Mercury	7471	1
Nickel	3050, 7520, 7521, 6010, 303A	1, 2
Selenium	3050, 7740, 7741, 6010, 303A	1
Vanadium	3050, 7910, 7911, 6010, 303A	1
<b>ORGANIC COMPOUNDS</b>		
Volatile Organics	PEG extraction, 8240	1
Acid extractables	3550, 3650, 8270	1
Base-neutral extractables	3550, 3650, 3610, 8270	1
<b>MISCELLANEOUS</b>		
Total Cyanides	9010; 412B	1, 2
Hydrogen sulfide	9030	1
Oil and Grease	9070, 9071	1
Ignitability	1010, 1020	1

## REFERENCES

1. *Test Methods for Evaluating Solid Wastes, SW-846, 3rd Ed.*
2. *Standard Methods for Examination of Water and Wastewater, 16th Ed.*
3. American Society of Testing Engineers

Table A-3  
FREQUENCY OF ANALYSIS

Analytical Parameter	K049 Slop Oil	K050 Heat Exchg.	K051 API Sludge	K052 Leaded Tank	D001 Ignitable Wastes
Oil Content	E	E	E	E	E
Sp. Gravity	I, B	I, B	A	I, B	A
pH	A	A	A	A	A
Tot. Org. Carbon	B	B	B	B	B
Total Nitrogen	B	B	B	B	B
Trace metals	A	A	A	A	A
Volatile Organics	B	B	B	B	B
Organic acids	B	B	B	B	B
Base/neutral Org.	B	B	B	B	B
Total Cyanides	B	B	B	B	B
Hydrogen sulfide	A	A	A	A	A

**Frequency codes**

- A = annually, as generated
- B = biennially, every other year, as generated
- E = each event, every time this waste is generated
- I = initially, the first time this waste is generated under the permit

Trace metals are Arsenic, Cadmium, Chromium, Lead, Mercury and Selenium  
 Volatile organic compounds are listed in Table G-3 of this permit  
 Organic acids are listed in Table G-3 of this permit  
 Base/neutral organic compounds are listed in Table G-3 of this permit

**GIANT REFINING COMPANY  
PERMIT NMD000333211-2  
ATTACHMENT B  
SECURITY REQUIREMENTS**

GIANT REFINING COMPANY  
ATTACHMENT B  
SECURITY REQUIREMENTS

Giant shall prevent the unknowing entry and minimize the possibility for the unauthorized entry of persons or livestock onto the regulated units of the Giant facility. The security devices associated with these facilities shall be inspected on a routine basis for signs of wear or damage according to the Inspection Schedule contained in Permit Attachment C. The security devices shall be maintained in good condition.

**Fence**

The facility shall be enclosed by a 4 ft. high, minimum four strand wire, fence with locked entry gates or an access gate manned by guards. Access to the land treatment area shall be restricted to Giant personnel, official inspectors or approved contractors. Entry to the land treatment area will be limited to the conduct of waste management operations such as waste applications, tillage, routine maintenance, monitoring and inspections. The access gates shall be otherwise locked at all times. Giant shall designate an individual or individuals responsible for supervision of land treatment area activities and access.

**Warning Signs**

Warnings signs shall be prominently posted around the perimeter of the land treatment area, at intervals of no more than fifty feet, in such a manner as to be noticeable from any direction of approach. The warning legend on these signs shall be printed in both English and Spanish and state "Danger-Unauthorized Personnel Keep Out". The signs, with a minimum of 1-1/2" size lettering, shall be legible at a distance of 25 ft. Signs shall be placed so as to be readily observed at each access point.

**GIANT REFINING COMPANY  
PERMIT NMD000333211-2  
ATTACHMENT C  
INSPECTION PLAN**

GIANT REFINING COMPANY  
ATTACHMENT C  
INSPECTION PLAN

This Attachment documents the inspection program instituted at the Giant Refinery to inspect the facility for malfunctions and deterioration, operator errors and discharges which may cause or may lead to release of hazardous waste constituents to the environment or a threat to human health. Giant shall conduct on a regular schedule inspections to identify problems or potential problems and correct them before they cause harm to human health or the environment. Inspections for storm related damage shall be made after precipitation of one and eighth (1.8) inch or greater in one hour or less or winds in excess of 30 miles per hour, excluding gusts. This inspection program is designed to satisfy the requirements of HWMR-5, Part V, Section 264.15. by providing comprehensive inspection procedures and recordkeeping protocol which will ensure inspections are conducted at the specified frequency and are documented in the operating record for the plant. The contents of the program are summarized in Table C.1. and discussed below as they relate to specific areas and equipment used for hazardous waste management.

### **Operating Equipment**

Equipment used in hazardous waste management at the Giant facility include vacuum trucks and the land treatment area tractor and plow. Contract vacuum trucks are used to remove wastes from their source devices (i.e. API separator, tanks, etc.) to the tank on the truck. The truck then transports the waste from the point of generation to the land treatment area where wastes are applied. Inspections of the vacuum truck shall be conducted prior to each use by the vacuum truck driver/equipment operator. The truck tank and transfer hoses are inspected for structural integrity to ensure no cracks, breaches, breaks or leaks in the equipment exist. The following steps are taken during inspection of the vacuum truck:

1. Check oil level
2. Check coolant level
3. Check battery
4. Check the operation of the brakes
5. Inspect the condition and operation of all valves, the power takeoff and the vacuum pump
6. Inspect the condition of the tank for cracks, breaches, breaks or leaks
7. Inspect the condition of all hoses for cracks, breaks or leaks
8. Observe the overall operation of the system to identify any problems or potential problems during transfer operations

An example of an acceptable log sheet used in documenting each inspection is presented in Figure C.1.

The land treatment area tractor is used at the land treatment area to apply wastes, fertilizer and other soil additives to the treatment zone to effect degradation, transformation and immobilization of waste constituents in the soil. The tractor incorporates, by use of a turning plow, wastes into the soil horizons immediately upon surface application. Prior to receiving a shipment of wastes, the tractor is inspected by the equipment operator to ensure all components are functional. The following items are checked during the inspection:

1. Check operation of plow
2. Check implement hitch connection

3. Inspect tractor to ensure it has been cleaned before removed from the land treatment area.

An example of an acceptable log sheet used in documenting each inspection is presented in Figure C.2.

### **Safety and Emergency Equipment**

Giant maintains numerous safety and emergency equipment that is available to respond to emergencies and accidents. This equipment includes an internal communications and alarm system, spill control equipment and fire equipment. The equipment is inspected by the Safety Department on a monthly basis to ensure all equipment is in stock and operational to effectively respond to emergency situations. An example of an acceptable log sheet used to document each inspection is presented in Figure C.3.

### **Security Devices**

Giant uses a system of guards, locked gates, fencing and warning signs to prevent unauthorized entry into waste management areas. The Land treatment area is within a perimeter fence with controlled entry. Warning signs are posted in conspicuous places around the waste management areas. These security devices are inspected for damage and corrosion on a weekly basis to ensure they provide adequate security for these facilities.

### **Monitoring Equipment**

Monitoring equipment is used at the Giant refinery to monitor the effectiveness of waste management techniques practices at the facility. The monitoring equipment consists of systems of groundwater monitoring wells and vacuum lysimeters. Each of the monitoring components of these systems is inspected on a weekly basis to ensure no structural damage to the equipment has occurred and all devices are functional.

### **Container Storage Area**

No containerized hazardous wastes are stored onsite for more than 90 days. The container storage area is inspected on a weekly basis to ensure proper storage practices are employed when storing hazardous wastes and to detect any potential hazards in storage. Some of the items which are included in inspections conducted on this area are container condition, placement and stacking, seals and labels, containment area foundation and loading/unloading areas. An example of an acceptable inspection log used to document each inspection is presented in Figure C.4.

### **Land Treatment Area**

The Land treatment area is used by the Giant refinery to dispose of hazardous wastes generated at the facility through land treatment. The Land treatment area consists of 2 active and 1 inactive cell surrounded by perimeter diking for control of stormwater runoff and runoff. Inspections of the active portions of the landfarm and the perimeter diking are performed weekly and after storms. Inspections are conducted to ensure wastes are being properly applied to the treatment zone thereby maximizing the decomposition, transformation and immobilization of

hazardous constituents. The perimeter diking is inspected to ensure the integrity of the dikes is maintained so that they may effectively control stormwater runoff and runoff at the facility. The landfarm is inspected for evidence of wind erosion after windstorms. An example of an acceptable log sheet used to document each inspection is presented in Figure C.4.

### **Neutralization Tank**

The neutralization system for the ion exchange regeneration rinse water is inspected weekly to insure that there is adequate limestone in the tank and that the system integrity has not been compromised.

### **Response to Inspection Results**

After each inspection is conducted, with the exception of inspections of safety, communications and emergency equipment, the inspection log is submitted to the Environmental Coordinator for review. During review, the Environmental Coordinator analyzes the content of the log and, if necessary, discussed the inspection with the inspector. If an item on the list is identified as unsatisfactory, the Environmental Coordinator evaluates the situation and prepares the appropriate response to be taken. Unsatisfactory conditions may be resolved through the issuance of a work order which instructs Giant's maintenance department on the procedures and protocol to follow when correcting an unsatisfactory situation. Once maintenance has been completed, the date the maintenance was performed is recorded on the original work order which is filed with the inspection log. If the situation is more severe, requiring immediate emergency response, the Environmental Coordinator will immediately implement the appropriate aspects of the Contingency Plan. If an item on the inspection schedule continually fails to pass inspection, the item will be reevaluated on the basis of its proposed function, mode of operation and necessity. Upon the results of this evaluation, the item will either be removed from service, replaced or redesigned to function more effectively. The Environmental Coordinator shall personally conduct at least quarterly inspections of the land treatment area and container storage areas.

The Safety Department shall be responsible for inspection of the safety communications and emergency equipment and will follow similar procedures when responding to safety inspection results on any hazardous waste safety related item.

### **Recordkeeping**

Inspection logs and work orders shall be maintained by the Environmental Coordinator for all facility inspections except those conducted on safety, communication and emergency equipment. Inspection logs and work orders for these items may be maintained by the Safety Department. All inspection records and applicable work orders shall be kept for at least three years following the date of inspection or latest remedial action as a result of an inspection.

Table ~~434~~ C.1.  
 Inspection Schedule

H-D

Area/Equipment	Specific Item	Types of Potential Problems	Inspection Frequency
Operating Equipment	Vacuum Truck	Low on fuel, oil or coolant, worn tires or brakes, cracks or breaks in tank, cracks or leaks in hoses, vacuum pump operation, overall operation	As used
	Landfarm Tractor	Low on fuel, oil or coolant, worn tires, or brakes, tiller and hydraulic implement operation, hitch connection, overall operation.	As used
Safety Communication and Emergency Equipment	Telephone System	Power failure	Monthly/as needed
	2-way Radio	Transmitter/receiver failure	Upon failure
	Lugger Bucket Truck	Low on fuel, oil or coolant, worn tires or brakes, cracks or holes in bucket, bucket operation	Monthly/as needed
	Pick-up Trucks	Low on fuel, oil or coolant, worn tires or brakes, cracks or holes in bed	Monthly/as needed
	Pneumatic Pumps	Power, clogging, cracks or leaks in hoses	Monthly
	Stream Pumps	Power, clogging, cracks or leaks in hoses	Monthly
	Electric Pumps	Power, clogging, cracks or leaks in hoses	Monthly
	Face Shields	Broken or dirty	Monthly
	Protective Eyeglasses	Broken or dirty	Monthly
Protective Clothing (boots, gloves, coveralls)	Leaks, cracks, normal wear and tear	As used	

Table 1-51 (continued) C-1.  
 Inspection Schedule

Area/Equipment	Specific Item	Types of Potential Problems	Inspection Frequency
5-D	Fire Trucks	Low on fuel, oil or coolant, worn tires or brakes, pump operation	Monthly/after each use
	Fire Monitors	Failure, direction adjustment	Monthly/after each use
	Fire Protection Suits	Leaks, cracks, normal wear or tear	As used
	Fire retardent chemicals	Out of stock, expired	Monthly/after each use
	Foam Generators	Power failure	Monthly
	Fire Pumps	Power, clogging, breaks or leaks in hoses	Monthly
	Fire Extinguisher	Needs recharging	Monthly
	Fire Hose	Cracks, leaks, connections	Monthly
	First Aid Equipment	Items out of stock or inoperative	As used
	Security Devices	Gate, Lock and Fence	Corrosion, damage to fencing, sticking lock
Container Storage Area	Warning Signs	Lost or corroded	Weekly
	Container Placement and Stacking	Aisle space, height of stacks ignitable wastes at least 50 feet from property boundary fence	Weekly
	Sealing of Container	Open lids	Weekly

c. t.  
 Table ~~1-51~~ (continued)  
 Inspection Schedule

Area/Equipment	Specific Item	Types of Potential Problems	Inspection Frequency
	Labelling of Containers	Improper identification, missing date <i>missing labels</i>	Weekly
	Containers	Corrosion, leaks, structural defects	Weekly
	Segregation of Incompatible Wastes	Storage of incompatible wastes in same area <i>Separation by dike from other wastes</i>	Weekly
	Pallets	Broken, warped, unstable	Weekly
	Fence, Gate and Lock	Corrosion, damage to fencing, sticking lock	Weekly
	Base or foundation	Cracks, spalling, subsidence, erosion, wet spots	Weekly
	Dikes	Cracks, deterioration	Weekly
	Sump Pumps (automatic)	Setting, adjustment, power, clogging, leaking hoses	Weekly
	Debris and Refuse	Clog pump, aesthetics	Weekly
	Ramps	Cracks, spalling, subsidence, erosion	Weekly
	Warning Signs	Corrosion, <del>or</del> missing or illegible	Weekly
Monitoring Equipment	Groundwater Monitoring Wells	Structural damage, deterioration	Weekly
	Lysimeters	Structural damage, deterioration	Weekly
North Colony Landfarm	Active Portions	Improper spreading and incorporation <i>wind-blown soil erosion, tensionmeter</i>	Weekly
	Dikes	Seepage, structural damage by burrowing animals or unauthorized traffic, erosion	Weekly, after storms

9-0

Figure C.1  
Inspection Log  
Vacuum Truck

Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Time: \_\_\_\_\_

Item	Satisfactory	Unsatisfactory	Comments*
Fuel Level			
Oil Level			
Coolant Level			
Battery			
Tires			
Brakes			
Tank Condition			
Hose Condition			
Pump Condition			

\*Note: Inspections to be conducted when equipment used. Record fuel, oil or coolant additions and note any signs of excessive wear or malfunction. All unsatisfactory ratings other than routine maintenance require the issuance of a work memo.

Figure C.2  
Inspection Log  
Landfarm Tractor

Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Time: \_\_\_\_\_

Item	Satisfactory	Unsatisfactory	Comments*
Fuel Level			
Oil Level			
Coolant Level			
Battery			
Tires			
Brakes			
Tiller Operation			
Hydraulic System Operation			
Pitch			
Cleanliness			

\*Note: Inspections to be conducted when equipment used. Record fuel, oil or coolant additions and note any signs of excessive wear or malfunction. All unsatisfactory ratings other than routine maintenance require the issuance of a work memo.

Figure C.3  
 Inspection Log  
 Safety, Communication and Emergency Equipment

Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Time: \_\_\_\_\_

Item	Satisfactory	Unsatisfactory	Comments*
Telephone System Operation			
2-Way Radio Operation			
Lugger Bucket Truck			
Pick-Up Trucks			
Pneumatic Pump Operation			
Steam Pump Operation			
Steam Pump Operation			
Electric Pump Operation			
Protective Clothing Inventory			
Face Shield Condition			
Protective Eyeglass Condition			
Fire Truck Operation			
Fire Monitor Operation			
Fire Extinguisher Pressure			
Fire Protection Suit Condition			
Fire Retardent Chemical Inventory			
Foam Generator Operation			
Fire Pump Operation			
Hose Condition			
First Aid Equipment Inventory			

\*Note: Inspections to be conducted on monthly basis. Record any signs of excessive wear or malfunction, all missing inventory items, and all fuel, oil and coolant additions to emergency vehicles. All unsatisfactory ratings other than routine maintenance and inventory updates require the issuance of a work order.

Figure C. 4

RCRA WASTE FACILITIES  
INSPECTION CHECKLIST

LAND TREATMENT AREA:

Dike condition? \_\_\_\_\_  
Water standing? \_\_\_\_\_ Wet or dry? \_\_\_\_\_  
Signs? Legible \_\_\_\_\_ In-place \_\_\_\_\_  
Time of day: \_\_\_\_\_ AM or PM Date: \_\_\_\_\_  
Monitor wells and general condition \_\_\_\_\_ Caps and locks \_\_\_\_\_  
Lysimeters? Unit condition \_\_\_\_\_ Protective cover \_\_\_\_\_  
Tensiometers reading: \_\_\_\_\_  
Fences? Condition \_\_\_\_\_

TRICHLOROETHANE DRUM STORAGE AREA:

Drums in good condition? \_\_\_\_\_  
Number of drums? \_\_\_\_\_  
Time of day: \_\_\_\_\_ AM or PM Date: \_\_\_\_\_  
Laboratory TCE drum condition? \_\_\_\_\_ Bungs in place? \_\_\_\_\_  
Limestone in the Neutralization Tank? \_\_\_\_\_  
Repairs needed: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Repairs completed: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Name of Inspector

**GIANT REFINING COMPANY**  
**PERMIT NMD00033211-2**  
**ATTACHMENT D**  
**PERSONNEL TRAINING**

GIANT REFINING COMPANY

ATTACHMENT D

PERSONNEL TRAINING

The Ciniza Refinery has an integrated training program which serves both refinery production and hazardous wastes management. The Refinery Safety Department conducts first aid, breathing air pack and fire fighting training. The Lab/Dispatching and Operations Department managers train individual employees on department duties. Specific safety procedures are detailed in the Safe Work Procedures Manual. Training records are maintained at the department level. Records of RCRA training are consolidated by the Environmental Coordinator.

Semi-annual personnel training consists of the following:

- a. All personnel excluding administrative office personnel: training based on the Hazardous Waste Requirements and Operations; and
- b. Lab/Dispatch Department personnel: training based on the Laboratory Staff Hazardous Waste Training Manual

The Refinery Environmental Coordinator shall prepare and update the Hazardous Wastes Training presentation as outlined in Table D-1 for the initial training session to be held within one month of the effective date of this Part B Permit. The Quality Assurance Manager shall prepare and update the Laboratory Staff Hazardous Waste Training Manual as outlined in Table D-2 for the initial training session.

All hazardous waste management training shall be conducted every six months on a recurring basis and no employee shall work unsupervised on hazardous waste duties until they have successfully completed appropriate training. Newly assigned employees shall receive initial training within one month of arrival and the recurring training in accordance with the semi-annual schedule. All personnel, excluding administrative office personnel, are trained in the relationship of their hazardous duties and the contingency plan as described in Permit Attachment E. The six-month hazardous waste training is conducted by the Environmental Coordinator during the monthly safety meetings.

#### TRAINING INSTRUCTORS

Personnel shall be trained and supervised by the manager whose positions are described in this section.

GIANT INDUSTRIES, INC.

JOB DESCRIPTIONS

DIVISION REFINING DEPARTMENT MAINTENANCE

PLAN 1988

NAME: Robert L. McClenahan, Jr.  
TITLE: Environmental Coordinator  
REPORTS TO: Refinery Manager  
REPORTING TO THIS POSITION: 0

Major Areas of Responsibilities/Duties:

Responsible for administration of environmental plan, including implementation and monitoring of environmental regulations. Spends approximately 75% of time in office.

Responsibilities and duties relative to Hazardous Wastes are:

Prepare and maintain refinery personnel training manuals; conduct the hazardous waste refinery staff training program; maintain the proper operation of the land treatment facility; maintain records of hazardous waste generation and Land Treatment Facility operation; notify proper authorities of emergency situation; inspect the Land Treatment Facility; and draft and submit all required reports regarding hazardous wastes.

Maintain roster of all individuals assigned duties in support of the RCRA permit. Maintain consolidated record of RCRA training for each individual.

Advise emergency response coordinator of possible hazards to human health or the environment from a release, fire or explosion.

Minimum Experience and Qualifications

- B.S. degree in chemical, environmental engineering, or a B.S. in chemistry.
- A minimum of one year experience in refinery engineering or operation

GIANT INDUSTRIES, INC.

JOB DESCRIPTIONS

DIVISION REFINING DEPARTMENT MAINTENANCE

PLAN 1988

NAME: Joel Quinones  
TITLE: Quality Assurance/Dispatching Manager  
REPORTS TO: Assistant Refinery Manager  
REPORTING TO THIS POSITION: 4 Staff; 13 Hourly employees

Major Areas of Responsibilities/Duties:

Overall responsibilities for supervision and coordination of Quality Assurance, Lab/Dispatching activities. Involved in planning, budget, manpower utilization. Spends approximately 70% of time in lab, 30% in the field.

Responsibilities and duties related to Hazardous Wastes are:

Prepare and maintain laboratory personnel training program; supervise sampling and in-house analysis of hazardous wastes; maintain sampling and analytical procedures; and maintain records regarding the sampling and analysis of hazardous wastes.

Conduct the training program. Provide RCRA training records to the Environmental Coordinator.

## HAZARDOUS WASTE PERSONNEL

Certain refinery and lab personnel have hazardous waste management related duties and responsibilities. Their job descriptions appear in this section. Reporting order for hazardous waste management personnel is as follows:

a. Laboratory

Quality Assurance/Dispatching Manager  
Foreman-Quality Assurance/Dispatching  
Senior Technician I

b. Land Treatment Facility

Maintenance Supervisor  
Maintenance Foreman  
Maintenance Mechanic

GIANT INDUSTRIES, INC.

JOB DESCRIPTIONS

DIVISION REFINING DEPARTMENT MAINTENANCE

PLAN 1988

NAME: 3 Employees  
TITLE: Foreman-Quality Assurance Dispatching  
REPORTS TO: Quality Assurance/Dispatching Manager  
REPORTING TO THIS POSITION: Senior Technician I

Major Areas of Responsibilities/Duties:

Supervises and assists with activities of the Hazardous Waste Land Treatment Facility laboratory and tank farm personnel; directs operations of loading, product blending, tank gauging, product loading operation, effluent and separator, gasoline lead blending, product analysis and clearance and raw material scheduling. Approximately 70% of time spent in field, 30% in the lab. Work rotating shift schedule (8:00 AM - 4:00 PM and 4:00 PM - 12:00 PM).

Foremen are:

Pete Watkins  
John Glass  
Butch Turpen

Assist the Environmental Coordinator in training. Provide RCRA training records to the Environmental Coordinator and inform the Environmental Coordinator of any spills or potential problems in the pond or tank farm area.

When two or more individuals are listed above, the first listed has the primary training responsibility and the subsequently listed individuals have secondary responsibility, in the order of listing.

GIANT INDUSTRIES, INC.

JOB DESCRIPTIONS

DIVISION REFINING DEPARTMENT MAINTENANCE

PLAN 1988

NAME: 2 Employees  
TITLE: Senior Technicians I  
REPORTS TO: Foreman-Quality Assurance/Dispatching  
REPORTING TO THIS POSITION: 0

Major Areas of Responsibilities/Duties:

Handle specialty testing and formulation of blends for finished product; handle relief duties for all jobs in lab; 80% of time spent in lab.

Hazardous waste, soil-pore liquid, soil, and monitoring well sampling; testing of hazardous wastes, groundwater, soil-pore liquid, and soil as required.

Senior Technicians I are:

Steve Martinez  
Peter Tom

GIANT INDUSTRIES, INC.

JOB DESCRIPTIONS

DIVISION REFINING DEPARTMENT MAINTENANCE

PLAN 1988

NAME: Alex J. Rodriguez  
TITLE: Maintenance Supervisor  
REPORTS TO: Assistant Refinery Manager  
REPORTING TO THIS POSITION: 2 Staff foremen and 25 hourly

Major Areas of Responsibilities/Duties:

Overall responsibility for supervision and coordination of maintenance activity in the refinery; involved in planning, budget, manpower utilization; spends about 60% of time in field.

Indirectly supervises hazardous waste application and incorporation, tool and equipment cleaning, lysimeter maintenance, and dike and ramp maintenance at the Land Treatment Facility.

Provide RCRA training records to the Environmental Coordinator and assist the Environmental Coordinator in training.

GIANT INDUSTRIES, INC.

JOB DESCRIPTIONS

DIVISION REFINING DEPARTMENT MAINTENANCE

PLAN 1988

NAME: Cary Childs & Ted Gonzales  
TITLE: Maintenance Foreman  
REPORTS TO: Maintenance Supervisor  
REPORTING TO THIS POSITION: 25 Maintenance Employees

Major Areas of Responsibilities/Duties:

Working foreman responsible for hands on supervision, job assignment and assistance for all craftsmen and maintenance personnel; involved in daily routine refinery maintenance and capital projects; 70% of time spent in the field.

Directly supervises hazardous waste application and incorporation, tool and equipment cleaning, lysimeter maintenance, and dike and ramp maintenance at the Land Treatment Facility.

GIANT REFINING CINIZA

05-14-88

MAINTENANCE

MECHANIC LEADMAN

DAVIS, Roy L. (488-20-5246)

MAINTENANCE MECHANIC SPECIAL

BROWN, Jim R. (525-72-2563)  
ARNOLD, Charlie A. (585-14-8386)  
LAPAIRE, Paul S. (006-62-1683)  
GARCIA, John C. (525-80-3720)  
BROWN, Phillip (585-12-4039)  
SPOLAR, Mike (585-50-4087)  
MARTINEZ, Raymond (585-08-7498)

MAINTENANCE MECHANIC

SPENCER, Ben C. (525-60-2492)  
ARMSTRONG, Kee (525-48-7866)  
LARRY, David (585-46-4479)  
VANDEVER, Harry (525-64-0904)  
BAHE, Lorenzo (527-56-1505)  
CHAVEZ, David (521-84-2477)  
MARTINEZ, Mike J. (585-08-7794)  
MOORE, Billy (585-46-3309)  
DIAZ, Danny (560-23-5487)

MAINTENANCE MECHANIC HELPER

MIRABAL, Gilbert (585-09-1162)  
MARTINEZ, Gary (527-17-3297)  
GOSS, James E. (585-40-2235)  
SHELTON, Tyson L. (442-52-6486)  
ROARK, Joel (521-62-8376)

MAINTENANCE UTILITY

McDANIEL, Gilbert (532-76-4731)  
MONTOYA, Felix A. (585-07-1056)

PLANT HELPER #1

BALLI, Esteban (452-08-3817)

PLANT HELPER

GIANT INDUSTRIES, INC.

JOB DESCRIPTIONS

DIVISION REFINING DEPARTMENT MAINTENANCE

PLAN 1988

NAME: 7 Employees  
TITLE: Maintenance Mechanics  
REPORTS TO: Maintenance Leadman  
REPORTING TO THIS POSITION: 0

Major Areas of Responsibilities/Duties:

Includes regular maintenance and pipefitter duties and assistance for all craftsmen. Includes operation of heavy equipment and grader; 95% of their time spent in field.

Maintenance duties at the Land Treatment Facility associated with hazardous waste application and incorporation, tool and equipment cleaning, lysimeter maintenance, dike and ramp maintenance, monitoring well pumping, and soil moisture maintenance.

TABLE D-1

OPERATIONS AND MAINTENANCE STAFF

HAZARDOUS WASTE TRAINING MANUAL OUTLINE

- =====
- 1.0 Introduction
    - 1.1 Chemical Hazard of Wastes
    - 1.2 Requirements of the Resource Conservation and Recovery Act
  - 2.0 Waste Handling
    - 2.1 Description of hazardous wastes generated in the refinery
    - 2.2 Description of handling methods
    - 2.3 Description of safety procedures
    - 2.4 Personnel protection requirements
  - 3.0 Emergency Procedures and Contingency Plan
    - 3.1 Emergency Coordinator's duties
    - 3.2 Emergency procedures
      - 3.2.1 Fire
      - 3.2.2 Spills

## HAZARDOUS WASTE TRAINING OUTLINE

- I. What is RCRA?
  - A. Purpose
  - B. Implementation
  
- II. What Constitutes a Hazardous Waste?
  - A. Listed - The source of the waste is known to contain hazardous and/or toxic materials.
  - B. Characteristic - The waste exhibits characteristics that are considered hazardous or it contains hazardous compound.
    - 1. pH - 2.0 < or > 12.5
    - 2. Ignitable - flashes at less than 140°F
    - 3. Contains elevated concentrations of specific toxic metals or organics.
  
- III. What wastes at Ciniza are Considered Hazardous?
  - A. K-Wastes
    - 1. API Sludge, Heat Exchanger sludge, slop oil emulsions, Leaded Gasoline tank bottoms.
  - B. Other Regulated Wastes
    - 1. 1-1-1 Trichloroethane (TCA) spent solvent from parts degreasing.
    - 2. Ion Exchange acid regeneration water.
  
- IV. Why are These Wastes Considered Hazardous?
  - A. K-Wastes; are considered hazardous because of their nature as "bottom of the barrel" materials. They contain complex organics and heavy metals and are considered toxic in nature.
  - B. Spent Solvent; TCA is toxic. In addition, the spent solvent contains large amounts of metals. Chlorinated solvents are readily soluble in water.
  - C. Ion Exchange Regeneration Rinse Water; It is corrosive (pH < 20) and could cause skin burns or affect the pH of ground water.

## V. Care Required in Handling These Wastes

### A. K-Wastes

1. Ingestion is the primary path of concern when dealing with these wastes. Metals are cumulative toxics and organics can be stored in fat cells.
2. Adsorption through the skin is a secondary risk. Especially the aromatics.
3. Protective clothing (suits and gloves) should be worn when working around these areas, face shields or goggles and masks are also recommended. Dispose of contaminated clothing and wash your hands well afterwards.

### B. Solvents

1. Use solvents only in a well ventilated area (turn on ventilation fan) and minimize skin contact. Face shields should be utilized to protect eyes and mouth from splashes.

### C. Acidic Rinse Water

1. Has a low pH and could cause skin and/or eye irritation. Treat as if it is Hydrochloric Acid, even though it is less than 5% acid.

## VI. What Does Giant Do to Treat, Dispose and Recycle These Wastes?

### A. Land Treatment Area:

1. This is where we treat both the listed K-wastes and oily dirt.
2. It biologically degrades the organics and immobilizes the metal in the soil. The organics are degraded by bacteria in the soil, most of which need air to degrade the waste. That is why we till the treatment area which provides oxygen and breaks up the soil.
3. Congress has dictated a ban on any land disposal or treatment of refinery wastes, along with most other hazardous wastes. We will have to discontinue the use of our LTA in 1990.

### B. Spent Solvent

1. We currently send our spent solvent to a reclaimer in Oklahoma. The waste is distilled to recover the solvent and the sludge, which contains the grease and metals is incinerated.

### C. Acid Regeneration Rinse Water

1. All the ion exchange rinse and regeneration water flows through the neutralization tank. The acid reacts with the limestone and raises the pH of the water above 2.0. It is equalized with the water from the rest of the regeneration cycle and flows to Pond #3 where the pH of the mixture is near 7 (neutral). All the water in Pond #3 is evaporated in the south series of ponds.

### VII. What Are Giant's Responsibilities?

#### Monitor Operations

1. This includes keeping track of the amount of wastes generated, where they are treated or disposed of.
2. Sampling the waste streams, the Land Treatment Area and the ground water under that area. This is to assure treatment and confirm that there is no migration out of our refinery.
3. Good faith efforts to conduct our business in a responsible manner that will minimize the environmental impact of operations both for ourselves and our neighbors.

### VIII. What are Employee's Responsibilities?

1. Know and follow permit.
2. Identify and properly handle wastes.
3. Follow procedures correctly.
4. Report problems immediately.

TABLE D-2  
LABORATORY STAFF  
HAZARDOUS WASTE TRAINING  
MANUAL OUTLINE

=====

- 1.0 Introduction
  - 1.1 Chemical hazards of wastes
  - 1.2 Requirements of the Resource Conservation and Recovery Act
  
- 2.0 Sampling Procedures
  - 2.1 Hazardous waste sampling
    - 2.1.1 Sampling procedures
    - 2.1.2 Sampling containers
    - 2.1.3 Sample preservation
  
  - 2.2 Subsurface Water Monitoring
    - 2.2.1 Sampling procedure
    - 2.2.2 Sample containers
    - 2.2.3 Sample preservation
  
  - 2.3 Soils Sampling
    - 2.3.1 Sampling procedures
    - 2.3.2 Sample containers
    - 2.3.3 Sample preservation
  
- 3.0 Analysis (in-house)
  - 3.1 Hazardous Waste Analysis
    - 3.1.1 pH and bulk density
    - 3.1.2 Percent oil, water, and solids
    - 3.1.3 Electrical conductivity
    - 3.1.4 Ignitability
  
- 4.0 Records
  - 4.1 Sample logbook
  - 4.2 Sample labels
  - 4.3 Chain of custody document
  
- 5.0 Safety
  - 5.1 Sampling tools
  - 5.2 Personnel Protection
  - 5.3 Safety equipment

**GIANT REFINING COMPANY**  
**PERMIT NMD000333211-2**  
**ATTACHMENT E**  
**CONTINGENCY PLAN**

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E.0 CONTINGENCY PLAN

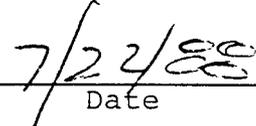
This contingency Plan is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous wastes or hazardous constituents to air, soil, or surface water. The provisions of the plan will be carried out immediately whenever there is a fire, explosion, spill or release of hazardous wastes constituents which could threaten human health or the environment. In the event of a contingency not specifically addressed in this plan, the Emergency Coordinator will take whatever action is necessary and use whatever resources available to first protect human life and secondly the environment. The plan is submitted to comply with NMHWMR-4 206.B.10.

A copy of the contingency plan and all revisions to the plan are maintained at the refinery. The plan has been submitted to all the police and fire departments, hospitals and local response units that may be called upon to provide emergency services.

This plan must be studied and understood by all refinery personnel involved with hazardous wastes to assure proper implementation in the event of an emergency.

Authorization Signature

  
\_\_\_\_\_  
John J. Stokes, Refinery Manager

  
\_\_\_\_\_  
Date

## E.1 Introduction

The Giant Refining Company's Ciniza Refinery is a crude oil refining facility with a nominal capacity of 18,000 barrels per calendar day (BPCD). The Ciniza Refinery is located in McKinley County, New Mexico just north of Interstate 40 about seventeen miles east of Gallup, New Mexico. The refinery includes an operating crude unit, a fluid catalytic cracking unit, a hydroflouric acid alkylation unit, a propane deasphalting unit, a naphtha hydrotreater, a catalytic reforming unit, an isomerization unit and a merox treating unit. The plant is supported by a boiler house which provides utility steam, water treating units, air compressors, cool towers and an extensive tank farm with a variety of tank configurations and capacities. The refinery layout is shown on Figure E.1-1.

The Refinery's extreme distance from other emergency response agencies requires that Giant provide their own first emergency response resources. The remote location does not facilitate notification and interaction with other emergency response agencies. Giant Refining Company maintains its own firefighting force and equipment. The fire fighters attend firefighting school at Texas A & M University and conduct semi-annual fire fighting training at the Ciniza Refinery. The fire fighting equipment owned, operated, and kept on site by Giant Refining Company is discussed in part E.6 of this section. Further information is available in the Ciniza Refinery Emergency Procedures Manual. In addition to the equipment, Giant maintains medical transportation equipment and first aid medical supplies at

the refinery. Giant also maintains security for the facility.

The intent of New Mexico's hazardous wastes regulations, NMHWMR-5, is to insure that facilities which treat, store, and dispose of hazardous wastes have established necessary planned procedures to follow in the event an emergency situation involving hazardous wastes should arise. The contingency plan should reflect the nature of the facility and assess the relative hazards associated with possible emergency situations.

The small quantities and moderate toxicity of hazardous wastes handled at the refinery pose relatively minor hazards compared to the general refinery operation. Since the refinery emergency procedures are designed to handle more serious emergencies than those credible for hazardous wastes handling, the same general procedures apply. Fire or explosions involving hazardous waste will be handled with the normal fire fighting procedures. Spills of hazardous wastes shall be handled by first containing the spill, followed by removal of the material and clean up.

The purpose of this contingency plan is to meet the requirements of the regulations and to specify additional requirements needed to handle hazardous waste while protecting human health and the environment.

### E.1.1 Hazardous Wastes

As part of the Giant Ciniza Refinery operation certain hazardous wastes are generated, stored and treated at the site. These wastes include:

#### Hazardous Waste

ID Number	Description
-----------	-------------

---

F001	Spent 1,1,1-trichloroethane used as a cleaning solvent in the refinery. Used solvent is collected and stored in barrels on an asphalt pad behind the warehouse. The material is shipped offsite for recovery within 90 days of collection. Maximum solvent accumulated is 250 gallons. Since the material is not stored for more than 90 days it is subject to regulation under HWMR-5, Part III, Section 262.10(b) and the sections referenced therein. It is included here so that proper handling of the material in an emergency is guaranteed.
D007	Cooling tower filter sludge is a mixture of solids, water and small quantities of oil. The material is removed from the cooling tower filter and hauled directly to the Land Treatment Facility. Chromate (CR <sup>+6</sup> ) is no longer used in the cooling towers. This waste is included here until the residual sludge, which may contain chromate, is removed from the cooling towers.

K049

Slop oil emulsion solids are a solid-oil-water mixtures generated during slop oil tank cleaning which occurs approximately every two years. The sludge is moved from the tank with a vacuum truck and transported directly to the Land Treatment Facility. The waste is considered hazardous since it can contain heavy metals such as chrome and lead, and trace quantities of hazardous hydrocarbons such as phenols, benzene, toluene, and polynuclear aeromatics (PAH).

K050

Heat exchanger bundle cleaning sludge is generated during major refinery maintenance events and consists of oil-water-solids mixtures. The mixture may contain heavy metals, such as chrome, lead, zinc and trace quantities of hazardous hydrocarbons, such as phenols, benzene, toluene and PAH's. The waste is transported to the Land Treatment Facility.

K051

API separator sludge is an oil-water-solids mixture removed from the bottom of the API separator with a vacuum truck and transported directly to the Land Treatment Facility. The waste may contain heavy metals, such as chrome, lead and zinc and additional hazardous constituents, such as phenols, benzene, toluene and PAH's. API cleaning is performed semi-annually and

the resulting wastes represent the largest volume handled at the refinery.

K052

Tank bottoms from leaded tanks consists of oil-water-solids mixtures generated by cleaning leaded gasoline tanks. The waste is removed from the tank with a vacuum truck and transported directly to the Land Treatment Facility. The waste is toxic since it contains lead which may be present as tetra-ethyl lead. The waste may also contain small quantities of toxic hydrocarbons such as phenols, toluene and benzenes. Leaded gasoline tank cleaning occurs on an approximate five year cycle.

The location of waste generation, trichloroethane storage and the Land Treatment Facility are shown on Figure E.1-1. Quantities and disposition of wastes are shown on Table E.1-1. Further information on the hazardous wastes, and their generation can be found in the Land Treatment Demonstration Report by Lockwood, Andrews and Newman, Inc., May of 1988.

## E.1.2 Health and Environmental Hazards

As with all refinery products, care should be taken in handling these wastes. Inhalation of vapors should be avoided. Protective clothing should be worn to prevent contact with the skin. When contact does occur, it should be removed by washing with soap and water. Ingestion should be avoided.

F001            Spent 1,1,1, trichloroethane

Trichloroethane is a light, clear liquid. Inhaled vapors can cause dizziness, difficult breathing, loss of equilibrium, and loss of concentration. High concentrations can be fatal due to asphyxiation. The threshold limit value (TLV) for inhalation toxicity is 350 ppm and the short term inhalation limit is 1000 ppm for 60 minutes. The TLV is the concentration that can be breathed for five consecutive eight-hour work days by most people without adverse effect. Ingestion produces similar effects as inhalation and is moderately toxic. Contact with skin can cause dermatitis.

Care should be taken to avoid breathing vapors. If ingested, give water and induce vomiting. Contact with skin should be treated by removing contaminated clothing and washing the exposed area with soap and water.

Trichloroethane has a flash point above 140°F but is flammable. Combustion of trichloroethane results in toxic and irritating gases including hydrochloric acid fumes. Fires involving this material should be approached from upwind. Fire fighting personnel approaching the fire should wear breathing apparatus.

Trichloroethane is heavier than and only slightly soluble in water. Spills should be immediately picked up to avoid transmission by surface run off or percolation into the soil.

#### D007 through K052 Sludges

The health and environmental effects of exposure to sludges is less defined because the nature of the wastes are subject to variation with generation events. The sludges are considered toxic since they may contain heavy metals such as chrome and lead. Other hazardous constituents such as phenols, benzene, polynuclear aromatics and cyanides may be present. These occur as a small concentration in the wastes. More composition information is available in Attachment A of the Part B permit. The sludges are no more toxic to human exposure than most of the hydrocarbon streams handled in the refinery. However, the repeated uncontrolled exposure of these sludges to the environment might result in contamination of subsurface water. The

sludges are land treated to decompose hydrocarbons and cyanides to carbon dioxide and water by bacterial degradation and to bind the metals to the soil. The Land Treatment Facility provides a controlled area for this treatment to occur. Further information on the operation of the land treatment area can be found in Module II of the permit.

As for all refinery products, skin contact, ingestion or inhalation of the volatile portion of the sludges should be avoided. Skin contact should be treated by removing contaminated clothing and washing the exposed area with soap and water.

The sludges are oil-water-solids mixtures. The quantity of oil present is a function of the cleaning and vacuum pickup procedure. It is possible, although unusual, to generate a sludge with light hydrocarbons which possess a flammability potential. The sludges should be handled as a flammable material and not be exposed to sources of ignition. Should a fire occur involving sludges, heavy metal oxides could be generated. These fires should be approached from up-wind and personnel entering areas where smoke or fumes from such a fire are present must wear a breathing apparatus. These procedures are consistent with normal fire fighting procedures.

The sludges are thick, viscous slurries. Given the clay nature of the soil around the refinery, transmission of contaminants to the subsurface waters is remote if spills and contaminated soils are quickly removed. Contact of sludges with low pH solutions (acids) must be avoided as the low pH increases the soil mobility of metals. A spill occurring during precipitation should be contained in such a way as to also contain runoff from the affected area to prohibit surface migration.

### E.1.3 Contingency Plan Amendment

The contingency plan shall be reviewed by the Refinery Environmental Coordinator and immediately amended if determined to be inadequate to handle non-sudden and sudden releases, and whenever:

- the facility permit is revised,
- there is a significant change in the design or operation of the hazardous waste management facility, (i.e. waste quantities handled, handling techniques, or final disposition),
- the list of emergency coordinators changes,
- the list of emergency equipment significantly changes,
- operating experience, drills, or technical review demonstrates the plan is inappropriate, or
- actual implementation of the plan demonstrates inadequacies.

In reference to the last item, following each event requiring the implementation of the hazardous waste contingency plan, the Refinery Environmental Coordinator shall meet with representatives of all response functions to determine the adequacy of the response.

#### Amendment Records

The contingency plan shall have a cover sheet noting the date of the last amendment. Each amendment date shall be initialed by the Refinery Manager acknowledging and authorizing the changes.

## Distribution

The contingency plan and amendments to the plan shall be distributed to all Emergency Coordinators, Alternate Coordinators (see Table E.3-1) and Emergency Response Agencies (See Table E.3.2). Amended plans shall include a cover letter briefly describing the plan's changes.

## E.2 Non-Sudden Releases

Non-sudden releases includes those incidences which, if uncontrolled, impact the environment over a long period of time. Such incidences include improper land treatment operation and leakage of containers.

### E.2.1 Responsibility

Correction of non-sudden releases shall be the responsibility of the Refinery Environmental Coordinator and can be handled with normal maintenance and management procedures.

### E.2.2 Credible Non-Sudden Releases

The following situations are credible non-sudden releases and actions to correct them. Not all failures can be predicted. In general, the response should first, contain the release, secondly, correct the cause of the release and finally, clean up any release to a level required to protect health and the environment.

#### Trichloroethane Temporary Storage

Failure : Drum leakage

Detection : Weekly visual inspection

Correction: Transfer liquid to another drum or place leaking drum in an oversized drum. Recover standing liquid from storage pad.

## Sludges

Failure : Leaking vacuum truck as transfer equipment.

Detection : Inspect prior to use and during operation.

Correction: Discontinue operation until the equipment is repaired or replace. Clean up spills and contaminated soil.

Failure : Improper land treatment degradation

Detection : Soil sampling (see Operating Conditions Module III of the Permit), periodic inspection noting unusual coloration, odors

Correction: The correction depends on the nature of the problem. Poor biodegradation performance can be detected with soil samples or result in odor, or appearance changes. Such problems are corrected by adjusting the operation (i.e., pH adjustment, fertilizer additions, or additional tilling and/or water addition). Details of corrective measures can be found in Module III of the Permit and in guideline documents such as Land Treatment Practices in the Petroleum Industry, API 1983.

Failure : Non containment of hazardous constituents and metals.

Detection : Soil sampling (see Module III of the Permit), ground water monitoring (see Attachment G of the Permit).

Correction: This failure results in the transmission of hazardous constituents and metals through the soil threatening the first aquifer. The correction requirements to this

event are described in detail in Attachment G and NMHWMR-4 206 D.J and K.

If sampling determines there is a significant increase over background levels of hazardous constituents in the unsaturated zone (the area below the treatment zone), then

- notification of the findings shall be sent in writing to the NMEID within seven days; and
- within 90 days, an application for a permit modification shall be submitted to the Administrative specifying modifications to the land treatment operation procedures to maximize treatment performance.

Should the determination be made that the significant increase is caused by sources other than the land treatment or is due to sample or analytical error, reporting in accordance with 206.D.I.J. shall be performed.

Should changes in the operation of the land treatment be necessitated by a significant increase of hazardous constituents in the unsaturated zone, those changes shall be developed in communication with the NMEID.

If sampling determines there is a significant increase over background levels of hazardous constituents in samples from ground water mon-

itoring wells, then the compliance monitoring plan as presented in Attachment G of the Permit shall be initiated.

### E.3 Sudden Releases

This section deals with incidents involving sudden releases such as spills, fires or explosions.

An emergency involving one of the Hazardous Waste Management facilities or units is very unlikely. The potential exists for a fire in the drum storage area or the land treatment area. Because of the remoteness to the public of these locations, this would not be serious and could be contained by refinery personnel. Fire fighting is covered in Sections 5 and 6 of the Ciniza Refinery Emergency Procedures Manual (EPM).

The sludges transported to the Land Treatment Facility are combustible and contain heavy metals. Should a fire occur with these materials, there is a hazard associated with aspiration of heavy metal oxides. The initial concentration of metals is small, and further dilution occurs on combustion. Normal fire fighting procedures require approaching the fire from up-wind precluding exposure to fumes generated by the fire. Where access to smoke filled areas is required, the procedure requires fire fighting personnel to wear fresh air breathing apparatus. The rural location of the refinery precludes significant exposure to inhabitants outside the refinery.

Because land treatment of wastes immobilizes the heavy metals in

top soil, spills of the waste, if promptly cleaned up, present little danger of contaminating subsurface water.

### E.3.1 Emergency Coordinator

The refinery is staffed 24 hours a day, 365 days per year. The Emergency Coordinator is responsible for coordinating all emergency response measures including the hazardous waste facilities. The Refinery Manager is the primary Emergency Coordinator. On weekends, the Weekend Duty Person is the Emergency Coordinator. When the primary coordinator cannot be reached, persons on the weekend staff duty list serve as alternates. Someone qualified to act as Emergency Coordinator can always be reached by contacting the refinery gate which operates 24 hours per day. Several staff personnel who are familiar with both the refinery and emergency procedures live on site and are available on a 24 hour a day basis. A list of Emergency Coordinators can be found in Table E.3-1.

The Emergency Coordinator shall respond to all incidents involving the release of hazardous wastes including spills, fires or explosions and assess the possible hazards to human health or the environment. The Emergency Coordinator shall use whatever refinery resources are required or call upon response services to control and contain the wastes.

### E.3.2 Coordination Agreements

Table E.3-2 lists the organizations that could possibly be contacted

#### E.4 Implementation of the Contingency Plan

The decision to implement the contingency plan depends upon whether or not an imminent or actual incident could threaten human health or the environment. The following guidelines shall be used by the Emergency Coordinator in making the decision whether or not to institute the contingency plan.

The contingency plan shall be implemented in the following situations involving hazardous wastes:

#### E.4.1 Fire and Explosions\*

- a. A hazardous waste fire spreads and could ignite other materials onsite or could cause heat-induced explosions.
- b. The hazardous waste fire could spread to offsite areas.
- c. An imminent danger exists that an explosion involving hazardous wastes could occur.
- d. An explosion involving hazardous wastes has occurred.
- e. A refinery fire or grass fire threatens to ignite hazardous wastes.

#### E.4.2 Spills

- a. A hazardous wastes spill cannot be contained on-site.
- b. A hazardous wastes spill causes the release of flammable material creating a fire or explosion hazard.
- c. Precipitation accumulations at the land treatment area threatens to over flow the containment dikes.

\*Response to nonhazardous waste refinery fires is described in the Emergencies Procedures Manual (EPM)-Ciniza Refinery.

by the Emergency Coordinator in the event of an emergency and gives a brief definition of the coordination agreement. Existing documentation of the agreements can be found in Appendix A.

All coordinating organizations are provided a copy of the contingency plan. Meetings with Rehoboth McKinley Christian Hospital staff have been held to discuss treating special problems associated with the refinery operation. The Gallup Fire Department and the Fort Wingate Fire Department have had general refinery fire fighting training.

The refinery attempts to handle emergencies internally and therefore maintains fire fighting equipment, fire fighting crews, and an ambulance. Fire fighting crews receive onsite training through drills and instruction, and offsite training by attending fire schools specializing in training refinery fire fighting.

### E.4.3 Emergency Coordinator Actions

Immediately upon discovery of an imminent or actual incident involving hazardous wastes, the Emergency Coordinator will be notified first. In the case of a fire involving hazardous wastes, this is superceded by the refinery fire alarm system since any refinery fire must be controlled rapidly to restrict the area affected. In the case of fire, the personnel first noticing the fire shall notify the boiler house by dialing "111" on the refinery telephone or notifying the boiler house by radio. The "111" number simultaneously rings emergency telephones in the boiler house, control room, laboratory, refinery gate, switch board and safety office. The emergency telephones are separate telephones accessible from the regular telephone system and only used in an emergency or emergency drill. The boiler house operator will manually operate the refinery whistle sounding two five second blasts. The boiler house operator will then announce the location of the fire on the radio and the PA system. The Emergency Coordinator will report to the fire site in accordance with the fire call procedure.

Upon notification of an incident, the Emergency Coordinator shall:

- proceed directly to the site,
- assess the nature of the incident, quantities and type of hazardous wastes involved, and
- based on the guidelines in Section E.4 determine if implementation of the contingency plan is warranted.

Upon decision to implement the contingency plan, the Emergency Co-

ordinator shall perform in this order, the following actions:

1. Notify required response personnel by phone, refinery radio, or the PA system in the case of a spill or incident other than fire. In the case of fire, since the fire fighters have already responded, he shall confirm that the Fire Chief is aware of the hazardous waste involvement and the special hazards associated with the wastes.
2. Notify the New Mexico Environmental Improvement Division (505) 827-9329, and the National Response Center (800) 424-8802.
3. Warn the remaining refinery personnel of imminent or actual hazards using the refinery radio and/or the refinery PA system.
4. Identify the character, exact source, amount, and extent of contamination either by surface flow or aerial dispersion. The assessment will be made by review of facility records, or if necessary, by chemical analysis.
5. Assess the hazards to the environment and human health.
6. Determine if evacuation of the local area is advisable.
7. Advise the response personnel as needed to minimize personnel exposure to hazards and expedite control.

Once control of the emergency is established, the Emergency Coordinator and the Environmental Coordinator shall:

1. Arrange for site cleanup.
2. Provide for treating, storing, or disposing of recovered wastes, contaminated soil or contaminated surface waters.

3. Provide for decontamination of equipment as needed.
4. Conduct testing as needed to verify successful cleanup.
5. Within 15 days of the incident submit to the Regional Administrator and Environmental Improvement Division the reporting form described in Section E.10.

### 13.5 Emergency Response Procedures

#### E.5.1 Fire/Explosion Response

The potential exists for a fire during loading, transport of sludge, or in the solvent storage. A fire in these circumstances would be handled using normal fire fighting procedures. Should a fire occur with these sludges, there is a hazard associated with aspiration of heavy metal oxides. The initial concentration of metals is small, and further dilution occurs on combustion. Normal fire fighting procedures require approaching the fire from up-wind precluding exposure to fumes generated by the fire. Where access to smoke filled areas is required, the procedure requires fire fighting personnel to wear fresh air breathing apparatus. The rural location of the refinery precludes significant exposure to inhabitants outside the refinery. Small quantities of spent chlorinated solvents are stored for less than 90 days in the wastes storage area. For this reason the Fire Chief must be informed that trichloroethane fires generate toxic and hydrochloric acid fumes and the fire crew should use proper breathing protection.

Copies of the refinery fire fighting procedure, equipment list and

inspection list can be found in the Refinery's Emergency Procedure Manual.

All refinery personnel are trained to fight fires. As a minimum, the refinery is staffed to make available immediately a fire brigade of six people. A call out procedure can be instituted by the Emergency Coordinator to provide more personnel. A copy of the call out procedure can be found in the refinery's Emergency Procedures Manual.

In fighting a hazardous waste fire, steps should be taken to control fire fighting water run off to assure hazardous wastes are contained on site. Contaminated water can be retrieved with a vacuum truck and applied to the land treatment area. Affected soils shall be tested to determine if they are above background values and if so, treated in compliance with the regulations. Clean up procedures can include removal of affected soil and transport to the Land Treatment Facility, land treatment in place, or removal and shipment to a permitted hazardous waste disposal facility. Clean up operations shall be coordinated with state and federal hazardous wastes agencies.

### E.5.2 Spill Response

Spills could occur in the trichloroethane storage area. Sludges could be spilled during loading and transport.

Trichloroethane is stored in 55 gallon drums on a sloped pad. Spills are contained on the pad and can be picked up and placed in sound drums, the area can then be cleaned to remove residual material.

Sludges are generated during equipment cleaning operations and are loaded and hauled with contract vacuum trucks. These vacuum trucks are inspected by the safety department on entry to the refinery to assure they have a proper and maintained exhaust system to prevent ignition of flammable materials, to assure that they are equipped with a fire extinguisher, and to assure that the vacuum tank, piping, and valves are maintained in good order.

The vacuum truck hauls approximately 100 barrels of sludge at a time. This relative small volume minimizes the impact of spills while in transit. Loading of tank sludges occurs within diked areas or areas serviced by the oily water sewer system affording containment.

Should a spill occur, the Emergency Coordinator shall use his best judgement to institute actions to, first, contain the spill and secondly remove the waste and contaminated soil. The Coordinator has at his disposal the refinery earth moving equipment as well as all emergency or refinery maintenance equipment.

The coordinator may call on the fire brigade or institute the fire call procedure to provide manpower for cleanup if there is imminent danger to personnel or the environment. Personnel shall wear protective equipment including rubber gloves, long sleeves, and eye protection while cleaning up spills. Breathing protection is recommended should the spilled material include 1,1,1 trichloroethane.

Once containment is established, the Emergency Coordinator shall initiate cleanup operations, picking up the spilled material and spreading on the land treatment area. Contaminated soil shall also be removed and transported to the land treatment area. Soil samples shall be taken and analyzed for oil, lead, and chrome to assure the clean up is successful. Should the volume of soil affected prohibit its removal, the Emergency Coordinator shall contact the state and federal hazardous wastes agencies to determine the acceptability of in place land treatment.

#### E.6 Emergency Equipment

The Emergency Coordinator shall have at his disposal all refinery emergency equipment and maintenance equipment as needed to respond to emergency situations involving hazardous wastes.

### E.6.1 Fire and Emergency Equipment

The location of fire and emergency equipment is shown on the drawing "General Fire Protection Area Location Plan Piping and Flow Arrangement" DWG.No. EZ-86-09-101. A copy of this drawing shall be included with all copies of the contingency plan. Additional information on fire equipment can be found in the Ciniza Refinery Emergency Procedures Manual. A list of fire extinguishers and their locations can also be found in that manual.

Major Equipment includes:

Quantity	Description
1	Ambulance equipped with first aid equipment
1	National Air-O-Foam Fire Truck
1	Pierce Attack Pumper Fire Truck
1	Fire Water Storage and Distribution Hydrant System
1	Diesel Driven Pond Fire Water Pump
1	Waukesha Natural Gas Engine Fire Water Pump
1	Steam Turbine Driven Fire Water Pump
21	5# CO <sub>2</sub> Fire Extinguishers
12	10# Foray Fire Extinguishers
14	15# CO <sub>2</sub> Fire Extinguishers
82	20# Purple K Fire Extinguishers
45	30# Purple K Fire Extinguishers
7	150# Purple K Fire Extinguishers

11            30 minute Scott Air Packs  
1000 ft    Additional Fire Hose  
1000 Gal   Spare XL 3% Foam  
2            Proximity fire entry suits  
3            Hazardous Environment Enclosed breathing suits  
             Miscellaneous first aid equipment  
             Miscellaneous fire fighting equipment

**Ambulance:**    The ambulance is located at the Fire House (Building 11). The ambulance is radio equipped to allow communication with the refinery. The vehicle is a 3/4 ton van capable of carrying three injured personnel. The ambulance is equipped with first aid equipment including oxygen and burn treatment materials.

**National Aer-O-Foam Fire Truck:**

This fire truck is located in the Fire House (Building 11). It is a mobil foam house which can be used as a water pumper, a foam pumper or in combination to deliver simultaneous water and foam streams. The rated capacity of the water pump is 1000 gpm at 150 psi from draft. Capacities and pressures may be increased when water is supplied from hydrants.

The truck is capable of drafting from static water sources such as the evaporation ponds and can supply up to six discharge hoses. The truck carries a tank

containing 1000 gallons of XL 3% foam, 1000 feet of 3" fire hose and 500 feet of 1-½" fire hose as well as other miscellaneous fire fighting equipment. The truck is capable of cross country operation.

**Pierce Attack Pumper Fire Truck:**

This fire truck is located in the Fire House (Building 11). It is a water and/or foam pumper with a rated capacity of 500 gpm at 150 psi from draft. The truck carries a tank containing 50 gallons of A.F.F.F. foam, a second tank containing 250 gallons of water and 700 feet of 3" hose as well as miscellaneous fire fighting equipment. The truck is equipped with a cab mounted monitor. The truck is a rural 4 wheel drive design capable of cross country operation.

**Fire Water Storage and Distribution Hydrant System:**

The hydrant system is shown on the General Fire Protection Drawing. Primary fire water storage is located in two tanks, Z86-T1, the 5000 gallon fire water tank, and Z91-T1, the 5000 gallon raw water tank, located near the boiler house. These tanks are directly fed by three artesian wells, Water Supply Well No. 1 and Water Supply Well No. 2, which can deliver 800 gpm. The Waukeshaw natural gas driven fire water pump and the steam driven fire water pump take suction on these tanks and discharge to the hydrant system. The No.

2 pond holds an estimated 1-½ million gallons. The diesel fire water pump takes suction on the pond and discharges to the hydrant system.

Supply wells No. 1 and No. 2 are equipped with valved flanges at the well site to allow fire trucks to take suction directly from the wells.

The hydrant system includes not only fire water supply hydrants, but also turret monitors, steamers, hose reels, fog nozzles, foamite air chambers and foamite air foam aspirators. The locations of this equipment are shown on the General Fire Drawing. In general, the tank farm is protected with foam generation equipment. The process area is protected with hose reels, hydrants, turret monitors and fog nozzles.

#### Diesel Driven Pond Fire Water Pump:

This pump is located at the No. 2 evaporation pond taking suction from the pond and discharging to the hydrant system. The diesel engine drives a Goulds pump capable of delivering 1300 gpm.

#### Waukeshaw Natural Gas Engine Driven Fire Water Pump:

This pump is located at the boiler house and takes suction on the raw water and fire water tanks discharging to the hydrant system. The pump can deliver 1000 gpm.

#### Steam Turbine Driven Fire Water Pump:

This pump is also located at the boiler house, and takes suction from the raw water and fire water storage tank discharging to the hydrant system. The pump can deliver 1000 gpm.

#### Fire Extinguishers:

The location of fire extinguishers are shown on the General Fire Protection drawing. The distribution of extinguishers allows rapid response and control of small fires.

In addition to mounted extinguishers, refinery vehicles and vacuum trucks are required to have fire extinguishers.

#### Scott Air Pack:

The location of the 11 air packs are shown on the General Fire Protection drawings. Two air packs are located on the Aer-O-Foam fire truck. The remaining air packs are located in control rooms and various buildings to allow operator response prior to arrival of the fire truck and to allow access to the air pack should they be needed for escape.

**Fire Hose:** In addition to the fire hose maintained on the fire

trucks, and reel hoses in the process area, 1000 feet of hose is stored at the Fire House. A major portion of this hose is kept on a trailer to facilitate movement. Additionally, approximately 1500' of fire hose is in place at key locations in the process area.

XL 3% Foam: In addition to the 1000 gallons XL 3% Foam on the Aer-O-Foam Fire Truck and the 50 gallons of A.F.F.F. foam on the Pierce Attack Pumper, 1000 gallons of XL 3% foam, and 300 gallons of A.F.F.F. foam is stored in the Fire House.

Proximity Fire Entry Suits:

The two entry suits are located on the fire truck.

E.6.2 Spill Control Equipment

Major Equipment available for spill control includes:

Quantity	Description
1	Road Patrol (Grader)
1	Front End Loader
1	2.5 yard dump truck
	miscellaneous shovels, picks, and hand equipment

This equipment is available from the maintenance department and may be in use during day shifts. The Emergency Coordinator should contact the Maintenance Supervisor or foreman by radio to obtain the equipment during day shifts. During other hours, the equipment is stored near the shop and may be operated by any qualified operator.

#### E.7 Communication System

The refinery communication system includes an internal telephone system, a public address system, a two way radio system and a fire whistle.

The internal telephone system allows contact with control rooms and offices using a three digit number. The "111" line to the emergency phones at the boiler house, laboratory, refinery gate, switch board, control room and safety office is dedicated for emergency calls. The telephone system can be used to make announcements over the refinery public address system.

The two way radio base station is located in the main refinery control room. The control room, including the base station, is supported by an emergency generator during power failures. Refinery operators and maintenance supervisors have hand held radio units. Refinery vehicles are equipped with radios as is the boiler house and selected offices.

The fire whistle is manually operated by the boiler firemen in re-

sponse to emergency calls on the "111" telephone line or on the two-way radio. The fire whistle is used for all emergencies and is answered by the fire response team.

#### E.8 Evacuation

There are no foreseeable credible incidents involving hazardous wastes that will result in evacuation of the refinery or surrounding area. However, a major uncontrolled refinery fire may result in evacuation.

**Visitors:** Visitors are signed in at the desk. Unescorted visitors are not allowed in the refinery operating area. In the event of an emergency, visitors are instructed to return to the front office where they are accounted for against the sign-in register. Should evacuation be necessary, visitors are instructed to leave via the access road to I-40.

**Contractors:** Contractors are logged in and out at the front gate for each entry and departure. Contractors are given safety instructions during their first visit to refinery. They are required to report to the front gate during emergencies and are warned of such by the refinery fire whistle. Should evacuation be necessary, contractors are instructed to leave via the access road to I-40.

**Employees:** All employees are assigned specific duties during emer-

gencies. The employees form the emergency response crews. Each crew leader has a radio and is responsible for communication with team members.

Should evacuation be necessary, notification to employees is made via radio and the refinery PA system. On the order to evacuate, the employees report to the access road at I-40 for head count and further instructions.

Local Citizens:

Due to the rural nature of the site, it is doubtful that evacuation of citizens will be required. The nearest non-refinery related residence is one mile south-south west, the second nearest being two and one half miles north west. Should evacuation be deemed necessary, the refinery management shall contact the County Sheriff to provide assistance.

## E.9 Refinery Access

The refinery gate is manned around the clock. In the event of a refinery emergency, the access of non refinery personnel is prohibited. The refinery gate is equipped with an emergency "111" telephone.

## E.10 Emergency Reports

Any emergency event that requires implementing the contingency plan will be reported in writing within 15 days to the EPA Regional Administrator. A reporting form for emergency events is shown in Figure E.10-1.

## E.11 Amendments to the Spill Prevention Control and Containment (SPCC) Plan

The Ciniza Refinery is located such that oil spills from the facility could not reasonably threaten navigable waters. A SPCC plan is therefore not required for the facility.

TABLE E.3-1  
EMERGENCY COORDINATORS

=====

PRIMARY COORDINATORS

Monday-Friday

Refinery Manager *	J.J. Stokes	Route 3 Box 7 Gallup, NM 87301	(505)722-3833 Ext. 202or301
Assistant Refinery Manager	M.S. Mexal	414 LaCima Gallup, NM 87301	(505) 722-3833 Ext. 203
Staff duty person (other hours)			
Saturday-Sunday: Staff duty person	Contact Refinery Gate		(505) 722-3833

ALTERNATE COORDINATORS

Safety Manager	K.E. Patton	Rt. 3 Box 7 Gallup, NM 87301	(505)722-3833 Ext. 306
Maintenance Supervisor	A.J. Rodriguez	701 Julie Dr. Gallup, NM 87301	(505)722-2614 Ext. 207
Technical Services	E.F. Stalcup	Rt. 3 Box 7 Gallup, NM 87301	(505)722-3833 Ext. 302
Refinery Sr. Engineer	R.C. Anderson	Rt. 3 Box 7 Gallup, NM 87301	(505)722-3833 Ext. 303
Technical Services	B.E. Reed	1702 Helena Dr. Gallup, NM 87301	(505)722-4055
Safety Inspector	E.H. Taylor	Rt. 3 Box 7 Gallup, NM 87301	(505)722-3833 Ext. 300
Maintenance Foreman	C.A. Childs	W. of Gallup Gallup, NM 87301	(505)863-6920 Ext. 270
Maintenance Foreman	T.B. Gonzales	108 E. Logan Gallup, NM 87301	(505)863-6307 Ext. 276

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\*Assistant Refinery Manager acts for the Refinery Manager as required.

TABLE E.1-1  
 QUANTITIES AND DISPOSITION OF HAZARDOUS WASTES

WASTE ID	DESCRIPTION	SOURCE	TREATMENT	MAX. QUANTITY STORED	EST. QUANTITY GENERATED PER YEAR	HAZARDOUS COMPOUND
F001	Spent 1,1,1 Trichlorethane	General Refinery	Shipped Off Site	250 Gal (less than 90 days)	3000 pounds	Trichloroethane
D007	Sludge Oil-water-solids	Cooling tower filter cleaning	Land treatment	None	12,600 pounds	Heavy metals such as chrome, lead, hydrocarbons such as phenol benzene, toluene
K049	Emulsion Solids Oil-water-solids	Slop oil tank cleaning	Land treatment	None	8000 pounds	As D007
K050	Sludge Oil-water-solids	Heat exchanger cleaning	Land treatment	None	4000 pounds	As D007
K051	Sludge Oil-water-solids	API Separator cleaning	Land treatment	None	500,000 pounds	As D007
K052	Sludge Coil-water-solids	Leaded tanks cleaning	Land treatment	None	1600 pounds	As D007 but can include tetraethyl lead

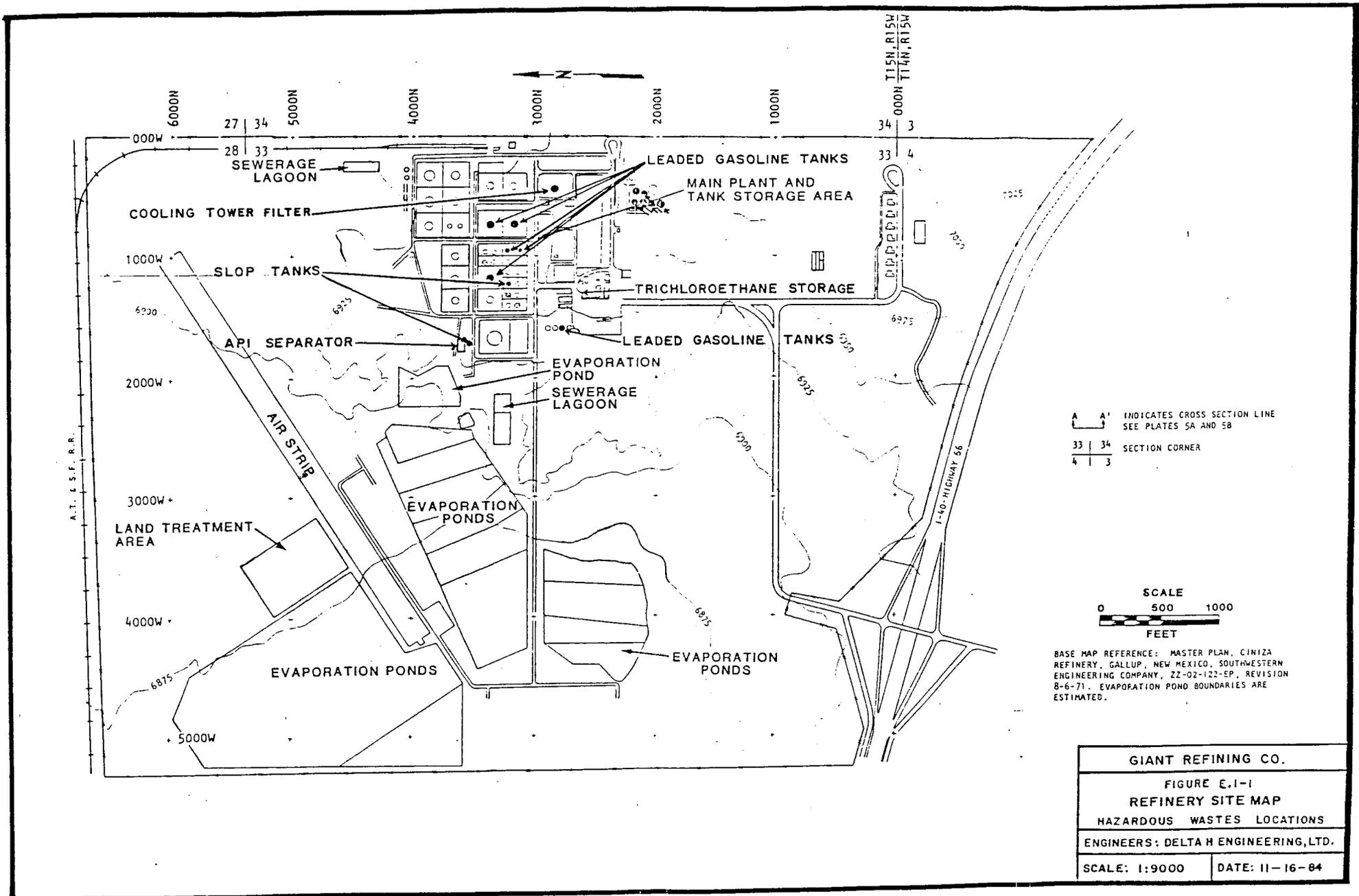


TABLE E.3-2

COORDINATION AGREEMENTS

=====

Police: New Mexico State Police  
Telephone (505) 863-9353

Agreement: Provide assistance in isolating the refinery, controlling traffic in an emergency, and evacuating local residents.

McKinley County Sherrif Office (Thoreau Substation)  
Telephone (505) 862-7155

Agreement: Provide assistance in isolating the refinery, controlling traffic in an emergency, and evacuating local residents.

Fire: Gallup City Fire Department  
Telephone (505) 863-3801

Agreement: To respond to emergencies such as fires or explosions when called to support refinery fire fighting forces.

Fort Wingate Depot  
Telephone: (505) 488-5411

Agreement: To respond to emergencies such as fires or explosions when called to support refinery fire fighting forces.

Thoreau Volunteer Fire Department  
Telephone: (505) 862-7440

Agreement: To respond to emergencies such as fires or explosions when called to support refinery fire fighting forces and to provide ambulance service.

Ambulance: Thoreau Volunteer Fire Department  
Telephone (505) 862-7440

Agreement: To respond to emergencies such as fires or explosions when called to support refinery fire fighting forces and to provide ambulance service.

Hospital: Rehoboth McKinley Hospital  
Telephone: (505) 863-6831

Agreement: To provide treatment of refinery personnel injured during emergencies.

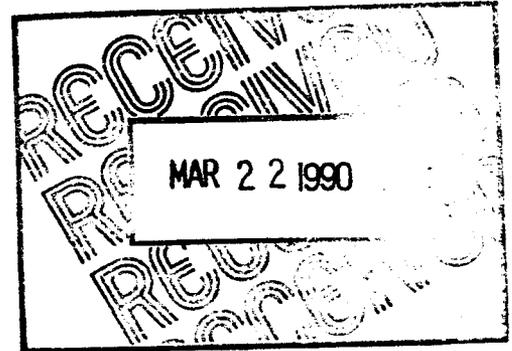


Route 3, Box 7  
Gallup, New Mexico  
87301

505  
722-3833

March 20, 1990

Jack Elvinger  
Bureau Chief  
Hazardous Waste Division  
Environmental Improvement Division  
1190 St. Francis Drive  
Harold Runnels Building  
Santa Fe, New Mexico 87503



RE: Contingency Plan Update  
LOCATION: Giant Refining Company  
I-40, Exit 39  
Jamestown, New Mexico 87347  
PERMIT NUMBER: NMD-000333211-2

Dear Mr. Elvinger:

As required by the Environmental Improvement Board's/- Hazardous Waste Management Regulations-4 Section 206 B.10(K)(4), Giant Industries Arizona, Inc., is updating Table E. 3-2 (Coordination Agreements) for the indicated permit. As a result of updating coordination agreements, it was verified that Table E. 3-2 required modifications. As a minor permit modification, please insert new pages E-42 and E-42A and remove existing page E-42.

If you have any questions, please contact Claud Rosendale at 505-722-3833, ext. 217.

Sincerely,

  
John Stokes  
Refinery Manager

JJS:smb

cc: With enclosure  
Kim Bullerdick  
Giant Industries  
Corporate Counsel

TABLE E. 3-2

COORDINATION AGREEMENTS

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POLICE: New Mexico State Police  
Telephone (505) 863-9353

Agreement: Provide assistance in isolating the Refinery, controlling traffic in an emergency, and evacuating local residents.

McKinley County Sheriff Office - Telephone (505)863-3132  
(Thoreau Sub-station - Telephone (505)862-7155)

Agreement: Provide assistance in isolating the Refinery, controlling in traffic in an emergency, and evacuating local residents.

FIRE: Gallup City Fire Department  
Telephone (505) 722-4195

Agreement: To respond to emergencies such as fires or explosions when called to support Refinery fire fighting forces.

Thoreau Volunteer Fire Department  
Telephone (505) 862-7440

Agreement: To respond to emergencies such as fires or explosions when called to support Refinery fire fighting forces.

Whispering Cedars Fire Department  
Telephone (505) 863-9511

Agreement: To respond to emergencies such as fires or explosions when called to support Refinery fire fighting forces.

White Cliffs Fire Department  
Telephone (505) 863-9043

Agreement: To respond to emergencies such as fires or explosions when called to support Refinery fire fighting forces.

AMBULANCE:

Gallup Emergency Medical Services  
Telephone (505) 722-7746

Agreement: To provide ambulance service to transport injured personnel to the hospital.

Thoreau Volunteer Ambulance Service  
Telephone (505) 862-7440

Agreement: To provide ambulance service to transport injured personnel to the hospital.

TABLE E. 3-2

COORDINATION AGREEMENTS

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HOSPITAL:

Rehoboth McKinley Christian Hospital  
Telephone (505) 863-6832

Agreement: To provide treatment of Refinery personnel injured during emergencies.

Cibola Medical Foundation  
Telephone (505) 722-4483

Agreement: To provide treatment of Refinery personnel injured during emergencies.

FIGURE E.10-1

REPORTING FORM FOR EMERGENCY EVENTS

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Name, address, and phone number of owner or operator

---

Name, address and phone number of facility

---

Date, time, and type of incident (e.g., fire, explosion, etc.)

---

Name of material involved

---

Quantity of material involved

---

Extent of injuries (if any)

---

Assessment of actual or potential hazards to human health or the environment (if applicable)

---

Estimated quantity and disposition of material recovered from the incident

---

Send to:

DIRECTOR, NMEID  
Harold Runnels Building  
1190 St. Francis Drive  
Santa Fe, NM 87503

**GIANT REFINING COMPANY**  
**PERMIT NMD000333211-2**  
**ATTACHMENT F**  
**CLOSURE AND POST-CLOSURE PLAN**

PERMIT ATTACHMENT F

CLOSURE AND POST CLOSURE PLAN

Giant Refinery Land Treatment Area

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Tables and Figures

The following Closure and Post-Closure for the Giant Ciniza Refinery Landfarm, hereafter referred to as the land treatment area (LTA), satisfies the requirements of New Mexico Hazardous Waste Management Regulations.

## 1. GENERAL CLOSURE REQUIREMENTS

### 1.1. Maximum Inventory of Wastes

Table 1 shows the maximum waste inventory expected at closure. The maximum waste inventory is calculated assuming that 10% of the capacity of each solid waste management unit may contain sludge. The listing does not include wastes in progress, such as in storage tanks, and heat exchangers.

Records of waste analysis and waste inventory for the LTA will be maintained at the facility during closure and post-closure until Giant is released of financial obligation by the Director.

### 1.2. Closure Plan

The closure plan consists of three phases; decontamination of the general facility, in-place treatment of final waste application, and establishment of a vegetative cover.

At closure time, all vessels, exchangers, towers, pumps, sewers, swamps, tanks and any other container of wastes classified as hazardous will be drained, washed with a suitable detergent and triple rinsed with all the drained volume and reinstate transported to the LTA for application under standard procedures. As each unit is decontaminated, a sample of the reinstate is taken and analyzed for the constituents in Table 5. If concentrations of the parameters are less than maximum allowable, then the particular processing unit can be considered decontaminated. If not, then the wash procedure is repeated. When all loads of hazardous waste have been applied to the LTA, the equipment for applying the wastes will be steam cleaned over the surface of the LTA. Likewise with any other farming equipment contacting hazardous waste before closure.

When the final wastes are applied, in-place treatment will commence and continue until 90 to 150 days have elapsed, depending on whether the final waste application has degraded sufficiently by the elapse of 90 days, if not, in-place treatment will continue until 150 days have elapsed.

A biological test, such as Microtox (@), will be used to determine phytotoxicity.

Once it has been determined that sufficient degradation has

occurred, and the LTA surface will not be toxic to the establishment of a final vegetative cover, the LTA surface can be prepared for seeding and post-closure care.

#### 1.2.1.1. Control of Migration of Hazardous Constituents to Groundwater.

Three concurrent procedures to prevent the migration of hazardous constituents to groundwater, will be utilized during closure.

The first two procedures concern Unsaturated Zone Monitoring. Soil-core and soil pore moisture sampling as outlined in their respective sections will be performed to detect and predict the migration of hazardous constituents and waste residue through the treatment zone. Analysis of soilcores and soil pore liquids will be used to determine the effectiveness of treatment in the zone of incorporation during the closure period. Additionally, the data from soil core and soil pore moisture analysis can be used in a mathematical model to assess the potential for migration.

The third procedure involves groundwater monitoring during closure. This procedure will essentially be the same as the procedure during the operating life of LTA, except for the frequency. The details of the groundwater monitoring procedure are outlined in that respective section.

There are two structures to prevent the migration of contaminants to groundwater. The first is the dike surrounding the LTA, as discussed in the section "Control of Release of Contaminated Run-off to Surface Waters". Containment of run-off will act to prevent potentially contaminated water from flowing into contiguous areas that are not being monitored with the eventual migration to groundwater. The second structure is the vegetative cover to be established at the end of the closure period. During the time that the vegetative cover is being established, which is outlined in the section "Placement of the Final Cover", the amount of irrigation water and precipitation that can percolate into the treatment zone, and act as a vehicle for hazardous waste constituent migration, will decrease with spread of the cover. The amount of reduction is proportional to the increase in vegetative density and can be established by field measurement. A dense vegetative cover will act to decrease the vertical permeability at the surface of the zone of incorporation and reduce percolation. It will also aid in the immobilization of hazardous constituents as function of their affinity to soil particles and root systems. Additionally, a vegetative cover will significantly reduce wind-borne dispersion of constituents and wind erosion.

#### 1.2.1.2. Control of Release of Contaminated Run-Off to Surface Waters

During closure, potentially contaminated surface run-off will be controlled by the existing dike around the perimeter of the LTA. The dike should contain approximately 3 times the annual rainfall for the area (13 inches) in volume assuming an average dike height of 3.0 feet and approximately 12 acres of surface area. Assuming that a 24 hour, 100 year storm event would not exceed the annual rainfall of 10 inches, the dike should be able to control run-off from the LTA during any expected storm event.

The Closure Coordinator will inspect the dikes and repair any erosion that has occurred. Additionally, the dikes will be maintained at the minimum height of 2 feet above the surface of the LTA, to insure that sufficient capacity within the dike is available to control run-off during closure.

#### 1.2.1.3. Control of Airborne Particulates

To prevent soil desiccation and consequent dust generation during the closure period, the soil moisture will be maintained by irrigation. Measurements for soil moisture content can be made with a portable tensiometer. If measurements indicate that available soil water capacity is less than 20 centibars, irrigation should commence and continue until available soil moisture content is at least 60 centibars.

At least two measurements per cell will be taken at locations equally spaced along the West-East Cell Center Axis of the LTA for the soil moisture determination. The amount of irrigation can be estimated assuming that 70% of available soil water content is approximately 513,000 (12 acres of surface area, 2 foot zone of incorporation), or 3 inches of collected water in an open container placed under an areal sprayer pattern. The Closure Coordinator will visually inspect the LTA on a weekly basis during closure time, to insure that soil desiccation is not occurring. Tilling of the zone of incorporation will not be conducted during closure time if the soil inspection indicates soil desiccation to a depth greater than 3 inches or when soil moisture is insufficient to prevent dust generation.

#### 1.2.1.4. Compliance with Food-Chain Crop Restrictions

Giatt will not allow the cultivation of food chain crops on the LTA during times of normal operations, closure, or post-closure except for the scientific testing of such cultivation with the intent of providing data only, or with the intent of plowing under such a crop for mulch to establish the final cover, and with the approval of the Director. Appropriate Notice in Deed in accordance with HWMR-5, Part V, Section 264.119, will be filed with McKinley County.

#### 1.2.2. Requirements for Land Treatment During Closure Period

### 1.2.2.1. Unsaturated Zone Monitoring

#### 1.2.2.1.1. Lysimeter Monitoring

The locations of soil pore moisture samples are shown in Figure 1. Vacuums of approximately 70 centibars are typically applied to each lysimeter, although other levels of vacuum will be testing during the operational life of the LTA to determine the most advantageous vacuum level for soil-moisture recovery.

The lysimeter are sampled based on a lag time after a major precipitation event, high volume irrigation event or heavy waste application. The length of the lag time is the time required for a moisture front to move vertically from the surface through the soil level containing the ceramic cups of the suction lysimeters.

If during closure time there are no major precipitation events to create a moisture front for vertical migration, an artificial one may be created by irrigation if the most recent three previous samplings during the operational life of the LTA prior to closure do not indicate significant statistical increase in any of the indicator parameters. This has to be fulfilled to prevent the unnecessary creation of a moisture front moving vertically and acting as a vehicle for hazardous constituent migration.

If this situation can not be fulfilled, and there is insufficient natural precipitation during closure time, then a series of three prescheduled sampling events should take place. However sampling occurs, if three consecutive sampling events (including one prior to notice of intent to close) indicate no statistically significant increase in indicator parameters, then soil pore sampling can be terminated. The suggested frequency of sampling, taking into account the above conditions, would be the following:

First Sampling Event During Closure  
Within 30 days of final waste application.

Second Sampling Event During Closure  
Within 90 days of final waste application.

The in-place lysimeters are Model 1920 Pressure-Vacuum Soil Water Samples. Essentially, a glass Erlenmeyer flask, connected to the polyethylene tubing by a short length of neoprene tubing, receives the liquid sample. The volume of the sample is measured in a glass graduated cylinder to keep track of recovery. The sample is then transferred to the appropriate shipping bottle, with the appropriate preservative, chilled to 4 degrees Celcius, and shipped to the analytical lab. Precautions to prevent cross contamination include repeated Type II Reagent grade water flushing of the neoprene tubing and flask after dilute HCL or HNO3, tap water and reagent grade denatured methanol flushes,

depending on whether a sample for metal or organic analysis is being taken.

The gross and specific indicator parameters to be analyzed for are shown in Table 2. It is possible that an abbreviated or expanded table covering constituents and degradation products will be developed during the operating life of the LTA. Such a list would be submitted to the Director as an amendment to the Closure Plan for approval.

Liquid samples from the lysimeter arrays in each of the cells will not be composited into one sample.

#### 1.2.2.1.2. Soil Core Monitoring

During closure time, the termination of in-place treatment will be determined by the concentration of hazardous waste constituents or degradation products in the zone of incorporation.

Two soil cores per cell through the zone of incorporation (ZOI) (top 12" of LTA surface) will be analyzed for the parameters listed in Table 4. A coordinate grid overlaying the LTA will be used to select samples. Sampling locations will be established by extracting coordinates from a random numbers table until two sampling locations per cell have been established.

The frequency of soil core sampling is shown in Table 3. Within 30 days of the last waste application, the gross parameters listed in the table will be sampled. These parameters will determine the adjustments to soil moisture and nutrient levels necessary for optimal conditions to degrade the final waste application. Within 90 days of the final waste application, the gross and specific parameters shown in Table 3 will be analyzed to determine the soil moisture and nutrient levels necessary for possible constituent treatment and the modified Skinner list constituent levels to determine if the elapsed time of in-place treatment is sufficient and a vegetative cover can now be established. The two soil core samples from the ZOI per cell will be composited. The two soil core samples from the BTZ per cell will not be composited into one sample. Each of the samples will be analyzed for the metals of concern. The concentration of these metals in surficial soils will be compared to the maximum recommended accumulation levels. If the concentrations are below maximum acceptable levels, then a vegetative cover can be established without great concern of phytotoxic effect on the vegetative cover. \* If the metal concentrations are above maximum acceptable levels, then the LTA will be tilled to a depth of 18 inches to distribute the metal concentrations in a larger soil mass. This option should be exercised only if field evidence indicates that deep plowing will not disrupt a soil horizon which is preventing migration, and the organic components have degraded sufficiently to allow incorporation into deep soil and anaerobic

conditions. A biological test, such as Microtox (®), will be used to evaluate phytotoxicity.

If this option is to be exercised, it should coincide with any lime additions that would need to be incorporated into the ZOI to adjust pH. The cores will also be analyzed for the Table 4 list of organics. The constituents concentration levels will be statistically compared (difference between sample means) to background levels at the 0.01 level of significance using the permitted statistical procedures in permit paragraph III.L. If the constituent levels are not statistically significantly higher than the background, then in-place treatment can be terminated and the vegetative cover can be established. If the levels are statistically higher, the in-place treatment continues to 150 days beyond the final waste application. At that time soil cores from the eight randomly selected locations beneath the treatment zone as well as the zone of incorporation will be analyzed for the modified Skinner list, Table 4. In-place treatment will cease after the 150th day.

A soil sampling device, such as the JMC equipment described below, or equivalent, will be used. JMC Soil Investigation equipment is used to extract cores from the surface (ZOI), to beneath the treatment zone. Once the soil core location is established, the entire JMC Back-saver Handle Assembly, 26 extension rods and zero contamination tubes will be washed with a nonphosphate detergent, steam cleaned thoroughly, then rinsed with reagent grade alcohol, tap water rinsed and then triple rinsed with type II Reagent grade water. The lead acetate sleeves that actually receive the soil cores in the zero contamination tubes will be washed with nonphosphate detergent, rinsed with tap water, rinsed with dilute HCL acid and then dilute HNO3, then rinsed with tap water again, then a reagent grade denatured alcohol, then triple rinsed with Type II Reagent grade water.

The decontaminated equipment is used to take cores to the desired depth as per the manufacturer's instructions. The depth of travel of the zero contamination tube (core barrel) is kept track of by marking the back-saver handle with masking tape as the tube and sliding pushrod are driven into the ground. When the pushrod has traveled the approximate length of an acetate liner, the assembly is pulled from the core hole and the lead acetate liner is removed from the zero contamination tube, in such a manner as to prevent contamination of the zero contamination tube. A visual inspection of the zero contamination tube at this point is required to determine if the equipment needs to be decontaminated again.

The lead acetate liner is immediately capped at both ends with decontaminated end caps. The caps are taped in manner to conform to chain-of-custody rules and prevent sample contamination. A label is affixed to the tube in such a manner

so that it will not be effaced by handling or shipping. The label will contain the following information:

- a. a unique inventory number representing the date and time sample is taken
- b. initials of person taking sample
- c. reference location
- d. indication of top and bottom of soil core, and approximate depth interval in inches represented by the core
- e. parameters to be analyzed for

The core is then immediately chilled to 4 degrees Celcius until it reaches the lab for analysis.

If an entire cored interval from surface to beneath the zone of treatment is taken, precautions to prevent cross contamination between the zero contamination tube, lead acetate liner and waste-laden soil, should be taken. Visually inspect the component and decontaminate if in doubt. In any case, decontaminate the equipment in-between soil core locations.

The core holes will be back filled with bentonite to prevent the establishment of a pathway for migrating waste constituents.

#### 1.2.2.2. Placement of Final Cover

The second phase of the closure plan is the establishment of a vegetative cover. Because the soil condition at the time that formal in-place treatment is terminated is likely to be non-productive in terms of vegetation, a county agricultural agent, professional certified soil scientist, or agronomist, will be consulted. The following steps will be taken to insure the rapid establishment of a low maintenance and well drained vegetative cover.

When it is determined that no further major in-place treatment will occur in the zone of incorporation, the surface of the LTA will be prepared for a vegetative cover. The surface of the LTA will be graded to a final slope of between 1% and 1.5% in an westerly direction. There should be less than 0.5 feet variance in surface level anywhere on the LTA to eliminate local depressions and elevation and provide a flat, even expanse with the above mentioned grade. Once a uniformly graded surface area is established, an evaluation for soil suitability will be performed. A general evaluation made in consultation with a county agricultural agent, professional soil scientist, or agronomist will consider the following points:

**EVALUATE pH LEVEL:** The pH buffering capacity (tons of lime/acre) should be determined to adjust the pH to around  $6.5 \pm .5$ .

**EVALUATE NITROGEN & ORGANIC MATTER:** Nitrogen fertilizer requirements are directly proportional to the amount of organic

matter present and dependent upon the sandiness of the soil. These two factors need to be evaluated in the soil characterization at the time of closure.

The organic matter may be a high percentage in the soil composition at time of closure so its possible that additional nitrogen per acre will need to be added and perhaps several additions will be necessary to obtain adequate Nitrogen content.

EVALUATE PHOSPORUS AND POTASSIUM LEVELS: Phosphorous levels are dependant upon pH. At optimum pH values of 2.6 to 6.8, amounts of 50 pounds per acre are needed, more if pH is closer to 7.5.

Adequate potassium levels can be established for several growing seasons with the initial application of 26 lbs/acre.

EVALUATE SPECIES SELECTION: A mixture of perennial grasses as listed in Table 6 should be considered. These grasses are known to thrive locally. Characteristics of any grass specie that should be considered are: rapid germination and spread, resistance to fire, insects and diseases, depth of root system to prevent erosion, vegetative thickness to minimize percolation and low maintenance. The exact species selected will conform to the New Mexico Agriculture Department guidance in effect at the time of closure.

After first considering the appropriate seeding time, and once the above evaluations are made, seed bed preparations will commence. The appropriate pH and nutrient levels will be established. The LTA surface will be plowed to destroy any existing vegetation that might detrimentally compete with the grasses and to create a favorable soil density. If seeding can not proceed shortly after preparation, straw mulch (1.5 tons/acre) will be used to protect the surface against wind or rain erosion and preserve moisture. The appropriate time for seeding plays a key role in the development of a healthy, thick vegetative cover. If possible, the termination of in-place treatment and the establishment of a vegetative cover will be scheduled so that the optimal seeding time of either fall or spring occurs. The LTA surface will be protected with a mulch and irrigated as necessary, until the appropriate season for seeding with the specified seed mixture arrives.

When it is determined that the time to plant seed has arrived, three factors need to be considered; seeding method, seeding rate, and seeding depth. There are three methods, two of which are preferred. Broadcasting or drilling the seeds are principally recommended. The third, hydroseeding, in which seed, fertilizer, mulch, lime and water are sprayed at one time, might not be the most beneficial to germination, due to the phytotoxicity of the residual wastes. This should be evaluated

prior to using this method. Broadcasting, followed by discing and/or drilling provide the best soil-seed contact for establishing the seeds. The suggested seeding rate (See Appendix B) will be around 12 lbs/acre, depending on the seed mixture and soil conditions at the time of seeding. Seeding depth will probable be no more than 0.25 to 0.50 inches, depending on the season and seeding method.

Finally it should be stressed that a certified professional soil scientist, agronomist or county agriculture agent can give invaluable advice during the establishment of a vegetative cover. Additionally, it is possible that field tests on plots treated with wastes might be performed during the active life of the LTA. These field tests could provide the fundamental information about a particular seed mixtures ability to germinate and develop under the soil conditions at closure.

After the LTA vegetative cover is planted, the 12 acre LTA will be fenced with a five strand barbed wire fence with a lockable four foot wide steel gate, placed just inside the run on-run off perimeter berm.

Records of field tests and of actual closure procedures in establishing vegetative cover shall be kept at the facility, or made easily accessible until Giant is released from financial responsibility by the Director.

#### 1.2.2.3. Maintenance of Run-off Management System

The dike system surrounding the LTA is designed to control run-off and run-on from a 24 hour, 100 year storm. The capacity of the dike system provides approximately 3 times the annual average rainfall. The dike system must be inspected to maintain this capacity and prevent potentially contaminated run-off from migrating to the groundwater and prevent run-off from eroding the surface of the LTA where heavy metals will be immobilized and where organic degradation may still be occurring. During closure time the LTA dike system will be inspected weekly and immediately after storm events, to insure its integrity. If erosion has occurred or there is evidence of animal borrows or any other disturbance of the dike geometry, steps will immediately be taken to correct the situation. Figure 2 shows a weekly inspection form that the status of the dikes may be reported on, along with any problems with the dike. The Closure Coordinator is responsible for the inspection and maintenance of the LTA dike system.

Runoff will ultimately evaporate and percolate into the surface of the LTA. Prior to establishment of a vegetative cover, the LTA surface will be graded to remove low and high spots and return the LTA surface to its natural grade.

#### 1.2.2.4. Groundwater Monitoring

Groundwater monitoring activities will continue during closure. Either detection or compliance monitoring on their respective schedules and specific parameters will be performed, depending on the circumstances prior to closure. Specific parameters to be analyzed for will have to be determined at closure time, depending on what type of monitoring program is being performed. For purposes of estimating closure and post-closure costs, it is assumed that detection monitoring is being performed and that the indicator parameters; pH (4 replicates), total organic carbon (4 replicates) specific conductance (4 replicates) and the metals; arsenic, lead, chromium, and volatile organic are being analyzed for.

#### 1.3. Closure Schedule

Year of closure: 2025

- 120 days Review closure plan for approach, scheduling and possible amendment, etc.
- 90 days Modify closure plan, if required, and submit modified closure plan to EID for review and approval.
- 60 days Provide notification to EID of intent to close
- Day 0 Apply last load of waste designated as hazardous to the LTA.
- + 15 days Sample soil pore moisture.
- + 30 days Sample soil (ZOI). Sample soil pore monitoring.
- + 90 days Sample soil (ZOI). Final tilling of LTA (if necessary). Commence placement of final cover if possible. Final soil pore moisture sample. Decontamination of the tilling equipment.
- + 150 days Sample soils (ZOI & BTZ).
- + 210 days Submit certification of closure to EID. Prepare survey plot and submit to McKinley County Clerk and EID.

#### 1.4. Time Allowed for Closure

In accordance with HWMR-5, Part V, Section 264.113, Giant will complete the in-place treatment of the waste inventory within 90 days after receiving the final volume of waste unless an extension is granted by the Director. The Director may approve a longer period using the procedures under HWMR-5, Part V, Section 264.112(c) and Part IX, Section 270.41.

Giant will complete closure within 180 days after receipt of the final volume of waste unless an extension is granted by the Director. The Director may approve a longer period using the procedures under New Mexico Hazardous Waste Management Regulations 206.D.2.c and 302.M.

Giant will justify these extensions by demonstrating that:

- a. Giant has taken and will continue to take all steps to prevent threats to human health and the environment; and
- b. The potential for continued significant in-place treatment of wastes still exists and it would be technically inappropriate to establish a final vegetative cover; or
- c. The facility has the capacity to receive additional wastes and there is reasonable likelihood that a person other than Giant will commence operation at the site and closure of the facility would be incompatible with continued operation of the site.

#### 1.5. Amendment of the Closure Plan

Giant will amend this closure plan anytime during the active life of the LTA whenever there is a change in operating plans or facility design that will effect the closure plan. This includes changes that would effect the capacity to treat wastes, the groundwater monitoring system, the unsaturated zone monitoring system, the security system and the run-on/run-off control dike system.

Giant will also amend its closure plan if the expected year of closure changes or if in conducting partial or final closure, unexpected events require a modification of the closure plan.

Giant will amend the closure plan at least 60 days prior to the proposed change in operating plans or facility design or expected date of closure or no later than 60 days after an unexpected change in plans, designs or closure dates.

Giant will amend the closure plan no later than 30 days after the unexpected event if it occurs during partial or final closures.

#### 1.6. Certification of Closure

Giant will submit certification of closure to the Director of the Environmental Improvement Division or his/her designee within 60

days of completion of the closure and within 60 days of completion of final closure of the entire facility.

The certification will state that the LTA has been closed in accordance with the approved closure plan. The certification will be sent by registered mail and signed by an independent registered professional engineer or an independent qualified soil scientist.

Giant will furnish documentation to support the engineer's or soil scientist's certification upon request until Giant has been released from the financial assurance requirements.

#### 1.7. Survey Plat

A survey plat performed by a professional land surveyor will indicate the location and dimensions of the LTA with respect to permanently surveyed benchmarks. The survey plat will contain a note, prominently displayed, stating that disturbance of the closed hazardous waste facility is restricted in accordance with HWMR-5, Part V, Subpart G.

#### 1.8. Closure Cost Estimate

The closure costs for the LTA are estimated at \$74,042. An overview of individual tasks is presented below:

<u>Activity</u>	<u>Estimated Time and Materials</u>	<u>Estimated Cost</u>
Apply waste to Landfarm	10 days @ \$160/day	\$1,600
Add Soil Amendments	480,000 sq ft @ \$.02/sq ft	9,600
Till Landfarm (3 times)	3 days @ \$160/day	480
Soil Pore Liquid Sampling Within 30 days of last waste application	7 samples @ \$780 ea	5,460
Within 90 days of last waste application	7 samples @ \$780 ea	5,460
Soil Sampling - ZOI Within 30 days of last application	4 samples @ \$229 ea	916
Within 90 days of last application	4 samples @ \$326 each	1,304

Within 150 days of last application	4 samples @ \$1032 each	4,128
SOIL SAMPLING - BTZ		
Within 150 days of last application	8 samples @ \$803 ea	6,424
BIOLOGICAL TEST	8 samples @ \$200 ea	1,600
DECONTAMINATION OF EQUIPMENT		
Rental of Steam Cleaning Unit	2 days @ \$75/day	150
Manpower	16 hrs @ \$15/hr	240
Certification of decontamination	2 analysis @ \$120 ea	240
ESTABLISH VEGETATIVE COVER		
Establish Grade	3 days @ \$1000/day	3,000
Soil Testing	4 analysis @ \$74 ea	296
Plant Seed	12 ac @ \$575/ac	6,900
Water	1,900 Mgal @ \$.50/Mgal	950
Straw Mulch	18 tons @ \$75/ton	1,350
INSTALL FENCE	3600 feet @ \$3/ft	10,800
PREPARE CERTIFICATION		
Certify Closure	8 hrs @ \$50/hr	400
Notice in Deed	8 hrs @ \$50/hr	400
TOTAL TASK		61,698
OVERHEAD		6,170
CONTINGENCY		6,170
TOTAL		\$74,038

## 2. GENERAL POST CLOSURE REQUIREMENTS

### 2.1. Requirements for Post-Closure Activities

#### 2.1.1. Groundwater Monitoring

Details about detection and compliance monitoring can be found in the permit. If the facility is conducting groundwater detection monitoring at the time of closure, semiannual sampling will continue for five years, followed by five years of annual sampling. If no hazardous waste constituents are detected in groundwater at the end of this time, a progressive geometric schedule of annual sampling will be conducted. In this case a geometric schedule for annual sampling would be 12, 14, 18, 26 and 30 years after initiation of post-closure care.

If the facility is conducting ground water compliance monitoring

at the time of closure, the compliance monitoring program will continue. Release from compliance monitoring will be in accordance with the facility permit. Upon release, the detection monitoring program schedule will be reinitiated from the beginning.

#### 2.1.2. Continuation of Soil Core Monitoring

During post-closure care, soil core samples will be obtained and analyzed by the methods and frequency described below:

Once closure is certified and post-closure care begins, a geometric progression of 1/2, 1, 2, 4, 8, 16 and 30 years for soil core sampling should commence. The starting date for the progression should be the date of closure certification with the first sampling event in the geometric progression occurring 6 months later.

A post-closure sampling event will consist of soil coring at six randomly chosen locations. The random locations are obtained by creating a coordinate grid on the LTA and continuously selecting numbers from a random number table until six locations are selected.

The sampling, preservation, chain-of-custody and analytical methods are outlined in Section 1.2.1.2 for closure, and are suitable for post-closure care.

The six soil samples can be composited into three samples representing a uniform area by:

Obtaining one representative sample from each soil core taken within the treatment zone and one representative sample from beneath the treatment zone.

Composite all the samples taken within the treatment area to form three composite samples. Do the same for the samples taken beneath the treatment zone.

Compositing can take place at the analytical laboratory after preservation and shipment. The samples may be composite by riffle, mixing cloth or mixing bowl, depending on the sample character and taking precautions for preventing cross-contamination.

#### 2.1.3. Maintenance of Access Restrictions

To insure that the surface of the LTA remains undisturbed during closure and post closure, a five strand barbed wire fence will be maintained along with the lockable metal swing gate so as to restrict access to LTA.

The concentrations of metal immobilized in the surface and the concentration of organics not yet degraded into by-products is expected to be below levels harmful to humans or livestock. The soil characterization in terms of hazardous constituents such as organometallic complexes, can not be accurately predicted at this time. Therefore, to minimize risk of exposure to humans or livestock, the perimeter fence and lockable gate will be maintained through closure and post closure care.

It will be the responsibility of the closure coordinator to insure that the gate is locked at all times when authorized personnel are not servicing the LTA.

Since the fence sits within the perimeter dike and is directly enclosing the treatment surface, it does not reduce the migration potential of any transformed, degraded, or immobilized waste constituents.

#### 2.1.4. Inspection and Maintenance Procedures

During post-closure care duration, the Closure Coordinator will supervise planned inspection and maintenance activities. The inspection frequencies and maintenance procedures for these activities are listed below:

Final cover integrity will be inspected on a semiannual basis during post-closure care. Once a vegetative cover is established it will require only twice-yearly mowing to keep down weed and brush species. Annual fertilization or liming if necessary, will promote the desirable grasses over those that offer less resistance to surface erosion. Judicious use of herbicides and pesticides once a year may be necessary to protect the vegetative cover from competing vegetation and insects. Bi-monthly irrigation may be necessary to bring soil moisture content up to a minimum of 60 centibars at a depth of at least 3 feet.

An inspection list shall include the following:

- surface erosion
- need for fertilization, mowing or irrigation
- need for herbicides or pesticides
- burrowing animals destroying surface areas of vegetation

Although severe surface erosion is not expected, any surface erosion will immediately be repaired by backfilling with dirt to return surface to natural grade and the re-establishment of a vegetative cover as outlined in the section on Final Cover. If persistent erosion occurs, another species of vegetation or terracing will be considered.

The run-on/run-off control system consisting of the LTA perimeter dike shall be inspected semiannually. The frequency of storm events severe enough to cause erosion damage to the dike is less

than the biannual inspection frequency.

The following items should be inspected

- width of dike base and crown
- height of dike above exterior ground level
- lack of vegetative growth to secure dike from erosion
- presence of burrowing animals

Specifically look for indications of severe erosion that would reduce the dike's capacity to control run-on/run-off. If erosion occurs, clean dirt can be used to restore the dike to specification.

Access control features consisting of a five strand barbed wire fence around the LTA perimeter, lockable steel gate and warning signs in English and Spanish will inspected semiannually.

The following items shall be inspected:

- integrity of fence and gate
- integrity of lock on gate
- warning sign legibility

Specifically look for indications of storm damage, vandalism or mechanical failure.

The LTA groundwater monitoring wells, as designated in the permit, will be inspected at scheduled sampling events. This will be frequent enough to affect any maintenance necessary to allow the groundwater monitoring program to fulfill its schedule.

The following items shall be inspected:

- surface casing and lockable lid
- concrete pad around surface casing
- indications of mechanical integrity of tubing
- indications of standing water or vegetative growth

Specifically look for; severe damage to surface casing that would prevent sampling or compromise security, mechanical function of lock and indications of vandalism, weathering of concrete pad into fragments or subsidence of well structure, subsidence of tubing or indications of physical mechanical failure or elevated levels of PVC constituents in groundwater samples, standing water that can migrate into the groundwater by seeping down the outside of the casing, or vegetative growth, such as bushes or small trees whose root systems could penetrate the seal around casing in the well bore.

If replacement of a well is necessary, permit attachment G will be followed.

The unsaturated zone monitoring consisting of buried soil pore

moisture samplers will be inspected annually. Since soil pore sampling will cease 90 day after the final waste application, it is only necessary to inspect the sampling stations annually to insure that they are secure and do not present a threat to human health or livestock by being in mechanical disrepair.

The following items should be inspected:

- sample station barrier and concrete pad
- lockable lid on sampling station
- presence of a lock and its serviceability

Specifically check for security and physical repair of the sampling station. Although soil pore moisture sampling during post-closure care is not planned, the sampling station subsurface tubing runs and subsurface lysimeters should not be disturbed or allowed to fall into disrepair. Replacement of lysimeters shall follow the requirements for soil pore moisture sampler installation in the permit.

All inspections and maintenance shall be documented in enough detail to determine regulatory compliance and cost. Additionally the documentation shall be kept on-site or at some location where it can be examined conveniently.

## 2.2. Post-Closure Use of the Property

Giant will not allow post-closure use of the LTA that will disturb the integrity of the final cover, run-on/run-off containment system, security system or the function of the site's monitoring systems unless the Director of the Environmental Improvement Division approves of the use.

Giant may modify its post-closure plan or petition the Director through the procedures in HWMR-5, Part V, Section 264.118(d) or Part IX, Section 270.41, as appropriate, that the disturbance:

- is necessary to the proposed use of the property and will not increase the potential hazard to human health or the environment;
- or
- is necessary to reduce a threat to human health or the environment.

## 2.3. Length of the Post-Closure Period

Giant will commence the post-closure care plan upon approval by the Director of certification of closure. The post-closure care period will continue for a period of 30 years from the date of receipt of approval of closure certification unless approval for adjustment of the Post-Closure care period is obtained from the Director.

#### 2.4. Post-Closure Contact

The individual holding the position of Environmental Coordinator, or its successor title, will be the point of contact;

Environmental Coordinator  
Giant Refining Company  
Rt. 3 Box 7  
Gallup, New Mexico 87301  
(505) 722-3833

#### 2.5. Amendment of Post-Closure Plan

Giant will amend the post-closure plan whenever changes in facility design or operating plans effect post-closure plans. This includes events that occur during partial or final closure. Giant will amend the post-closure plan at least 60 days prior to the proposed change or no longer than 60 days after an unexpected event that effect the post-closure plan. This includes any change caused by amendments to the closure plan.

#### 2.6. Post-Closure Notices

Giant will submit, no later than 60 days after certification of closure, to the McKinley County zoning authority, and the Director, a record of the type and quantity of hazardous waste treated in the LTA.

Giant will within 60 days of giving notification of closure record a notation in the deed to the LTA property that:

- the land has been used to manage hazardous waste;
- it's use is restricted under HWMR-5, Part V, Subpart G;
- the survey plat and record of waste disposal required by HWMR-5, Part V, Section 264.119 has been filed with the McKinley County zoning authority and with the Director.

Giant will submit to the Director a signed certification specifying that the notation in the deed has been recorded in accordance with HWMR-5, Part V, Section 264.119, together with a copy of the document in which the notation has been placed.

#### 2.7. Certification of Post-Closure

Giant will, within 60 days after the completion of post-closure care, submit a letter of certification by registered mail to the Director. The letter of certification will state the post-closure care was performed in accordance with the approved post-closure plan. The signatures of a duly authorized representative of Giant and an independent certified registered

professional engineer will appear on the letter of certification.

The certified registered professional engineer will provide, upon request, documentation to support certification, until Giant is released from financial assurance requirements.

### 2.8. Post-Closure Cost Estimate

<u>Post-Closure Care Activity</u>	<u>Estimated Costs</u>
Conduct Site Inspection Conduct semi-annual site inspection of security and monitoring equipment, control structures and closed landform, assume 2 visits annually. Mow as needed.	\$12,000
Maintain Security Devices Assume \$100 annually to repair fence on an as-needed basis, and to maintain warning signs.	\$3,000
Maintenance of Run-on/Run-off Controls Assume \$1000 annually to maintain perimeter diking.	\$30,000
Unsaturated Zone Monitoring Perform soil core sampling and metal analysis according to a progressive geometric schedule. Assume 6 cores composite to 3 samples for the ZOI and also separately for the BTZ. Assume cores taken 7 times during 30 years post-closure period. Assume analytical costs of \$100/sample.	\$4,200
Maintenance of Groundwater Monitoring System Assume detection monitoring of 5 wells in accordance with Section 2.1.1. Assume sampling costs of \$20 and analytical costs of \$340 per sample. Assume 5 years of semiannual, 5 years of annual and an additional 4 years of annual sampling from the geometric schedule. Also include \$50 for each well annually for repair or replacement of monitoring equipment.	\$41,700
SUBTOTAL	\$90,900
OVERHEAD (10%)	\$9,090
CONTINGENCY (10%)	\$9,090
TOTAL	\$109,080

## 2.9. Revision of Post-Closure Cost Estimates

Giant will revise the post-closure cost estimates within 30 days after the Director has approved the request to modify the post-closure plan, if the change in the post-closure plan increases the cost of post-closure care.

Table 1

MAXIMUM WASTE INVENTORY

	Unit Capacity (Gallons)	Estimates Inventory (Gallons)
OIL/WATER SEPARATOR SLUDGE	143,600	14,360
	Subtotal	22,360
COOLING TOWER BASIN SLUDGE*	9,412	941
SLOP OIL EMULSION SOLIDS		
- N.D. Slop Oil Tanks		
Tank 17	10,500	1,050
Tank 18	92,400	9,240
Tank 6	21,000	2,100
Tank 8	130,200	13,020
- S.D. Slop Oil Tanks		
Tank 13	10,500	1,050
Tank 130	105,000	10,500
Tank 132	105,000	10,500
	Subtotal	47,460
HEAT EXCHANGER CLEANING SLUDGE	675	<u>331</u>
		TOTAL 87,892

Assuming 8.7 lbs/gal, maximum waste inventory at closure is estimated at 382 tons.

\*Depending on the treatment program at time of closure, and if it causes a hazardous waste classification.

Table 2

SOIL PORE LIQUID SAMPLING PROGRAM

PARAMETERS	SCHEDULE	
	Last Waste + 30 Days	Last Waste + 90 Days
pH	*	*
Oil percentage	*	*
Conductivity	*	*
Total Nitrogen	*	*
Total Phosphorus	*	*
Nitrates	*	*
Sulfates	*	*
Chlorides	*	*
Table 4 Constit.	*	**
Cadmium	*	**
Chromium	*	**
Lead	*	**

\*\* = Not required if first analyses show levels below standards.

Table 3

SOIL SAMPLING PROGRAM

PARAMETERS	SCHEDULE	
	Last Waste + 30 Days	Last Waste + 90 Days
Moisture	*	*
pH	*	*
Oil Percentage	*	*
Total Nitrogen	*	*
Total Phosphorus	*	*
Table 4 Constituents	*	*
Cadmium	*	**
Chromium	*	**
Lead	*	**

\*\* = Not required if first analyses show levels below standards.

Table 4

MODIFIED SKINNER LIST

Constituents of Petroleum Refining Wastes

1. Metals

Antimony  
Arsenic

Barium  
Beryllium  
Cadmium  
Chromium  
Cobalt  
Lead  
Mercury  
  
Nickel  
Selenium  
Vanadium,

Benzo (b) fluoranthene  
Benzo (k) fluoranthene  
Benzo (a) pyrene  
Bis (2-ethylhexyl)  
phthalate  
Butyl benzly phthalate  
Chrysene  
Dibenz(a,h) acridine  
Dibenz(a,h) anthracene  
✓ Dichlorobenzene  
Diethyl phthalate  
7, 12-Dimethylbenz (a)  
anthracene  
Dimethyl phthalate  
Di(n)octyl phthalate  
Di(n)octyl phthalate  
Fluoranthene

2. Volatile

Benzene  
Carbon disulfide  
Chlorobenzene  
Chloroform  
1, 2-Dichloroethane  
1, 4-Dioxane  
Ethyl benzene  
✓ Ethylene dibromide

✓ Methyl ethyl ketone  
Styrene  
Toluene

✓ Indene  
Methyl naphthalene  
1-Methyl naphthalene  
Naphthalene  
Phenanthrene  
Pyrene  
Pyridine  
Quinoline

3. Semivolatile Base/Neutral  
Extractable Compounds

Anthracene  
Benzo(a) anthracene

4. Semivolatile Acid  
Extractable Compounds

Benzenethiol  
Cresols  
2, 4-Dimethylphenol  
2, 4-Dinitrophenol  
4-Nitrophenol  
Phenol

Table 5

RINSATE TESTING PARAMETERS

<u>EPA Hazardous Waste Number</u>	<u>Contaminant</u>	<u>Maximum Concentration</u>
D004	Arsenic	5 mg/L
D005	Barium	100 mg/L
D006	Cadmium	1 mg/L
D007	Chromium	5 mg/L
D008	Lead	5 mg/L
D009	Mercury	0.2 mg/L
D010	Selenium	1.20 mg/L
D011	Silver	5.0 mg/L

Indicator Parameter

TOC	300 mg/L
TOX	10 mg/L
Oil and Grease	50 mg/L

Table 6

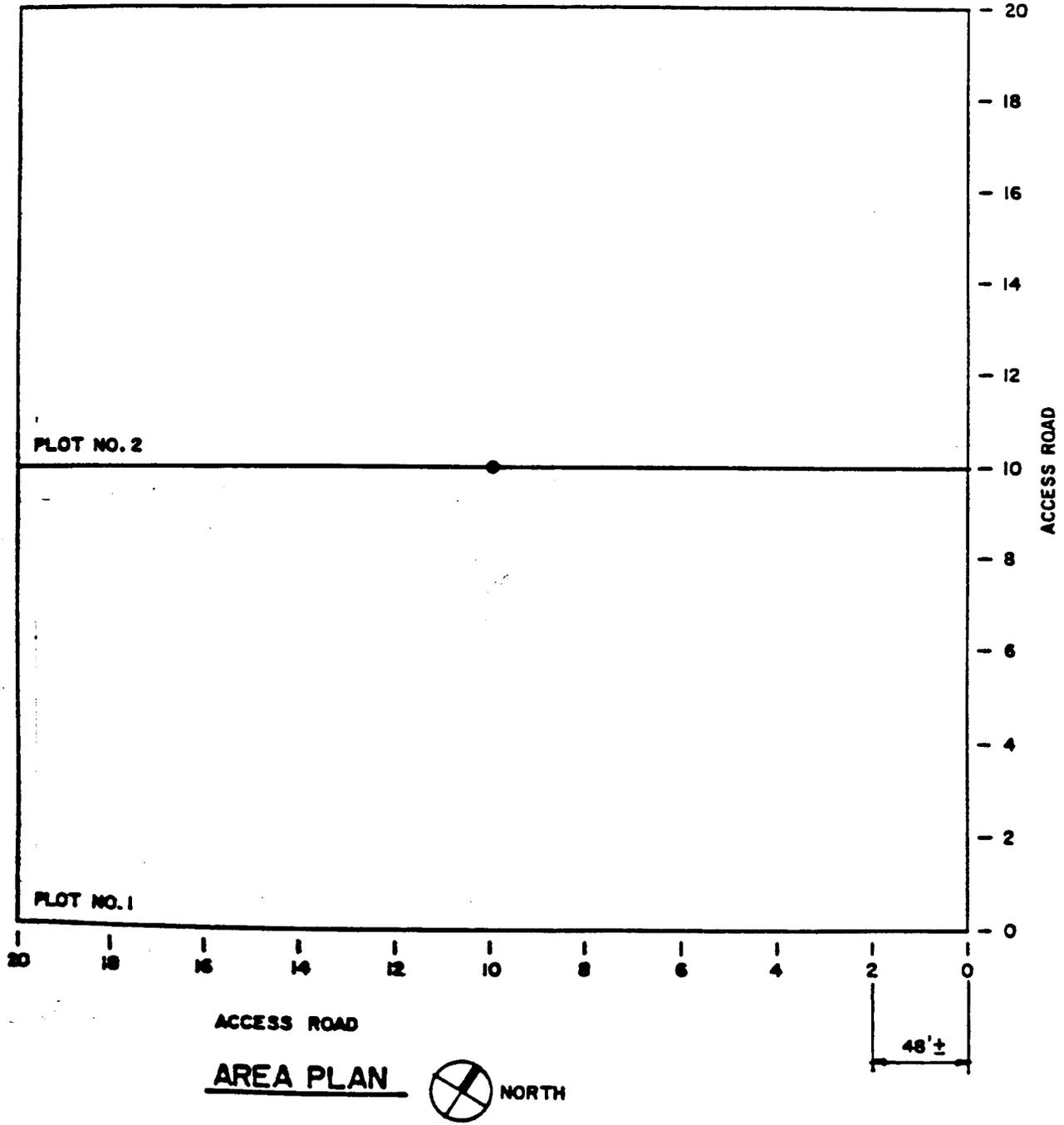
REVEGETATION SEED MIXTURE

	PLS/Ac*
BLUE GRAMA, <i>Bouteloua gracilis</i> "Lovington" or "Hachita"	2
SIDEOATS GRAMA, <i>Bouteloua curtipendula</i> "El Reno"	4
BUFFALO GRASS, <i>Buchloe da tyloides</i> "Texoka"	4
ALKALI SACATON, <i>Sporobolus airoides</i>	0.5

\* = Pounds of Pure Live Seed per Acre

BERM

PLOT 3 (Reserved)



ACCESS ROAD

AREA PLAN



FIGURE 1



Lockwood, Andrews & Newnam, Inc.

Engineering Architecture Planning Project Management

GIANT REFINING COMPANY - GALLUP, NM

## Inspection Log

Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Time: \_\_\_\_\_

Item	Satisfactory	Unsatisfactory	Comments*
Dike Stability			
Dike Seepage			
Waste Application and Incorporation			
Odors			
Moisture			
Gate, Lock and Fence			
Warning Signs			
Groundwater Monitoring Wells			
Lysimeters			

\*Note: Inspections to be conducted on a weekly basis. Record any evidence of erosion, seepage, dampness, cracks, movement, burrows and dead vegetation. Record any damage or corrosion to fences, gates, locks or signs. Note any damage or corrosion of monitoring equipment by well or lysimeter number. All unsatisfactory ratings other than routine maintenance require the issuance of a work order.

**GIANT REFINING COMPANY**  
**PERMIT NMD000333211-2**  
**ATTACHMENT G**  
**GROUNDWATER MONITORING PLAN**

GIANT REFINING COMPANY  
ATTACHMENT G  
GROUND WATER MONITORING PLAN

1. Ground Water Monitoring System General Design, Construction, and Certification Requirements.
  - A. The Permittee shall design, construct, and maintain the ability to monitor area ground water on a permanent basis in accordance with HWMR-5, Part V, Subpart F. Ground water monitoring at the facility shall, at a minimum, consist of a detection monitoring system for the uppermost aquifer and any interconnected aquifers. Individual flow zones within the aquifer will have separate monitoring systems if necessary.
  - B. The Permittee shall construct each new ground water monitoring well at the facility in accordance with the design specifications below:
    - i. The Permittee shall use a well drilling method which minimizes potential adverse effects on the quality of water samples withdrawn from the well.
    - ii. The well casing shall be a minimum of four (4) inch diameter or larger stainless steel, teflon or schedule 40 or 80 polyvinyl chloride (PVC) 1 (rigid) pipe with flush threaded connections. Solvent cementing compounds or stainless steel screws shall not be used to bond joints. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF-pw). PVC shall not be used below the potentiometric surface within the well.
    - iii. The Permittee shall design and construct the intake portion of a well so as to allow sufficient water flow into the well for sampling purposes and to minimize the passage of formation materials into the well during pumping. The intake portion of a well shall consist of commercially fabricated slotted pipe with openings of 0.01 inches over no more than a ten (10) foot span. The annular space between the slotted pipe and the borehole shall be filled with siliceous granular material (i.e., gravel pack) which has a proper size gradation to provide mechanical retention of the formation sand and silt.
    - iv. Upon completion of installation of a well intake,

the monitoring well must be developed to remove any fluids used during well drilling and to remove fines from the natural formation to provide particulate-free discharge of less than 5 nephelometric turbidity units (NTU) or equivalent. For any well which cannot be developed particulate-free, the Permittee may request a variance to this requirement. Such request must describe the efforts to achieve this standard and all test data collected on this well. The Director may allow such variance by permit modification in accordance with HWMR-5, Part IX, Section 270.42.

- v. The Permittee shall seal the annular space between the well casing and the borehole above the slotted pipe portion of the well so as to prevent flow in this zone. Above a two-foot thick or thicker bentonite seal, the annular space shall be sealed with a cement/bentonite grout mixture which consists of 3 to 5 pounds of bentonite per 94-pound sack of cement with approximately 6.5 gallons of water. The grout shall be placed in the annular space by means of a tremie pipe. Alternative sealing methods may be proposed, with documentation of effectiveness. EID approval shall be obtained prior to use of such alternatives.
  - vi. Each well shall be equipped with a locking cap and provided with a cement collar at the surface to divert drainage away from the casing.
- C. The Permittee shall complete construction of each monitoring well in accordance with the requirements to this permit and shall certify such proper construction. Each monitoring well certification shall be accompanied by a certification report, including an accurate log of the soil boring which thoroughly describes and depicts the location, material setting elevations, material specifications, construction details, and soil conditions encountered in the boring of the well.
- D. The well number and an elevation measurement reference mark shall be permanently marked on each well at the site.
- E. The surveyed elevation of the top of each well casing shall be on file at the facility. The Permittee shall determine ground water elevations in monitoring wells at the facility prior to well evacuation each time ground water is sampled. The Permittee shall determine

the ground water surface elevation using the electric tape method or other acceptable method prior to pumping the wells for sample collection. Pumpage of wells occurring at the facility at the time of measurement which may impact the Sonzela potentiometric surface will be noted in the sampling record.

F. The Permittee shall use a well evacuation and sampling procedure which ensures that samples obtained are representative of in-situ ground water quality and which conforms to the following requirements:

- i. Each well shall be pumped or bailed such that at least three (3) well casing volumes have been evacuated or until bailed essentially dry. Well casing volume calculation will include the volume of the gravel pack around the well as part of the effective well volume.
- ii. The discharge from the pump or hand bailer shall be measured.
- iii. The sample shall be collected after allowing the water level in the well to sufficiently recover to obtain the required sample volume.
- iv. Sampling, sample accounting, handling, and quality control procedures shall be in accordance with EPA-approved procedures. Test Methods for Evaluating Solid Waste: Physical/Chemical methods, SW-846, 1986 or later edition shall be used whenever applicable.

G. The Permittee shall use the analytical methods identified in this permit Attachment G, Table G-1, to analyze samples withdrawn from ground water monitoring wells. An equivalent analytical procedure may be used in place of a listed procedure provided the Permittee receives prior written authorization for such substitution from the Director.

H. The Permittee shall enter all monitoring, testing, and analytical data obtained or prepared pursuant to the requirements of the permit, including graphs and drawings, in the operating record at the facility.

I. The Permittee shall include the results of all monitoring, testing, and analytical work obtained or prepared pursuant to the requirements of this permit, including graphs and drawings, in an annual report to the Director.

J. The Permittee shall replace any monitoring well which is removed from service with an adjacent monitoring well installed in accordance with the requirements of this permit. The Permittee shall notify the director at least 10 days prior to removing the well from service.

2. Detection Monitoring System Design, Construction, and Certification Requirements.

A. The Permittee shall construct and maintain a detection monitoring system in accordance with HWMR-5, Part V, Section 264.98 which yields ground water samples which represent the quality of upgradient ground water that has not been affected by hazardous waste management unit operations and also samples which represent the quality of downgradient groundwater passing the point of compliance.

i. The point of compliance for the detection monitoring system is defined by a vertical surface which intersects the point of compliance monitoring wells and extends down through the Sonsela aquifer.

ii. A predetection monitoring system shall be established in the sand lenses underlying the permitted unit. Shallow monitoring wells (SMW) 3, 4, 5 and 6 shall be sampled and analyzed twice yearly for the parameters in table G-2. If the predetection analytical results indicate a significant increase in inorganic or organic constituents (organic carbon or organic halogens), the predetection wells will be resampled and analyzed by gas chromatographic method for the isolation and identification of any organic specie from Table G-4. Detection of any constituent from Table G-4 shall cause sampling of the detection monitoring wells and analysis by gas chromatographic method for identification of any volatile or semivolatile organic constituent(s). The results shall be verbally reported to the Director for information purposes within 7 calendar days of the receipt of each analysis report.

iii The detection monitoring system for the LTA shall consist of wells numbered MW-1, MW-2, MW-4, MW-5, and the background well established in accordance with Permit Attachment H.

B.i. The Permittee shall semi-annually monitor the detection

monitoring system for the designated parameters in Table G-2. The sampling event shall occur in the same months each year whenever possible (e.g. March and September).

- ii. The Permittee shall annually monitor the detection monitoring system for the designated parameters in Table G-3.
- C. The Permittee shall annually determine the background ground water quality values in the Sonsela aquifer for each of the detection monitoring parameters listed above within 45 calendar days after receipt of analytical results. The Permittee must express background values in a form necessary for the determination of statistically significant increases. The background values established become part of this permit upon modification in accordance with HWMR-5, Part IX, Section 270.42.
- D. When evaluating the monitoring results, the Permittee shall use the following procedures.
- i. When a detection monitoring parameter's background value has a sample coefficient of variation less than 1.00, Permittee shall follow the statistical procedures described in HWMR-5, Part V, Section 264.97(h).
  - ii. The Permittee must submit an application for a permit modification within 90 days of determining that a detection monitoring parameter's background value has a sample coefficient of variation greater than or equal to 1.00.
- E. Using ground water elevations from all the facility detection wells screened only in the Sonsela aquifer, the Permittee shall annually determine the ground water flow rate and direction in the aquifer. The documentation shall include a calculation of ground water flow rate and a contour map of piezometric water levels in the aquifer, based, at a minimum, upon concurrent water level measurements in upgradient and point of compliance wells. If the monitored flow zone has a vertical component of flow, a cross section which depicts a flow net, the vertical flow lines, the location of each well, the stratigraphy of the subsurface, and the groundwater elevations shall be prepared annually.
- F. The Permittee shall determine ground water quality in the aquifer throughout the active life of the facility.

including the closure period in accordance with the parameter list and sampling schedule in Tables G-2 and G-3.

- G. The Permittee shall determine whether there is a statistically significant increase for each indicator parameter over the background for that parameter each time he determines ground water quality at the point of compliance. In determining whether such an increase has occurred, the Permittee must compare the ground water quality at each monitor well (MW-1, MW-2, MW-4, & MW-5) at the point of compliance to the background value for each parameter. For SMW-3 through SMW-6, the Permittee shall compare the analytical value against the (mean plus two standard deviations) value of the historical data for that parameter and that well. The Permittee shall complete these determinations within 45 days of receipt of the analytical results for each sampling event. If preliminary examination of the analytical results indicate a potential error in the data, the Permittee may notify the Director verbally of the situation and request that the laboratory verify the data quality. In this event the 45 day period shall begin upon receipt by the Permittee of verification by the laboratory of the data accuracy.
- H. For each point of compliance monitor well, the Permittee shall construct and maintain for each indicator parameter a graph which accurately depicts the variation in concentration of that parameter with time. The Permittee shall update and evaluate these graphs within the first quarter of each year. The Permittee shall determine for each well whether any of the parameters have exhibited what appears to be a significant trend toward increased concentration. In the event of any apparent significant trend, the Permittee shall sample the well in question and determine the concentration of that parameter for at least four (4) portions of the sample. An "apparent significant trend" is four consecutive sampling periods that show an increase in concentration, or decrease or increase in pH, even if the statistical trigger in permit paragraph III.L. above is not activated.
- I. Within 45 calendar days after receiving notification from the Director of an apparent trend toward increased concentration for an indicator parameter in a well, the Permittee shall determine whether there has been a statistically significant increase over background for that parameter in that well.
- J. If the Permittee determines that there is a

statistically significant increase above the background value for a detection monitoring parameter, he shall notify the Director within seven (7) calendar days and comply with all other requirements of HWMR-5, Part V, Section 264.98 (h) (a).

K. If the Permittee determines that the detection monitoring program required by this permit no longer satisfies the requirements of HWMR-5, Part V, Subpart F, he must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program which will satisfy the regulations.

L. The Permittee shall annually summarize the ground water data and submit a report of the data to the Director not later than March 31 of the following year. The data shall be arranged to illustrate trends in concentrations of individual constituents for each well.

### 3. Compliance Monitoring Program

A. If any detection monitoring parameter in permit paragraph G.2.B. above is statistically significantly above (or below for pH) background, or above the Maximum Concentration Limit (MCL) listed in Tables G-2 and G-3 for that parameter, the Director may direct that the Permittee implement a Compliance Monitoring Program (CMP) in accordance with HWMR-5, Part V, Section 264.99. Data handling compatible with that of the Detection Monitoring Program shall be continued during the CMP. The MCL for any parameter shall be as promulgated by the EPA for ground water cleanup standards. Addition of MCL standards to the parameters in Tables G-2 or G-3 may be made by minor modification in accordance with HWMR-5, Part IX, Section 270.42. When no MCL has been established, the concentration in the background well shall be used as a standard.

B. The Permittee shall quarterly analyze samples from each well at the compliance point defined in permit paragraph G.2.A above for the hazardous constituents listed in Tables G-3 and G-4.

C. The Permittee shall comply with the requirements of HWMR-5, Part V, Sections 264.99(d), 264.99(e), 264.99(f), 264.99(g), 264.99(h), 264.99(i), 264.99(k) and 264.99(l).

D. The Permittee may make a demonstration of alternative source in accordance with HWMR-5, Part V, Section 264.99(j).

- E. The Permittee shall continue with the CMP until notified by the Director whether to return to detection or proceed to corrective action.
- F. If Appendix IX (52 FR 25942, 40 CFR 264.99) constituents are detected in the ground water but are not identified in Tables G-2, G-3, or G-4 the Permittee shall report to the Director, in writing, within seven (7) calendar days, for each well, the concentrations of these additional constituents and the analytical detection limits.
- G. The Permittee may propose, in accordance with current EPA guidance, Alternative Concentration Limits (ACLs) for any constituent.

4. Corrective Action Program

Whenever the ground water monitoring data indicate the migration of hazardous constituents to ground water from the regulated unit, the Director may direct that the Permittee implement a Corrective Action Program (CAP) in accordance with HWMR-5, Part V, Section 264.100. to contain, remove, or treat hazardous constituents migrating from a permitted unit.

- A. The Permittee shall propose a CAP designed explicitly for the situation and submit it to the Director for approval. The CAP shall address the recommended course of action and the reasons alternative actions are not recommended. EPA Directive 9902, RCRA Corrective Action Plan, November 17, 1986, or subsequent guidance, shall be used to formulate the CAP.
- B. The CAP shall address all hazardous constituents identified by the Detection Monitoring Program and/or Compliance Monitoring Program as exceeding the levels identified in the background well for the leaking unit, or exceeding the MCL or ACL for those constituents for which MCLs or ACLs have been promulgated by EPA or the EID.
- C. The CAP shall address all hazardous constituents which have passed the point of compliance defined in permit paragraph II.R.3 above.
- D. The CAP shall be submitted within ninety calendar (90) days from the receipt by the Permittee of direction to prepare the plan.
- E. The CAP shall be implemented within sixty (60) days

from receipt by the Permittee of approval of the plan.

- F. The CAP shall include a ground water monitoring program to demonstrate the effectiveness of the program. Any new monitoring wells shall be installed in accordance with the guidance in permit paragraph G.1. above.
- G. The effectiveness of the CAP shall be evaluated and reported semi-annually by the Permittee in writing to the Director. The report shall contain the data used to evaluate the program.
- H. If the Permittee determines that the CAP is ineffective or could be made more effective, he shall propose appropriate modifications to the plan within ninety days of such determination.
- I. The CAP shall be continued until the Director determines that the concentration of hazardous constituents has been reduced to levels less than those in the background well or to an otherwise acceptable level, such as an MCL or ACL.

5. Reports Summary

- A. Annual ground water data summary submitted no later than March 31, of the following year.
- B. Exceedance of monitoring parameter or constituent concentration standard, submitted within seven (7) calendar days of discovery.
- C. Alternative source determination submitted when desired and in accordance with the guidance in HWMR-5, Part V, Section 264.99(j).

Table G-1

## REFERENCE METHODS

<u>Analytical Parameter</u>	<u>Method Number</u>	<u>Reference</u>
INDICATOR PARAMETERS		
pH	9040, 221	1,2
Acidity/Alkalinity	402/403	2
Total Organic Carbon	505	2
Total Nitrogen	420A, 420B, 417G, 417A, 418F	2
TRACE ELEMENTS		
Arsenic	3010, 7060, 7061, 6010, 303E	1,2
Barium	3010, 7080, 7081, 6010, 303A	1
Beryllium	3010, 7130, 7131, 6010, 303A	1
Chromium	3010, 7190, 7191; 6010, 303A	1,2
Lead	3010, 7420, 7421; 6010, 303A	1,2
Mercury	7470	1
Nickel	3010, 7520, 7521; 6010, 303A	1,2
Selenium	3010, 7740, 7741, 6010, 303E	1
Vanadium	3010, 7910, 7911, 6010, 303A	1
ORGANIC COMPOUNDS		
Volatile Organics	PEG extraction, 8240	1
Acid Extractables	3510, 8270	1
Base-Neutral Extractables	3510, 8270	1
Volatile Contaminants	601 & 602	2
MISCELLANEOUS		
Total Cyanides	9010; 412B	1,2
References		
1. Test Methods for Evaluating Solid Wastes, SW-846, 3rd Ed.		
2. Standard Methods for Examination of Water and Wastewater 16th Ed.		

The latest edition of the above references shall be used.

Table G-2

SEMIANNUAL GROUND WATER MONITORING PARAMETERS

Temperature  
 #pH  
 #Conductivity  
 +Volatile Contaminants  
 \*Water Level  
 @Lead (total)  
 @Chromium (total)

- # Replicate analysis of 4 samples
- + GC/MS purgeable screen may be substituted
- @ Predetection monitoring system only
- \* Replicate analysis of 2 measurements

Table G-3

ANNUAL GROUND WATER MONITORING PARAMETERS

<u>Parameter</u>	<u>MCL*</u>
#pH	
#Conductivity	
@+Volatile Contaminants	
@Water Level	
Arsenic	0.1 mg/l
Barium	1.0 mg/l
Cadmium	0.01 mg/l
Chromium	0.05 mg/l
Lead	0.05 mg/l
Mercury, total	0.002 mg/l
Selenium	0.01 mg/l
Silver	0.05 mg/l
Sodium	
Calcium	
Manganese	
Chloride	
Sulfate	
Carbonate and bicarbonate	
Total dissolved solids	
Phenol	

- \* Maximum Concentration Limit as promulgated by EPA
- # Replicate analyses of 4 samples
- + GC/MS purgeable screen may be substituted
- @ Replicate analysis of 2 samples

Table G-4

COMPLIANCE MONITORING PROGRAM PARAMETERS

Parameter

Organic PHC's

ethyl Benzene	2-chlorophenol
m-Xylene	benzo-j-fluoranthene
o&p-Xylene	fluoranthene
o-Cresol	1,1-dichloroethene
m&p-Cresol	1,1,1-trichloroethane
pyrene	benzene
phenanthrene	tetrachloroethene
1-methylnaphthalene	benzo(a)pyrene
2,4,6-trichlorophenols	
chrysene	toluene
Benzo-b-fluoranthene	methylethylketone
7,12-dimethylbenzanthracene	naphthalene
benzo-a-anthracene	
bis(2-ethylhexyl)phthalate	

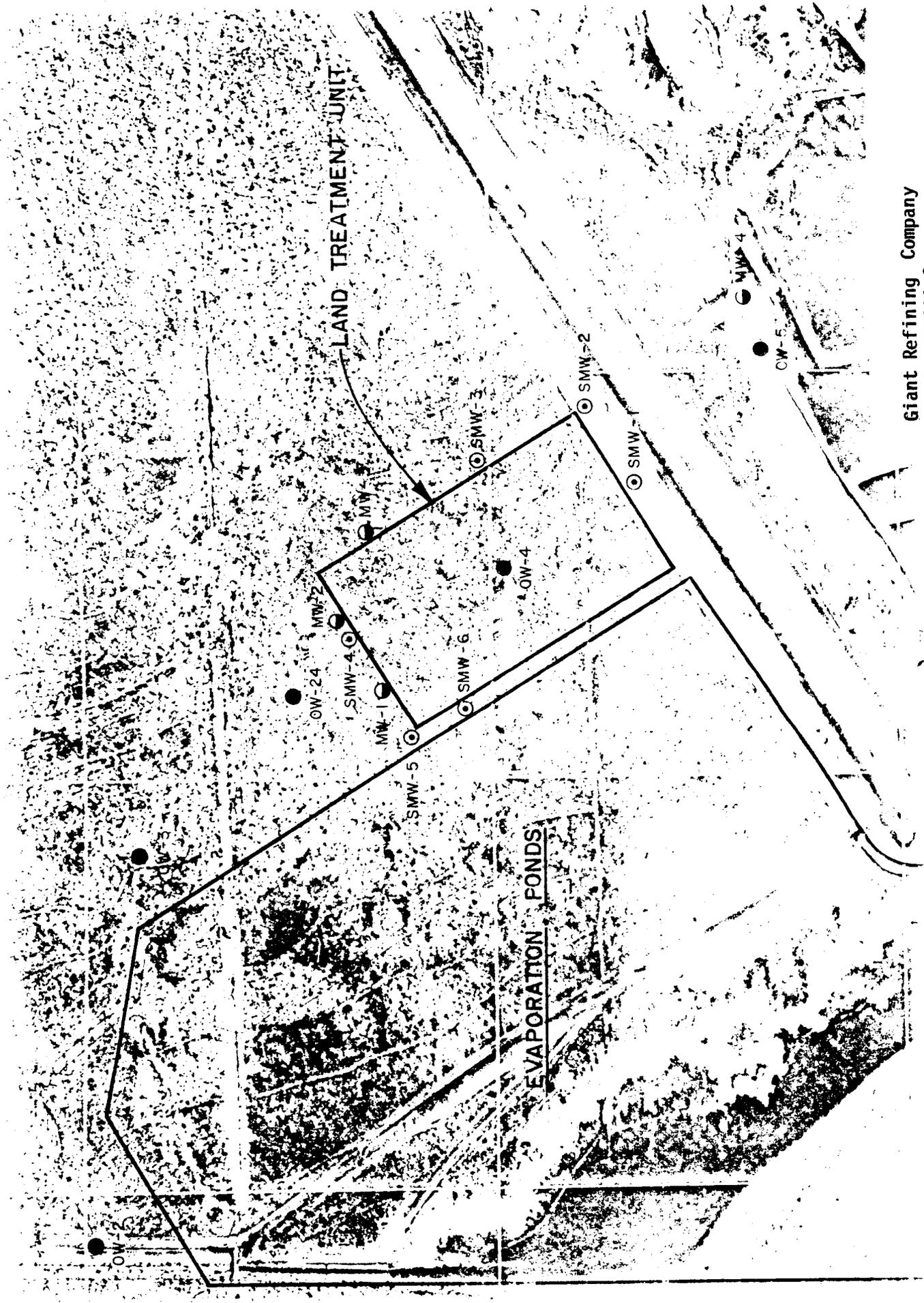
Inorganic PHC's

Barium  
Cadmium  
Chromium  
Copper  
Lead  
Nickel  
Selenium  
Silver  
Zinc

000

000

000



Giant Refining Company  
 NMD 000333211-2  
 Figure G-1

**GIANT REFINING COMPANY**  
**PERMIT NMD000333211-2**  
**ATTACHMENT H**  
**ADDITIONAL DATA SUBMITTAL SCHEDULE**

GIANT REFINING COMPANY  
ATTACHMENT H  
COMPLIANCE SCHEDULE

- I. Installation of facility background well.
- A. Within sixty days of the effective date of this permit the Permittee shall identify to the EID a proposed location for a background well designed to monitor the Sonsela formation aquifer unaffected by the Permittee's facility. Facility includes all sites of generation, disposal, solid waste management units and waste handling.
  - B. Within thirty days of receipt of EID's comments on the proposed location, the Permittee shall commence installation of the well if a suitable well is not already in place. At a minimum, commencement shall mean the execution of a contract to install the well.
  - C. Within sixty days of commencement, the well shall be completed and developed. The well shall be installed in accordance with the requirements of this permit.
  - D. Upon well installation completion, the Permittee shall sample, taking four replicate samples, and analyze in accordance with Permit Attachment G for the parameters in Tables G-3 and G-4. Four quarterly sample events, each taken in a similar manner, shall be used to establish a representative background value for each parameter.

II. Interim status data organization.  
(HWMR-5, Part IX, Section 270.14(c))

Within 120 days from the effective date of this permit, the Permittee shall submit a summary, in tabular form, of the groundwater monitoring data up to the date of submittal, for MW-1, MW-2, MW-4, MW-5, SMW-1, SMW-2, SMW-3, SMW-4, SMW-5, and SMW-6.

- 1. Data for each well shall be grouped separately.
- 2. Sampling date and analysis value shall be indicated.
- 3. Original laboratory analytical reports will be used as source documents, when available.
- 4. Each table will include the parameters in HWMR-5, Part VI, Section 265.92(b).
- 5. The accuracy of each table shall be certified by a responsible individual.

**GIANT REFINING COMPANY**  
**PERMIT NMD000333211-2**  
**ATTACHMENT I**  
**SURETY DOCUMENTATION**

CURRENT  
SURETY DOCUMENTATION  
IS IN THE  
LOCKABLE FILE



23733 North Scottsdale Road  
Scottsdale, Arizona 85255

P.O. Box 12999  
Scottsdale, Arizona 85267

602  
585-8888

I am the Chief Financial Officer of Giant Industries Inc. This letter is in support of this firm's use of the financial test to demonstrate financial assurance for closure and/or post closure costs, as specified in subpart H of 40 CFR parts 264 and 265.

1. This firm is the owner or operator of the following facilities for which financial assurance for closure/post-closure care is demonstrated through the financial test specified in subpart H of 40 CFR parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility:

None

2. This firm guarantees, through the guarantee specified in subpart H of 40 CFR parts 264 and 265, the closure or post-closure care of the following facilities owned or operated by the guaranteed party. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility:

Giant Refining Company - Ciniza Refinery  
EPA ID Number: 000333211  
Exit 39, East Interstate Highway 40  
Gallup, NM 87301  
Closure cost estimate - \$ 71,527  
Post-closure cost estimate - \$ 141,302  
Total closure/post-closure cost estimate - \$212,829

The firm identified above [Giant Industries Inc.] is the direct or higher-tier parent corporation of the owner or operator [Giant Refining Company].

3. In States where EPA is not administering the financial requirements of subpart H of 40 CFR part 264 or 265, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in subpart H of 40 CFR parts 264 and 265. The current closure and/or post-closure cost estimates covered by such a test are shown for this facility:

None

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care is not demonstrated either to EPA or a State through the financial test or any other financial assurance mechanism specified in subpart H of 40 CFR parts 264 and 265 or equivalent or substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility:

None

5. This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under part 144. The current closure cost estimates as required by 40 CFR 144.62 are shown for each facility:

None

This firm is required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended December 31, 1994.

1.	Sum of current closure and post-closure cost estimate:	\$212,829
*2.	Total liabilities:	\$ 175,877,000
*3.	Tangible net worth:	\$ 106,948,000
*4.	Net worth:	\$ 109,690,000
*5.	Current assets:	\$ 107,976,000
*6.	Current liabilities:	\$ 42,405,000
7.	Net working capital [line 5 minus line 6]:	\$ 65,571,000
*8.	The sum of net income plus depreciation, depletion, and amortization:	\$ 19,561,000
*9.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.):	Not required

- |      |  |              |
|------|--|--------------|
| 10.  | Is line 3 at least \$10 million?   | Yes          |
| 11.  | Is line 3 at least 6 times line 1?   | Yes          |
| 12.  | Is line 7 at least 6 times line 1?   | Yes          |
| *13. | Are at least 90% of firm's assets located in the U.S.? If not, complete line 14. | Yes          |
| 14.  | Is line 9 at least 6 times line 1?   | Not required |
| 15.  | Is line 2 divided by line 4 less than 2.0?                                       | Yes          |
| 16.  | Is line 8 divided by line 2 greater than 0.1?                                    | Yes          |
| 17.  | Is line 5 divided by line 6 greater than 1.5?                                    | Yes          |

I hereby certify that the wording of this letter is substantially identical to the wording specified in 40 CFR 264.151(f) as such regulations were constituted on the date shown immediately below.

A. Wayne Davenport  
A. Wayne Davenport  
Chief Financial Officer

9.25.95  
Date

**Deloitte &  
Touche LLP**



Suite 1200  
2901 North Central Avenue  
Phoenix, Arizona 85012-2799

Telephone: (602) 234-5100

## INDEPENDENT AUDITORS' REPORT

Board of Directors  
Giant Industries, Inc.  
Giant Refining Company  
Scottsdale, Arizona

We have audited, in accordance with generally accepted auditing standards, the consolidated financial statements of Giant Industries, Inc. for the year ended December 31, 1994, and have issued our report thereon dated March 6, 1995.

At your request, we have performed the procedures enumerated below with respect to the data that the letter from A. Wayne Davenport of Giant Industries, Inc. specifies as having been derived from the aforementioned consolidated financial statements to the Regional Administrator - Environmental Protection Agency dated September 25, 1995. The procedures that we performed are summarized as follows:

1. We compared the amounts included in item 5, numbers 4, 5 and 6 in the letter referred to above with the corresponding amounts in the consolidated financial statements referred to in the first paragraph.
2. We recomputed from, or reconciled to, the consolidated financial statements referred to in the first paragraph, the information included in item 5, numbers 2, 3, 7 and 8 in the letter referred to above.

Because the procedures referred to in the preceding paragraph were not sufficient to constitute an audit made in accordance with generally accepted auditing standards, we do not express an opinion on any of the information or amounts listed under item 5 in the aforementioned letter. In performing the procedures referred to above, however, no matters came to our attention that caused us to believe that the information or amounts included in item 5, numbers 2, 3, 4, 5, 6, 7 and 8 did not agree with the corresponding amounts in the consolidated financial statements referred to in the first paragraph from which they were derived.

This report is intended solely for the information and use of the board of directors of Giant Industries, Inc. and Giant Refining Company and for filing with the Environmental Protection Agency in accordance with the requirements of the Resource Conservation and Recovery Act and should not be used for any other purpose.

*Deloitte & Touche LLP*

September 28, 1995

**Deloitte Touche  
Tohmatsu  
International**

ATTACHMENT I  
Page 4 of 5

**INDEPENDENT AUDITORS' REPORT**

Giant Refining Co. Ciniza  
Land Treatment Area  
NMED Control Copy  
Page Modified February 12, 1996

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**BOARD OF DIRECTORS AND STOCKHOLDERS  
GIANT INDUSTRIES, INC.  
SCOTTSDALE, ARIZONA**

We have audited the accompanying consolidated balance sheets of Giant Industries, Inc. and subsidiaries as of December 31, 1994 and 1993, and the related consolidated statements of operations, stockholders' equity and cash flows for each of the three years in the period ended December 31, 1994. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Giant Industries, Inc. and subsidiaries as of December 31, 1994 and 1993, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1994 in conformity with generally accepted accounting principles.

*Deloitte & Touche LLP*  
**DELOITTE & TOUCHE LLP**

Phoenix, Arizona

ATTACHMENT I  
Page 5 of 5

**GIANT REFINING COMPANY**  
**PERMIT NMD000333211-2**  
**ATTACHMENT J**  
**HAZARDOUS WASTE MANAGEMENT REGULATIONS**

ENVIRONMENTAL IMPROVEMENT BOARD  
1190 ST. FRANCIS DRIVE  
SANTA FE, NEW MEXICO 87503

EIB/HWMR-5

## HAZARDOUS WASTE MANAGEMENT REGULATIONS

### PART I - HAZARDOUS WASTE MANAGEMENT SYSTEM - GENERAL

101. Adoption of 40 CFR Part 260. Except as otherwise provided, the regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 260, through July 1, 1987, are hereby incorporated as Part I of the New Mexico Hazardous Waste Management Regulations.
102. Modifications and Exceptions. The following modifications and exceptions are made to the incorporated federal regulations:
- A. The following terms defined in 40 CFR §260.10 have the meanings set forth herein, in lieu of the meanings set forth in 40 CFR §260.10:
1. "Administrator" means the Director of the Environmental Improvement Division of the New Mexico Health and Environment Department, or his designee.
- B. The following terms not defined in 40 CFR §260.10 have the meanings set forth herein:
1. "Act" or "RCRA" ("Resource Conservation Recovery Act" as amended) means the Hazardous Waste Act, §§74-4-1 through 74-4-13 NMSA 1978;
  2. "Application" means the Division forms for applying for permits including any additions, revisions, or modifications to the forms, and any other information required by the Director pursuant to these regulations;
  3. "Appropriate act or regulation" means the Hazardous Waste Act or the New Mexico Hazardous Waste Regulations, HWMR-5;
  4. "Board" means the Environmental Improvement Board;
  5. "CFR" means the Code of Federal Regulations;

6. "Divisiōn" means the Environmental Improvement Division of the New Mexico Health and Environment Department;
  7. "Environmental Protection Agency" or "EPA" shall be construed to mean the Environmental Improvement Division of the Health and Environment Department except when used in the phrase "EPA hazardous waste number" and in the definition of that phrase set forth in 40 CFR §260.10;
  8. "Freedom of Information Act" or "FOIA" means the New Mexico act governing inspection of public records, §§14-2-1 through 14-2-3, 14-3A-1 through 14-3A-2, and 74-4-4.3.C. NMSA 1978;
  9. "Hazardous substance incident" means any emergency incident involving a chemical or chemicals, including but not limited to transportation wrecks, accidental spills or leaks, fires, or explosions, which incident creates the reasonable probability of injury to human health or property; and
  10. "Subtitle C of RCRA" means the New Mexico Hazardous Waste Act, §§74-4-1 to 74-4-13 NMSA 1978.
- C. The following provisions of 40 CFR Part 260 are omitted from Part I of these regulations:
1. The Editorial Note immediately preceding Subpart A;
  2. §260.1(b)(6);
  3. §260.22;
  4. §260.30;
  5. §260.31;
  6. §260.32; and
  7. §260.33.
- D. Whenever there is any requirement in any of the federal regulations incorporated into these regulations to report an emergency situation, the requirement shall be construed to mean that the party required to report shall report the incident to the Division via the New Mexico 24-hour emergency response number, (505) 827-9329.
- E. References to 40 CFR Part 124 within the text of HWMR-5 as adopted shall be construed to mean Section 902 of HWMR-5.

PART II - IDENTIFICATION AND  
LISTING OF HAZARDOUS WASTE

201. Adoption of 40 CFR Part 261. The regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 261, through July 1, 1987, are hereby incorporated as Part II of the New Mexico Hazardous Waste Management Regulations.

PART III - STANDARDS APPLICABLE  
TO GENERATORS OF HAZARDOUS WASTE

301. Adoption of 40 CFR Part 262. The regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 262, through July 1, 1987, are hereby incorporated as Part III of the New Mexico Hazardous Waste Regulations.

PART IV - STANDARDS APPLICABLE  
TO TRANSPORTERS OF HAZARDOUS WASTE

401. Adoption of 40 CFR Part 263. Except as otherwise provided, the regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 263, through July 1, 1987, are hereby incorporated as Part IV of the New Mexico Hazardous Waste Management Regulations.
402. Omissions. The following provisions of 40 CFR Part 263 are omitted from Part III of these regulations:
- A. §263.20 (e).
403. Financial Assessments. The following provisions regarding financial assessments are applicable to hazardous substance incidents, in addition to the provisions of 40 CFR Part 263, Subpart C:
- A. Any regulated person having possession, custody or control of a hazardous substance involved in a hazardous substance incident shall use his best efforts to effectuate a prompt and thorough cleanup, to levels required under applicable standards adopted under the laws of New Mexico. Nothing in the remainder of this section shall be read as authorizing or requiring a delay in clean-up.
- B. In order to achieve the most prompt and thorough cleanup, the Division may assess charges against all regulated persons who contribute to the

occurrence of a hazardous substance incident or who had possession, custody or control of the substance at the time such incident occurred.

- C. The foregoing assessment shall be allocated among the regulated persons who are subject to the assessment on a basis deemed by the Division to be equitable under the circumstances. Assessments under this section shall be imposed only to expedite cleanup, and not to assign responsibility or to punish.
- D. Failure of any assessed person to pay the assessment within 30 days of receipt shall subject said person to suspension or revocation of their hazardous waste permit, if they hold one, and subject them to possible fines and/or penalties.
- E. Neither the fact that an assessment has been imposed, nor the size of the assessment, reflects any official view of responsibility for the incident for use in any civil or criminal proceeding. The fact that an assessment has been paid in compliance with these regulations does not constitute an admission of responsibility for the purposes of any civil or criminal proceeding.

PART V - STANDARDS FOR  
OWNERS AND OPERATORS OF  
HAZARDOUS WASTE TREATMENT  
STORAGE, AND DISPOSAL FACILITIES

- 501. Adoption of 40 CFR Part 264. Except as otherwise provided, the regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 264, through July 1, 1987, are hereby incorporated as Part V of the New Mexico Hazardous Waste Management Regulations.
- 502. Omissions. The following provisions of 40 CFR Part 264 are omitted from Part V of these regulations:
  - A. §264.149; and
  - B. §264.150.

- PART VI - INTERIM STATUS STANDARDS  
FOR OWNERS AND OPERATORS OF  
HAZARDOUS WASTE TREATMENT  
STORAGE, AND DISPOSAL FACILITIES

601. Adoption of 40 CFR Part 265. Except as otherwise provided, the regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 265, through July 1, 1987, are hereby incorporated as Part VI of the New Mexico Hazardous Waste Management Regulations.
602. Omissions. The following provision of 40 CFR Part 265 are omitted from Part VI of these regulations:
- A. §265.149; and
  - B. §265.150.

PART VII - STANDARDS FOR THE  
MANAGEMENT OF SPECIFIC HAZARDOUS  
WASTES AND SPECIFIC TYPES OF  
HAZARDOUS WASTE MANAGEMENT FACILITIES

701. Adoption of 40 CFR Part 266. The regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 266, through July 1, 1987, are hereby incorporated as Part VII of the New Mexico Hazardous Waste Management Regulations.

PART VIII - LAND DISPOSAL  
RESTRICTIONS

801. Adoption of 40 CFR Part 268. The regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 268 through July 1, 1987 are hereby incorporated as Part VIII of the New Mexico Hazardous Waste Management Regulations.

-  
PART IX - THE HAZARDOUS  
WASTE PERMIT PROGRAM

901. Adoption of 40 CFR PART 270. The regulations of the United States Environmental Protection Agency set forth 40 CFR Part 270, through July 1, 1987, are hereby incorporated in Part IX of the New Mexico Hazardous Waste Management Regulations.
902. Permitting Procedures.
- A. Permit Issuance.
1. Once an application is complete, the Director shall tentatively decide whether to prepare a draft permit or to deny the application.
  2. If the Director decides to prepare a draft permit, he shall prepare a draft permit that contains all conditions, compliance schedules, monitoring requirements and technical standards for treatment, storage, and/or disposal provided for in Part 270 of these regulations.
  3. All draft permits for facilities or activities prepared by the Division under 902.A.2. shall be accompanied by a fact sheet and shall be based on the administrative file. Copies of the fact sheet shall be sent to the applicant, any state or federal agency as applicable and, on request, to any other person.
  4. The Director shall give public notice that a draft permit has been prepared or that a permit application has been tentatively denied and shall allow at least forty-five (45) days for public comment and review. During this comment period, whenever a written notice of opposition to a draft permit and a request for a hearing is received from an affected individual, a public hearing may be held. The Division, acting in conjunction with the applicant, will respond to these requests in an attempt to resolve those issues giving rise to such opposition. If such issues can be resolved to the satisfaction of the opponent, the affected individual may waive his request for a public hearing. In such case the public hearing need not be held. The Director may also hold a public hearing at his discretion.
  5. No ruling shall be made on permit issuance without an opportunity for all interested persons to be given a reasonable chance to submit significant data, views or arguments orally or in writing and to examine witnesses testifying at any public hearing. The comment period specified in 902.A.4. shall automatically be extended to the close of any public hearing.

6. The Director shall give due consideration and the weight he deems appropriate to all comments received during a public comment period and to all relevant facts and circumstances presented at any public hearing.
7. When ruling on permit issuance, the Division may disapprove in whole or in part, or make reasonable conditions to any permit, if it appears that the proposed action will not meet the requirements of these regulations.
8. At the time that any final permit decision is issued, the Director shall issue a response to comments. This response shall:
  - a. Specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and
  - b. Briefly describe and respond to all significant comments on the draft permit or the permit application raised during the public comment period, or during any hearing.
9. The response to comments shall be available to the public.
10. The approval of a permit does not relieve any person from the responsibility of complying with applicable state or federal laws and regulations.
11. The Director shall notify the permittee by certified mail of any impending permit action and of any scheduled public hearing date.

**B. Permit Modification, Suspension and Revocation.**

1. The Director may modify, suspend, or revoke a permit issued pursuant to 902.B. for cause set forth in Part 270 of these regulations.
2. The Director may modify, suspend, revoke or terminate a permit upon his initiative, or if, after the Division's investigation of the facts and circumstances, pursuant to the request of any interested person, such permit action is deemed warranted.
3. All requests for permit modification, suspension, revocation or termination shall be in writing and shall contain facts or reasons supporting the request.
4. In a permit modification under this section, only those conditions to be modified shall be considered when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit.

5. Minor modifications as outlined in Part 270 of these regulations are not subject to the requirements in 902.B. for permit modifications.
6. The Director shall notify the permittee by certified mail of any impending permit action and of any scheduled public hearing date and issue public notice of impending permit action.
7. No ruling shall be made on permit modification, suspension or revocation without an opportunity for a public hearing at which all interested persons shall be given a reasonable chance to submit significant data, views or argument orally or in writing and to examine witnesses testifying at the hearing.
8. The Director shall give due consideration and the weight he deems appropriate to all comments received during a public comment period and to all relevant facts and circumstances presented at any public hearing.

C. Public Notices.

1. Public notice of permit actions (preparation of a draft permit, tentative denial of a permit application, scheduling of a public hearing) shall be given by publication of a notice in a newspaper of general circulation in the area affected, broadcasts over local radio stations and by mailing a copy of the notice to the permit applicant, those individuals on the Hazardous Waste Unit's mailing list, and to any units of local, state and federal government as may be applicable.
2. All public notices issued shall contain the following minimum information:
  - a. The subject, the time and place of any scheduled hearing and the manner in which interested persons may present their views;
  - b. A brief description of the procedures by which requests for hearings may be made, unless already scheduled;
  - c. Name and address of the office processing the permit action for which notice is being given;
  - d. Name and address of the permittee or permit applicant, and, if different, of the facility or activity regulated by the permit;
  - e. A brief description of the business conducted at the facility or activity described in the permit application or the draft permit; and

- f. Name, address and telephone number of a person from whom interested persons may obtain further information;
- g. In addition, public notice of a scheduled public hearing shall also contain references to the date of previous public notices relating to the permit.

D. Fact Sheet.

- 1. A fact sheet shall be prepared for every draft permit for a Hazardous Waste Management facility or activity. The fact sheet shall briefly set forth the principal facts and the significant factual legal, methodological and policy questions considered in preparing the draft permit.
- 2. The fact sheet shall include, when applicable:
  - a. A brief description of the type of facility or activity which is the subject of the draft permit;
  - b. The type and quantity of wastes which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged.
  - c. A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions.
  - d. Reasons why any requested variance or alternative to require standards do or do not appear justified.
  - e. A description of the procedures for reaching a final decision on the draft permit including:
    - (1) The beginning and ending dates of the comment period and the address where comments will be received;
    - (2) Procedures for requesting a hearing and the nature of that hearing; and
    - (3) Any other procedures by which the public may participate in the final decision.
  - f. Name and telephone number of a person to contact for additional information.
- 3. The fact sheet shall be available at the time the public notice is published.

#### E. Hearings.

1. Public notice of any public hearing shall be given at least thirty (30) days prior to the scheduled date of the hearing.
2. Hearings shall be held in Santa Fe or within any area of the state substantially affected by the proceedings as specified by the Director.
3. The Director may designate a hearing officer to take evidence at the hearing.
4. All hearings shall be recorded by a certified court reporter. A transcript will be furnished to all persons for review at the Division's main office. Costs of a copy of a transcript will be borne by those requesting such copies.
5. In hearings, the rules of civil procedures and the technical rules of evidence shall not apply, but the hearings shall be conducted so that all relevant views, arguments, and testimony are amply and fairly received without undue repetition.
6. Any person heard or represented at the hearing shall be given written notice of the action of the Director.
7. The Director shall notify the applicant or permittee of his decision and the reasons, therefore, by certified mail.

#### F. Director's Decision.

For purposes of these regulations, the Director's decision is not made until it becomes final under Section 902.G. or until the Board renders its decision under 902.F. either sustaining or reversing the Director. Immediately upon receiving the Board's decision the Director shall enter the Director's decision in accord with the Board's decision, which shall be considered the Director's decision for purposes of appeal to the Court of Appeals.

#### G. Review and Hearings Before Board.

1. Any person adversely affected by the decision of the Director concerning the issuance, suspension, modification or revocation of a permit may submit a petition for review of the Director's decision by the Environmental Improvement Board. For purposes of this regulation, an applicant for permit, permittee or an alleged violator of a permit or regulation shall be the "appellant". A petition for review must be made in writing to the Board within thirty (30) days after notice of the Director's action or decision has been received by the appellant and must include a statement of issues and supporting

arguments. Unless a timely request for review and hearing is made, the decision of the Director shall be final.

2. Any new evidence becoming available after the tentative decision by, or the hearing before the Director, may be presented at a hearing before the Board if such hearing is requested along with the request for review of the Director's decision. Otherwise, the Board shall consider only the evidence admitted in the record formed at the hearing before the Director or the evidence available to the Director at the time of his or her tentative decision. All parties who participated in the hearing before the Director may submit to the Board, within thirty days of the appellant's request for review, proposed findings and reasons based upon the hearing record.

In reviewing the Director's decision, the Board may modify or reverse the Director's decision if the decision is found to be:

- (a) arbitrary, capricious or an abuse of discretion;
- (b) not supported by substantial evidence; or,
- (c) otherwise not in accordance with law.

If the appellant requests only that the Board review the Director's decision without requesting a hearing to consider new evidence, the Board shall render a decision denying, modifying or sustaining the Director's decision, along with findings and reasons, within sixty (60) days of the appellant's request, and by certified mail shall notify the appellant and shall make a reasonable effort to notify all participants in the hearing before the Director of its decision, findings and reasons. If a hearing to consider new evidence is held, the Board's decision on the Director's decision shall be deferred until the hearing is held in accordance with the sub-sections 3 through 6.

3. If a timely request for hearing is made, the Board shall hold a hearing within sixty (60) days after receipt of the request, and at least twenty (20) days prior to the hearing date shall notify the appellant by certified mail and shall make a reasonable effort to notify all who submitted comments on the permit, or who participated in the hearing before the Director of the date, time and place of the hearing. The Board shall also publish notice of the date, time and place of hearing at least twenty (20) days prior to the hearing date in a newspaper of general circulation in the county in which the facility is proposed to be located or is located and a newspaper of general circulation in the state.

4. The Division will arrange for transcript of the hearing by a certified reporter. Copies of the transcript shall be paid for by those requesting them.
5. Hearings shall be before the Board or a hearing officer appointed by the Board. If a hearing officer is designated by the Board he or she shall conduct the hearing and rule on the evidence presented. In hearings, the technical rules of evidence and the rules of civil procedure shall not apply, but the hearings shall be conducted so that all relevant views are amply and fairly presented without undue repetition. The Board may require reasonable substantiation of statements or records tendered and may require any view to be stated in writing when the circumstances justify.
6. The Board shall allow all parties a reasonable opportunity at a hearing to submit written and oral evidence and arguments, to introduce exhibits, and to cross-examine persons who testify. At any hearing accompanying the review of the Director's decision, in which only new evidence becoming available following the hearing before the Director is allowed, all exhibits, evidence and cross-examination shall be restricted to such new evidence.
7. All parties participating in the hearing may submit proposed findings and reasons to the Board within thirty (30) days following the Board's receipt of the transcript.
8. The Board may adopt findings submitted or may make separate findings, but the Board shall:
  - (a) consider and weigh all of the evidence presented in making or adopting any and all of its findings and reasons;
  - (b) adopt or make only findings and reasons that are supported by substantial evidence as presented; and,
  - (c) not adopt or make any findings and reasons which are arbitrary or capricious, or otherwise not in accordance with the law.
9. Within sixty (60) days following the Board's receipt of the transcript, the Board shall render a decision on the basis of the hearing record sustaining, modifying or reversing the Director, along with findings, and shall notify the appellant and all participants in the hearing of its decision and findings.

## PART X - MISCELLANEOUS

1001. Compliance with Other Regulations. Compliance with the Hazardous Waste Management Regulations does not relieve a person of the obligation to comply with other applicable state and federal regulations. If the United States Environmental Protection Agency should suspend any federal hazardous waste regulation having a direct counterpart in these regulations, the counterpart in these regulations shall be deemed suspended without any further action being taken.
1002. Construction. The Hazardous Waste Management Regulations shall be liberally construed to effectuate the purpose of the Act.
1003. Severability. If any Part or application of the Hazardous Waste Management Regulations is held invalid, the remainder, or its application to other situations or persons, shall not be affected.
1004. Supercession of Prior Regulations. These regulations supercede the Hazardous Waste Management Regulations, EIB/HWMR-4, filed December 16, 1987.



1190 St. Francis Drive  
Santa Fe, New Mexico 87503

GARREY CARRUTHERS  
Governor

CARLA L. MUTH  
Secretary

MICHAEL J. BURKHART  
Deputy Secretary

November 4, 1988

**Certified Mail**  
**Return Receipt Requested**

P-484 098 948

Mr. John J. Stokes  
Refinery Manager  
Giant Refining Co.  
Rt. 3, Box 7  
Gallup, NM 87301

RE: NMD 000333211  
RCRA Operating Permit

Dear Mr. Stokes:

Enclosed for your use is the refinery operating permit under the New Mexico Hazardous Waste Management Regulations. Mr. Robert McClenahan of your staff provided numerous helpful comments on the draft permit, many of which were incorporated into the final permit. The permit will be effective thirty days after your receipt of the permit unless you appeal in accordance with HWMR-5, Part IX, Sections, 902.G. and F.

If you have any questions please call Mr. C. Kelley Crossman on my staff at 827-2923.

Sincerely,

  
Richard Mitzelfelt  
Director

RM/CKC/pv

cc: Janie Hernandez, EPA (6H-HS)  
Tito Madrid, EID District I



1190 St. Francis Drive  
Santa Fe, New Mexico 87503

GARREY CARRUTHERS  
Governor

CARLA L. MUTH  
Secretary

MICHAEL J. BURKHART  
Deputy Secretary

November 4, 1988

**Certified Mail**  
**Return Receipt Requested**

P-484 098 949

Mr. John J. Stokes  
Refinery Manager  
Giant Refining Co.  
Rt. 3, Box 7  
Gallup, NM 87301

**RE: NMD000333211**  
**Response to Comments**

Dear Mr. Stokes:

Thank you for your comments of October 13, 1988, regarding the draft operating permit. In accordance with the Hazardous Waste Management Regulations (HWMR-5), a specific response to each comment is contained herein. I wish to thank Mr. Robert McClenahan of your staff for his assistance in making the changes from HWMR-4 to HWMR-5 throughout the draft. HWMR-5 is included in your permit as Attachment J and became effective on October 30, 1988. The following comment responses are numbered in the same manner as in your letter.

#### RESPONSE TO COMMENTS

Page 8, E.5.:

The words "or correct" were inserted into the duty to mitigate under the authority of HWMR-5, Part IX, Section 270.32.(b) to more fully implement Article 74-4-2, NMSA 1978, "...ensure the maintenance of the quality of the state's environment;...".

Page 9, 7.:

Concur. The clarifying language was added.

Page 9 and 10, 10.: Concur. The clarifying language was added.

Page 10, 15.:

Do not concur. The reference to Solid Waste Management Units is appropriate under HWMR-5, Part IX, Section 270.32(b). The State

Mr. John J. Stokes  
November 4, 1988  
Page Two

must adopt regulations equivalent to EPA's and will address SWMUs as required.

Page 11 and 12, I.3.:

Concur. The cites were corrected.

Page 12, C.3.:

Concur. The redundant word was deleted.

Page 14, K.1.a.:

Concur. The correction was made.

Page 14, K.1.b.:

Do not concur. The land treatment area will be subject to a post-closure care permit and it is prudent to plan on retaining the records of waste disposal until the end of the post-closure care period. This permit paragraph provides Giant with this information in advance so that planning for this requirement may occur.

Page 15. K.1.h.:

Do not concur. See the reason given above about record retention.

Page 16, ii.:

Concur. The change was made.

Page 16, (g).:

Concur. The change was made.

Page 16, C.:

Concur. The clarification as to calendar or working days was added.

Page 17, i.:

Do not concur. The regulatory basis is HWMR-5, Part IX, Section 270.30.(1)(10).

Mr. John J. Stokes  
November 4, 1988  
Page Three

Page 17, 3.b.:

Do not concur. The State should be promptly notified of monitoring results which may indicate problems or releases. Verification sampling and analysis can occur concurrently or after notification to the Director.

Page 18, N.:

Do not concur. There are numerous references in HWMR-5, Part V, Section 264.143 to the Director's approval for changes in the financial assurance documents. It is not the State's desire or intention to withhold approvals unless justification exists. In all cases the regulatory provisions will be followed and approvals processed as quickly as possible.

Page 19, 0.2.:

Concur. The correction has been made.

Page 19, 0.2.:

Do not concur. The active involvement of the State in surety matters is appropriate. See the response to page 18, paragraph N. above.

Page 20, R.5.:

Concur. The addition has been made.

Page 21, B.:

Do not concur. The proposed rewording is overly broad.

Page 21, B.1.:

Concur. The regulatory cite has been revised, to standardize in accordance with EID practice, to be consistent throughout the permit.

Page 22, D.:

Concur. The proposed addition has been made with the word in the proposed language "material" changed to "constituents".

Page 24, e.:

Concur. The proposed addition has been made.

Mr. John J. Stokes  
November 4, 1988  
Page Four

Page 24, g.:

Do not concur. The requirement to add sufficient moisture to entrance biodegradation is proper. This does not constitute sufficient liquid to provide a driving force to move constituents through the treatment zone. The paragraph standards have been rewritten to express them in the same units as a soil moisture tensiometer readout.

Page 25, G.3.:

Concur. The purpose of these analysis parameters is to easily provide a trigger should breakthrough occur. To require analysis for constituents is not necessary if breakthrough has not occurred. If Giant wishes to do a more specific analytical procedure EID does not object. The principle constituents from the LTD report have been specified in the permit.

Page 25, H.2.a.:

Do not concur. The currently installed lysimeters are not installed in accordance with the cited guidance. The LTA demonstration permit (NMD 000333211-1) paragraph III.F. required similar soil pore moisture monitoring which was not accomplished. Without data no variance can be granted.

Page 26, H.3.d.:

Concur on typographical error, do not concur on change of reporting suspense. The report suspense time is based on HWMR-5, Part V, Section 264.278.(g)(1).

Page 28, b.:

The term "report suspenses" refers to the provision of the alternative demonstration option which requires a report within a specified time. This subsection is an attempt to clarify when the allowable process time begins.

Page 28, d.:

Concur. This sentence was based on HWMR-4 and is not in HWMR-5.

Permit Attachment A

Page A-1:

Concur. The change has been made.

Mr. John J. Stokes  
November 4, 1988  
Page Five

Page A-1, I.:

Concur. The deletion has been made.

Permit Attachment B

Page B-1.:

Do not concur. HWMR-5, Part V, Section 264.15(c) requires signs to be legible at 25 feet. Sign spacing of 50 feet ensures that a legible sign will be available from all avenues of approach.

Permit Attachment C

Page C-1.:

Concur. The precipitation level has been changed to 1.8 inches to be consistent with DP GW-32.

Page C-3.:

Concur. Figure C.4 has been deleted, Figure C.5 relabeled to C.4 and the appropriate paragraph references corrected.

Permit Attachment D

Page D-6.:

Concur partially. The assignment of priority and secondary responsibility was retained.

Page D-8.:

Concur. The change was made.

Permit Attachment E

Page E-4.:

Concur. The change was made.

Page E-5.:

Concur. The reference was changed.

Page E-6, F001.:

Concur. The reference to HWMR-4 was corrected to HWMR-5, Part

Mr. John J. Stokes  
November 4, 1988  
Page Six

III, Section 262.10(b).

Page E-32:

Concur. The typographical error was corrected.

Page E-39:

Concur. Mr. Stoke's address was corrected.

Permit Attachment F

Page 2, 1.2.:

Do not concur. The proposed language is less precise than that in the draft permit.

Page 4, 1.2.1.2.:

Concur. The internal height has been revised to 2 feet to be consistent with the remainder of the permit. "Landform" has been changed to LTA for the same reason.

Page 4, 1.2.1.3.:

Do not concur. The imprecise wording suggested does not allow for an objective determination of compliance.

Page 4, 1.2.1.4.:

Concur with correction of the paragraph number. Do not concur with changing the cite to HWMR-5, Part V, Section 264.276. The proposed cite refers to growing of food crops on the LTA and Giant has not indicated any desire to do so, nor has Giant made any demonstration regarding food crops. The correct cite is HWMR-5, Part 5, Section 264.119.

Page 8, 1.2.2.2.:

Concur. "Eastern" has been changed to "westerly".

Page 9, 1.2.2.2.:

Concur. The typographical error has been corrected.

Page 11, 1.3.:

Concur. The typographical error has been corrected.

Mr. John J. Stokes  
November 4, 1988  
Page Seven

Page 12, 1.4.:

Concur that the regulatory cites need to be corrected. The correct cites are HWMR-5, Part V, Section 264.112(c) and Part IX, Section 270.41. Additional reference to HWMR-5, Part V, Section 264.113 was added as an opening phrase for clarification.

Page 13, 1.7.:

Concur. The cite was added.

Page 13, 1.8.:

Concur. Giant must update financial surety prior to the permit going into effect.

Page 14, 2.1.1.:

Do not concur. The HWMR-5, Part V, Section 264.98(d) requires semiannual detection monitoring for the entire post-closure care period. The schedule in the draft permit has already considered the results of the land treatment demonstration by Giant. Giant may request a modification to this monitoring requirement in accordance with HWMR-5, Part V, Section 264.119(d)(i).

Page 16, 2.1.3.:

Concur. A five-strand wire fence will have minimal impact on migration potential.

Page 16, 2.1.4.:

Do not concur. The intent is to ensure that sufficient moisture is available to support the vegetative cover. Concur on the addition of the word "be".

Page 18, 2.2.:

Concur that the cite should be changed to HWMR-5. The correct cites are HWMR-5, Part V, Section 264.118(d) and Part IX, Section 270.41.

Page 19, 2.6.:

Concur that the cites should be changed to HWMR-5.

Page 20, 2.8.:

Concur. Giant must update financial surety prior to the permit

Mr. John J. Stokes  
November 4, 1988  
Page Eight

going into effect.

Permit Attachment G

Page 1, B.iii.:

Concur. A ten foot screened interval is acceptable.

Page 1, B.iv.:

Do not concur. Any new well installed to augment or replace the existing wells should be designed, installed and developed to yield non-turbid samples. If this is not possible after a best-effort installation, then Giant can request a variance from this requirement as indicated in the remainder of the paragraph.

Page 4, 2.A.ii.:

Do not concur. The list of monitoring wells include the shallow monitoring wells 1,2, and 3 because of the continuing element of uncertainty about the geologic structure under the LTA. The EID will entertain a request for such deletion when the results of the latest Comprehensive Monitoring Evaluation are reviewed.

Page 4, 2.B.i.:

Concur. The phrase "whenever possible" was added to allow for inclement weather delays. The EID recommends that such schedule deviations be minimized to eliminate as much as possible any seasonal variation effect in the data.

Page 5, E.:

Concur in part. Sufficient data can be obtained from the detection wells to establish groundwater flow rate and direction so this section was rewritten to require only their use. This is not to be construed to mean that the RCRA authority only applies to the LTA. The requirement for a vertical flow determination is already conditional and will remain as written to allow for a contingent determination should future data show the need.

Page 5, G.:

Do not concur. See item "Page 4, 2.A.ii." above.

Page 11, Table G-3.

Do not concur. The common ions are retained to assist in ion-balance quality checking of monitoring data.

Mr. John J. Stokes  
November 4, 1988  
Page Nine

Page 12, Table G-4.:

Do not concur. These constituents were reported in the land treatment demonstration (LTD) report, Appendix B.5 as being present below the treatment zone. No explanation of their potential source was provided in the LTD report. Should sufficient data be accumulated to justify their deletion from the list, EID will entertain a request for an amendment to delete these constituents.

#### Attachment H

Para. I.A.:

Do not concur. The intent of the term "facility" is to be consistent with EPA usage as all contiguous property under the control of the permittee used to manage hazardous wastes. This generally includes the refinery boundary.

Para. I.B.:

Concur. The suggested phrase was added.

Para. I.D.:

Do not concur. If a new background well is installed, data should be acquired by sampling for four quarters and analyzing for all designated constituents to establish their background levels. Once background is established in accordance with HWMR-5, Part V, Section 264.98(c), detection monitoring for the new well will commence.

Para. II.:

Do not concur. The EID recognizes that not all wells have a consecutive sampling history. The purpose of this requirement is to summarize all available data as required by HWMR-5, Part IX, Section 270.14(c)(1).

#### END OF RESPONSE TO COMMENTS

In addition to the above changes, review by the EID staff has prompted the following minor changes to the draft permit:

1. Page 1, para. 1.

The Township, Range and Section were added to further define the site.

Mr. John J. Stokes  
November 4, 1988  
Page Ten

2. Page 1, para. 4.

The current Director's name was substituted.

3. Pages 2-6 Page references in the Table of Contents were corrected.

4. Page 16, para. c. The address was corrected.

5. Page 19, para. R.3. Abandoned well MW-3 was deleted.

6. Page 20, para. R.5. The current background well reference (OW-11) was corrected from MW-4.

7. Page 22, para. D. An unnecessary comma was deleted.

8. Page 23, para. F.2.c. The phrase "or other suitable vehicle" was added. It had been inadvertently dropped in the draft.

9. Page 24, para. F.2.g. The word "potable" was deleted.

10. Page 25, para. G.3. Fertility factors were deleted from below the treatment zone analyses.

11. Page 25, para. H. The typographical error "land" was changed to "plan".

12. Page 26, para. H.3.c. The syntax of the paragraph was corrected.

13. Page 27, para. L.2. The approved statistical method was changed back to the Cochran's Approximation to the Behrens-Fisher Student's T-Test as given in HWMR-5, Part V, Appendix IV. The average replicate test procedure proved too difficult to apply and was not statistically more valid in this application. The approved method will remain that as used by Giant under interim status.

14. Various sentences were edited to standardize the use of the following acronyms to to be consistent throughout the permit:

LTA= Land Treatment Area  
ZOI= Zone of Incorporation  
BTZ= Below the Treatment Zone

#### Attachment A

15. Page A-1, para. I. Truckload sampling frequency was clarified.

Mr. John J. Stokes  
November 4, 1988  
Page Eleven

16. Page A-2, para.II. Corrected the phrase "Bottom Sediment and Water" to "Oil and Grease".
17. Page A-8, Table A-3. Corrected Code B to "as generated".

Attachment C

18. Page C-1 Corrected a reference from HWMR-4 to HWMR-5.
19. Page C-2 Corrected "regular" to "weekly" or "monthly" to correspond to Table C.1.

Attachment D

20. Page D-2 Corrected "received" to "successfully completed".
21. Page D-5 Deleted "Maintenance Mechanic Leadman".
22. Page D-9 Deleted a redundant requirement to conduct training.
23. Attachment E. page E-43. The address was corrected.

Attachment F

24. All pages numbered.
25. Page 13, para. 1.8. Missing dollar signs were added.

The paragraphs above detail the changes which were made to the draft permit of August 28, 1988 as a result of all comments received during the comment period. The changes were incorporated and the permit repaged, resulting in some instances in paragraphs or sentences appearing on different pages in the final version.

Your attention is directed to page 7 above, comments "Page 13, 1.8." and "Page 20, 2.8.". If Giant fails to update the surety documentation the permit will not be effective. Delay in updating surety may also be grounds for permit denial or revocation.

Mr. John J. Stokes  
November 4, 1988  
Page Twelve

If you have any questions please call Mr. C. Kelley Crossman on my staff at (505) 827-2923.

Sincerely,



Richard Mitzelfelt  
Director

RM/CKC/pv

cc: Janie Hernandez, EPA (6H-HS)

**FACT SHEET**  
**INTENT TO PERMIT THE**  
**LAND APPLICATION TREATMENT OF HAZARDOUS WASTES**  
**UNDER THE**  
**RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)**

FACILITY NAME: Giant Refining Company  
Ciniza Refinery

EPA I.D. NUMBER: NMD 000333211

LOCATION: Route 3, Box 7  
Gallup, New Mexico 87301

ACTIVITY: Hazardous Waste Land Treatment

LANDOWNER: Giant Refining Company

FACILITY OPERATOR: Giant Refining Company  
John J. Stokes, Refinery Manager

Reasons Supporting Decision To Issue A Permit

In November, 1983, the Part B RCRA permit application was received from Giant Refining Company. Giant is requesting a permit 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 New Mexico Hazardous Waste Act (Sections 74-1-1 *et. seq.* NMSA, 1978, as amended 1987).

Giant is a refiner of crude petroleum oil into fuels, kerosene and asphalt products. Giant applied for and received interim status under RCRA in October, 1980 to operate a land application treatment landfarm for the refinery wastes below. These wastes have been treated, subject to RCRA Interim Status standards, since that time.

<b>EPA Hazardous Waste Number</b>	<b>Wastes Types</b>	<b>Annual Quantity</b>
D001	Ignitable hazardous wastes	50 Tons
K049	Slop Oil Emulsion Solids	200 Tons
K050	Heat Exchanger Cleaning Sludge	15 Tons
K051	API Separator Sludge	1000 Tons
K052	Leaded Tank Bottoms	5 Tons

The Division proposes to issue a permit based on the provisions of HWMR-5 and under the Act stated above for the operation of a hazardous waste land application treatment facility.

The administrative record for this decision consist of permit application (Part A and Part B), a fact sheet, information contained in the permit application and related correspondence. The Administrative records may be reviewed at either the Environmental Improvement Division (EID) Central Office library at the Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, New Mexico or the E.I.D. District I field office, 106 W. Hill, Gallup, New Mexico.

### COMMENT PERIOD

All persons, including the applicant, who believe that the tentative decision to issue an operating permit is inappropriate, must raise all ascertainable issues and submit all available arguments and factual grounds supporting their position by October 14, 1988. Comments should be sent to the EID, at the address below.

#### PROCEDURES FOR REQUESTING A HEARING:

A public hearing may be held if the EID receives by October 3, 1988, written notice of opposition to the proposed decision and a request for a hearing. Any request for a hearing shall be in writing and state the nature of the issue proposed to be raised in the hearing. Requests for a hearing must be submitted to the EID and must include the requestor's name and address. A public hearing has been scheduled for 1:30pm, October 5, 1988 at the McKinley County Courthouse, Commission Room, 200 W. Hill, Gallup, NM. The EID reserves the right to cancel the hearing if no written requests are received by October 3.

All correspondence should be sent to the following address:

Mr. C. Kelley Crossman, Permitting Supervisor  
Hazardous Waste Bureau (EID)  
P.O. Box 968  
Santa Fe, N.M. 87504-0968



Post Office Box 968  
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhart  
Director

GARREY CARRUTHERS  
Governor

LARRY GORDON  
Secretary

CARLA L. MUTH  
Deputy Secretary

July 15, 1988

Mr Bob McClenahan  
Giant Refining Company  
Rt.3, Box 7  
Gallup, New Mexico 87301

Re: NMD 000333211  
Draft Permit

Dear Mr. McClenahan:

Enclosed for your review and comment are a draft permit and attachments F and G. Any comments or suggested changes you may have will have to be received by July 25, 1988 to be incorporated into the final draft permit. I anticipate providing to Giant a final draft permit, prior to public notification, on or about August 15th. At that time I will also provide copies of the proposed public notice and invite your response to any technical issues which may remain. Your response must be made within the allotted time to be incorporated into the permit.

I am especially concerned that you have not yet provided an updated contingency plan or current training plan and outline. Without these documents I may have no choice but to recommend that the permit be denied. It is essential, therefore that I have your inputs no later than July 25th.

If you have any questions please call me.

Sincerely,

C. Kelley Crossman  
Permitting Supervisor

cc: Janie Hernandez, EPA (6H-HS)



Post Office Box 968  
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhart  
Director

GARREY CARRUTHERS  
Governor

LARRY GORDON  
Secretary

CARLA L. MUTH  
Deputy Secretary

July 6, 1988

Mr. Bob McClenahan  
Giant Refining Company  
Rt. 3, Box 7  
Gallup, New Mexico 87301

RE: NMD 000333211

Dear Mr. McClenahan: *Bob*

Enclosed for your review and comment are draft attachments A, B and C for the permit. Any comments or suggested changes you may have will have to be received by July 25, 1988 to be incorporated in the draft permit.

If you have any questions call me.

Sincerely,

*C. Kelley Crossman*

C. Kelley Crossman  
Permitting Supervisor

CKC/pv

cc  
*Janie Hernandez, EPA (6H-15)*



June 17, 1988

RECEIVED

JUN 20 1988

HAZARDOUS WASTE SECTION

Route 3, Box 7  
Gallup, New Mexico  
87301

505  
722-3833

C. Kelly Crossman  
Permitting Supervisor  
Hazardous Waste Section  
NMEID  
P.O. Box 968  
Santa Fe, NM 87504-0968

RE: Giant Refining's Land Treatment Demonstration  
Report and Permit

Dear Mr. Crossman:

Enclosed are five copies of Giant's Land Treatment Demonstration report. Due to the voluminous nature of the data, only two copies of the appendices are provided. Also attached is a copy of the proposed permit with attachment G, the ground water monitoring plan, along with a floppy disk of this information. I will be working on additional attachments that relate to operations next week, and will be forwarding them as completed.

I would like to meet with you and your staff sometime during the week of June 27, so that we can coordinate our efforts in completing the draft permit. Please advise as to your schedule.

Sincerely,

Robert L. McClenahan, Jr.  
Environmental Coordinator  
Giant Refining Company

RLM:ds

Enclosures

cc: Carl Shook  
John Stokes  
Kim Bullerdick  
David Bratberg, AES  
Tanga Winkle, EPA



Post Office Box 968  
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhart  
Director

GARREY CARRUTHERS  
Governor

LARRY GORDON  
Secretary

CARLA L. MUTH  
Deputy Secretary

May 20, 1988

Mr. Robert McClenahan  
Environmental Coordinator  
Giant Refinery Company  
Route 3, Box 7  
Gallup, New Mexico 87301

RE: NMD 0003333211

Dear Mr. McClenahan:

We are pleased to send an advanced copy of the draft version of section G to Giant Refinery Company to facilitate your early participation in the Part B permitting process.

If you should have questions, please feel free to call.

Thank you.

Very sincerely,

*Don-edward Donaldson*

Don-edward Donaldson  
Water Resource Specialist  
Hazardous Waste Section

Ded/pv



NEW MEXICO  
HEALTH AND ENVIRONMENT  
DEPARTMENT

Post Office Box 968  
Santa Fe, New Mexico 87504-0968

GARREY CARRUTHERS  
Governor

LARRY GORDON  
Secretary

CARLA L. MUTH  
Deputy Secretary

March 8, 1988

Mr. Bob McClenahan  
Giant Refinery  
Route 3, Box 7  
Gallup, NM 87301

RE: NMD 000333211

Dear Mr. McClenahan:

Enclosed for your review is an initial draft permit without figures, tables or attachments. These items will be constructed as a result of the review of the demonstration report and all related file information.

I would like to invite you to meet with me in Santa Fe to discuss the progress of the demonstration report and your comments on this draft permit. Since we must have a permit decision by November 8, 1988 it is essential that the permit be drafted and presented to the public for review by early August at the latest. Therefore, I suggest we meet the week of April 4. Please call and confirm a specific date.

If you have any questions please call me at (505) 827-2923.

Sincerely,

C. Kelly Crossman  
Permitting Supervisor  
Hazardous Waste Section

CKC/pv

cc: Tanga Winkle, EPA (6H-HS)



RCRA PERMIT QUALITY PROTOCOL  
BACKGROUND INFORMATION  
- Continued -

List the TSD units where reactive, ignitable or incompatible wastes are handled.

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If groundwater monitoring is required at the facility, do the data obtained during the interim status monitoring program show any evidence of groundwater contamination?

Yes       No       N.A.

Have any enforcement actions been taken against the owner/operator of the facility?

Yes       No

If yes, briefly describe.

GW monitoring + system adequacy  
Acid neutralization  
Vadose zone monitoring

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Type of permit:  Draft       Final

Issuing Agency: EPA Region       State: NY

Reviewer: AKC

Date: \_\_\_\_\_

RCRA PERMIT QUALITY PROTOCOL  
PROCEDURAL REQUIREMENTS

ADMINISTRATIVE RECORDS

The contents of the administrative record (file) associated with the permit must be inventoried. Indicate below the items contained in the file.

- Permit application (Parts A and B) and any support data, technical reports, etc., provided by the applicant.
- Any notices of deficiency sent to the applicant, along with the applicant's amended or supplemental information.
- Pre-permit site inspection report.
- Documentation resulting from the agency's technical evaluation of the permit application.
- The draft permit.
- Statement of basis or fact sheet.
- All documents cited in statement of basis or fact sheet.

If the permit is a final permit, note the presence of the following additional items in the file.

- Public Notice
- All comments received during the public comment period.
- Tape or transcript of any hearings held and any written materials submitted at hearings.
- Responses to significant comments posed during the comment period and/or hearing.
- Final permit.
- Explanation of changes from draft to final permit.
- Where appropriate, materials relating to:
  - Consistency determinations under CZMA
  - Consultation under the Endangered Species Act
  - Determination under Section 403(c) of the Clean Water Act
  - Consistency with the Wild and Scenic Rivers Act
  - Cooperation with the National Historic Preservation Act
  - Consistency with the Fish and Wildlife Coordination Act

PUBLIC NOTICE AND COMMENT

Was a public notice issued of the preparation of draft permit and providing an opportunity for comment at least 45 days prior to final permit decision?

Yes  No

If a public hearing was held, was a notice of public hearing issued at least 30 days prior to hearing?

Yes  No

Was a summary response to significant comments raised during comment period and/or hearing prepared and issued at time of final permit decision?

Yes  No

RECORDS OF MODIFICATION (to be completed if the permit was modified, revoked or reissued)

Was the permit modified pursuant to 40 CFR 270.41?  
If yes, specify the basis identified in the permit documentation (alterations; new information; new regulations; compliance schedules; variance request; reopener)

Yes  No

Did cause exist for modification or revocation and reissuance pursuant to 40 CFR 270.41(a)?

Yes  No

If yes, specify the cause:

- a. Cause exists for termination, as provided in 40 CFR 270.43 (noncompliance; misrepresentation of or failure to disclose facts; endangerment to human health or environment; change in condition);
- b. Transfer of permit;
- c. Other (specify) \_\_\_\_\_  
\_\_\_\_\_

Does the permit documentation indicate that the procedures of 40 CFR 124.5 for permit modification, revocation and reissuance or termination were followed?

Yes  No

REVIEW BY COUNSEL

Were minor modifications made to the permit?

Yes

No

If yes, indicate the specific reasons as per 270.42.

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Does the administrative record contain documentation of consent by permittee to those minor modifications?

Yes

No

Reviewer: \_\_\_\_\_

Date: \_\_\_\_\_

Facility Name Giant  
 ID No. NMD 020733211  
 Date Part B Received \_\_\_\_\_  
 Date Completeness Review Due \_\_\_\_\_

15 Acres

RCRA PART B PERMIT APPLICATION CHECKLIST

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
<b>PART A APPLICATION</b>				
<b>FACILITY DESCRIPTION</b>				
B-1	General description	✓		p1-1
B-2	Topographic map	✓		Dwg 1.4-1
B-2a	General requirements			
B-2b	Additional requirements for land disposal facilities			
B-3a	Seismic standard	✓		p1-6
B-3b	Floodplain standard	✓		p1-5
B-3b(1)	Demonstration of compliance	✓		p1-6
B-3b(1)(a)	Flood proofing and flood protection measures		✓	
B-3b(1)(b)	Flood plan		✓	
B-3b(2)	Waiver		✓	
B-3b(3)	Plan for future compliance with floodplain standard		✓	
B-4	Traffic information	✓		p12-1
<b>WASTE CHARACTERISTICS</b>				
C-1	Chemical and physical analyses, including sampling/analysis methods	✓		p2-1
C-1a	Containerized wastes		✓	Shipped off < 90 day storage

3510-1 Dated 4/1/85  
 3510-3 Dated 4/1/85

- 2 -

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
C-1b	Waste in tanks	_____	_____	_____
C-1c	Waste in piles	_____	_____	_____
C-1d	Landfilled wastes	_____	_____	_____
C-1e	Wastes incinerated and wastes used in performance tests	_____	_____	_____
C-1f	Wastes to be land treated	_____	_____	p2-1
C-2	Waste analysis plan	_____	_____	_____
C-2a	Parameters and rationale	_____	_____	p3-1
C-2b	Test methods	_____	_____	_____
C-2c	Sampling methods	_____	_____	p3-2
C-2d	Frequency of analyses	_____	_____	p3-2 SF
C-2e	Additional requirements for wastes generated off-site	_____	_____	No off site wastes identified
C-2f	Additional requirements for ignitable, reactive or incompatible wastes	_____	_____	_____

		Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
<b>PROCESS INFORMATION</b>					
D-1	Containers			✓	
D-1a	Containers with free liquids				
D-1a(1)	Description of containers				
D-1a(2)	Container management practices				
D-1a(3)	Secondary containment system design and operation				
D-1a(3)(a)	Requirement for the base or liner to contain liquids				
D-1a(3)(b)	Containment system drainage				
D-1a(3)(c)	Containment system capacity				
D-1a(3)(d)	Control of run-on				
D-1a(3)(e)	Removal of liquids from containment systems				
D-1b	Containers without free liquid				
D-1b(1)	Test for free liquids				
D-1b(2)	Description of containers				
D-1b(3)	Container management practices				
D-1b(4)	Container storage area drainage				

*less than ninety days storage solvents*

*S*

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-2	Tanks	✓		
D-2a	Description of tanks		✓	product tanks, only generate wastes when cleaned
D-2b	Tank corrosion and erosion			
D-2c	Tank management practices			
D-2d	Secondary containment requirements for tanks storing or treating wastes F020, F021, F022, F023, F026 and F027			
D-2d(1)	Wastes managed in the tanks			
D-2d(2)	Containment system design			
D-2d(3)	Containment system capacity			
D-2d(4)	Control of run-on			
D-2d(5)	Removal of spills or leaks from the containment system			
D-2d(6)	Leak detection system			

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-3 Waste piles	_____	_____	✓	<i>Not applicable</i>
D-3a List of wastes	_____	_____	_____	_____
D-3b Liner exemption	_____	_____	_____	_____
D-3b(1) Enclosed dry piles	_____	_____	_____	_____
D-3b(1)(a) Protection from precipitation	_____	_____	_____	_____
D-3b(1)(b) Free liquids	_____	_____	_____	_____
D-3b(1)(c) Run-on protection	_____	_____	_____	_____
D-3b(1)(d) Wind dispersal control	_____	_____	_____	_____
D-3b(1)(e) Leachate generation	_____	_____	_____	_____
D-3b(2) Alternate Design/No Migration	_____	_____	_____	_____
D-3c Liner engineering report	_____	_____	_____	_____
D-3c(1) Liner description	_____	_____	_____	_____
D-3c(2) Liner location relative to high water table	_____	_____	_____	_____
D-3c(3) Calculation of necessary soil liner thickness	_____	_____	_____	_____
D-3c(4) Liner strength requirements	_____	_____	_____	_____
D-3c(5) Liner strength demonstration	_____	_____	_____	_____
D-3c(6) Liner/waste compatibility testing results	_____	_____	_____	_____
D-3c(7) Liner installation	_____	_____	_____	_____
D-3c(7)(a) Synthetic liner seaming	_____	_____	▽	_____
D-3c(7)(b) Soil liner compaction	_____	_____	_____	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-3c(7)(c) Installation inspection/testing programs	_____	_____	_____	_____
D-3c(8) Liner coverage	_____	_____	_____	_____
D-3c(9) Liner exposure prevention	_____	_____	_____	_____
D-3c(10) Synthetic-liner bedding	_____	_____	_____	_____
D-3d Liner foundation report	_____	_____	_____	_____
D-3d(1) Liner foundation design description	_____	_____	_____	_____
D-3d(2) Subsurface exploration data	_____	_____	_____	_____
D-3d(3) Laboratory testing data	_____	_____	_____	_____
D-3d(4) Engineering analyses	_____	_____	_____	_____
D-3d(4)(a) Settlement potential	_____	_____	_____	_____
D-3d(4)(b) Bearing capacity and stability	_____	_____	_____	_____
D-3d(4)(c) Potential for bottom heave or blowout	_____	_____	_____	_____
D-3d(4)(d) Construction and operational loadings	_____	_____	_____	_____
D-3d(5) Foundation installation procedures	_____	_____	_____	_____
D-3d(6) Foundation installation inspection program	_____	_____	_____	_____
D-3e Leachate collection and removal system	_____	_____	_____	_____
D-3e(1) System design and operation	_____	_____	_____	_____
D-3e(2) Chemical resistance	_____	_____	_____	_____
D-3e(3) Strength of materials	_____	_____	_____	_____

		Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-3e(4)	Prevention of clogging	_____	_____	_____	_____
D-3e(5)	Installation	_____	_____	_____	_____
D-3e(6)	Maintenance	_____	_____	_____	_____
D-3f	Run-on control system	_____	_____	_____	_____
D-3f(1)	Calculation of peak flow	_____	_____	_____	_____
D-3f(2)	Design and performance	_____	_____	_____	_____
D-3f(3)	Construction	_____	_____	_____	_____
D-3f(4)	Maintenance	_____	_____	_____	_____
D-3g	Run-off control system	_____	_____	_____	_____
D-3g(1)	Calculation of peak flow	_____	_____	_____	_____
D-3g(2)	Design and performance	_____	_____	_____	_____
D-3g(3)	Construction	_____	_____	_____	_____
D-3g(4)	Maintenance	_____	_____	_____	_____
D-3h	Management of collection and holding units	_____	_____	_____	_____
D-3i	Control of wind dispersal	_____	_____	_____	_____
D-3j	Groundwater monitoring exemption	_____	_____	_____	_____
D-3j(1)	Engineered structure	_____	_____	_____	_____
D-3j(2)	No liquid waste	_____	_____	_____	_____
D-3j(3)	Exclusion of liquids	_____	_____	_____	_____
D-3j(4)	Containment system	_____	_____	_____	_____
D-3j(5)	Leak detection system	_____	_____	_____	_____



		Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-3j(6)	Operation of leak detection system	_____	_____	_____ 	_____
D-3j(7)	No migration	_____	_____	_____	_____
D-3k	Treatment within the pile	_____	_____	_____	_____
D-3k(1)	Treatment process description	_____	_____	_____	_____
D-3k(2)	Equipment used	_____	_____	_____	_____
D-3k(3)	Residuals description	_____	_____	_____	_____
D-3l	Special management plan for piles containing wastes F020, F021, F022, F023, F026, and F027	_____	_____	_____	_____
D-3l(1)	Waste description	_____	_____	_____	_____
D-3l(2)	Soil description	_____	_____	_____	_____
D-3l(3)	Mobilizing properties	_____	_____	_____	_____
D-3l(4)	Additional management techniques	_____	_____	_____ 	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-4				SI's receive wastewater, subject to OCD
D-4a	_____	_____	✓	
D-4b				
D-4b(1)	_____	_____		
D-4b(2)	_____	_____		
D-4c				
D-4c(1)	_____	_____		
D-4c(2)	_____	_____		
D-4c(3)	_____	_____		
D-4c(4)	_____	_____		
D-4c(5)	_____	_____		
D-4d				
D-4d(1)	_____	_____		
D-4d(2)	_____	_____		
D-4d(3)	_____	_____		
D-4d(4)				
D-4d(4)(a)	_____	_____		
D-4d(4)(b)	_____	_____		
D-4d(4)(c)	_____	_____		
D-4e			▽	

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-4e(1) Synthetic liners	_____	_____	_____	_____
D-4e(1)(a) Synthetic liner compatibility data	_____	_____	_____	_____
D-4e(1)(b) Synthetic liner strength	_____	_____	_____	_____
D-4e(1)(c) Synthetic liner bedding	_____	_____	_____	_____
D-4e(2) Soil liners	_____	_____	_____	_____
D-4e(2)(a) Material testing data	_____	_____	_____	_____
D-4e(2)(b) Soil liner compatibility data	_____	_____	_____	_____
D-4e(2)(c) Soil liner thickness	_____	_____	_____	_____
D-4e(2)(d) Soil liner strength	_____	_____	_____	_____
D-4t Liner system, leachate detection system	_____	_____	_____	_____
D-4t(1) System operation and design	_____	_____	_____	_____
D-4t(2) Equivalent capacity	_____	_____	_____	_____
D-4t(3) Grading and drainage	_____	_____	_____	_____
D-4t(4) System compatibility	_____	_____	_____	_____
D-4t(5) System strength	_____	_____	_____	_____
D-4t(5)(a) Stability of drainage layers	_____	_____	_____	_____
D-4t(5)(b) Strength of piping	_____	_____	_____	_____
D-4t(6) Prevention of clogging	_____	_____	_____	_____
D-4g Liner system, construction and maintenance	_____	_____	_____	_____
D-4g(1) Material specifications	_____	_____	_____	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-4g(1)(a) Synthetic liners	_____	_____	_____	_____
D-4g(1)(b) Soil liners	_____	_____	_____	_____
D-4g(1)(c) Leachate detection system	_____	_____	_____	_____
D-4g(2) Construction specifications	_____	_____	_____	_____
D-4g(2)(a) Liner system foundation	_____	_____	_____	_____
D-4g(2)(b) Soil liner	_____	_____	_____	_____
D-4g(2)(c) Synthetic liners	_____	_____	_____	_____
D-4g(2)(d) Leachate detection system	_____	_____	_____	_____
D-4g(3) Construction quality control program	_____	_____	_____	_____
D-4g(4) Maintenance procedures for leachate detection system	_____	_____	_____	_____
D-4g(5) Liner repairs during operations	_____	_____	_____	_____
D-4h Prevention of overtopping	_____	_____	_____	_____
D-4h(1) Design features	_____	_____	_____	_____
D-4h(2) Operating procedure	_____	_____	_____	_____
D-4h(3) Overtopping prevention	_____	_____	_____	_____
D-4h(4) Freeboard requirements	_____	_____	_____	_____
D-4h(5) Outflow destination	_____	_____	_____	_____
D-4i Dike stability	_____	_____	_____	_____
D-4i(1) Engineer's certification	_____	_____	_____	_____
D-4i(2) Dike design description	_____	_____	_____	_____
D-4i(3) Erosion and piping protection	_____	_____	_____	_____

		Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-4i(4)	Subsurface soil conditions	_____	_____	_____	_____
D-4i(5)	Stability analysis	_____	_____	_____	_____
D-4i(6)	Strength and consolidation test results	_____	_____	_____	_____
D-4i(7)	Dike construction procedures	_____	_____	_____	_____
D-4i(8)	Dike construction inspection program	_____	_____	_____	_____
D-4j	Special waste management plan for surface impoundments containing wastes F020, F021, F022, F023, F026, and F027	_____	_____	_____	_____
D-4j(1)	Waste description	_____	_____	_____	_____
D-4j(2)	Soil description	_____	_____	_____	_____
D-4j(3)	Mobilizing properties	_____	_____	_____	_____
D-4j(4)	Additional management techniques	_____	_____	_____	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-5 Incinerators				
D-5a Justification for exemption	_____	_____	_____ 	
D-5b Trial burn				
D-5b(1) New incinerator start-up/ shakedown conditions (reserved)	_____	_____		
D-5b(2) Trial burn plan				
D-5b(2)(a) Engineering description of incinerator	_____	_____		
D-5b(2)(b) Sampling, analysis and moni- toring procedures including QA/QC plan	_____	_____		
D-5b(2)(c) Trial burn schedule	_____	_____		
D-5b(2)(d) Test protocols	_____	_____		
D-5b(2)(e) Pollution control equipment operation	_____	_____		
D-5b(2)(f) Shutdown procedures	_____	_____		
D-5b(2)(g) New incinerator post-trial burn operation (reserved)	_____	_____		
D-5c Data in lieu of trial burn				
D-5c(1) Engineering description of incinerator	_____	_____		
D-5c(2) Expected incinerator operation	_____	_____		
D-5c(3) Design and operating condition comparisons	_____	_____		
D-5c(4) Results of previous trial burns				
D-5c(4)(a) Sampling and analysis techniques	_____	_____	_____ 	

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-5c(4)(b) Methods and results	_____	_____	✓ _____	_____
D-5d Determinations	_____	_____	✓ _____	_____



	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-6d				
D-6d(1)			△	
D-6d(2)				
D-6d(3)				
D-6d(4)				
D-6d(4)(a)				
D-6d(4)(b)				
D-6d(4)(c)				
D-6d(4)(d)				
D-6e				
D-6e(1)				
D-6e(1)(a)				
D-6e(1)(b)				
D-6e(1)(c)				
D-6e(2)				
D-6e(2)(a)				
D-6e(2)(b)				
D-6e(2)(c)				
D-6e(2)(d)				
D-6f				
D-6f(1)			▽	

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-6f(2) Equivalent capacity	_____	_____	_____ 	_____
D-6t(3) Grading and drainage	_____	_____	_____	_____
D-6f(4) Maximum leachate head	_____	_____	_____	_____
D-6t(5) System compatibility	_____	_____	_____	_____
D-6t(6) System strength	_____	_____	_____	_____
D-6t(6)(a) Stability of drainage layers	_____	_____	_____	_____
D-6f(6)(b) Strength of piping	_____	_____	_____	_____
D-6t(7) Prevention of clogging	_____	_____	_____	_____
D-6g Liner system, construction and maintenance	_____	_____	_____	_____
D-6g(1) Material specifications	_____	_____	_____	_____
D-6g(1)(a) Synthetic liners	_____	_____	_____	_____
D-6g(1)(b) Soil liners	_____	_____	_____	_____
D-6g(1)(c) Leachate collection/detection systems	_____	_____	_____	_____
D-6g(2) Construction specifications	_____	_____	_____	_____
D-6g(2)(a) Liner system foundation	_____	_____	_____	_____
D-6g(2)(b) Soil liner	_____	_____	_____	_____
D-6g(2)(c) Synthetic liners	_____	_____	_____	_____
D-6g(2)(d) Leachate collection/detection systems	_____	_____	_____	_____
D-6g(3) Construction quality control program	_____	_____	_____ 	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-6g(4) Maintenance procedures for leachate collection/detection system	_____	_____	▲	_____
D-6g(5) Liner repairs during operations	_____	_____		_____
D-6h Run-on and run-off control systems	_____	_____		_____
D-6h(1) Run-on control system	_____	_____		_____
D-6h(1)(a) Design and performance	_____	_____		_____
D-6h(1)(b) Calculation of peak flow	_____	_____		_____
D-6h(2) Runoff control system	_____	_____		_____
D-6h(2)(a) Design and performance	_____	_____		_____
D-6h(2)(b) Calculation of peak flow	_____	_____		_____
D-6h(3) Management of collection and holding units	_____	_____		_____
D-6h(4) Construction	_____	_____		_____
D-6h(5) Maintenance	_____	_____		_____
D-6i Control of wind dispersal	_____	_____		_____
D-6j Liquids in landfills	_____	_____		_____
D-6j(1) Bulk or noncontainerized free liquids	_____	_____		_____
D-6j(2) Containers holding free liquids	_____	_____		_____
D-6j(3) Restriction to small containers	_____	_____		_____
D-6j(4) Nonstorage containers	_____	_____		_____
D-6j(5) Labpacks	_____	_____		_____
D-6j(5)(a) Inside containers	_____	_____	▼	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-6j(5)(b) Overpack	_____	_____	_____	_____
D-6j(5)(c) Absorbent material	_____	_____	_____	_____
D-6j(5)(d) Incompatible wastes	_____	_____	_____	_____
D-6j(5)(e) Reactive wastes	_____	_____	_____	_____
D-6k Containerized wastes	_____	_____	_____	_____
D-6l Special waste management plan for landfills containing wastes F020, F021, F022, F023, F026, and F027	_____	_____	_____	_____
D-6l(1) Waste description	_____	_____	_____	_____
D-6l(2) Soil description	_____	_____	_____	_____
D-6l(3) Mobilizing properties	_____	_____	_____	_____
D-6l(4) Additional management techniques	_____	_____	_____	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-7 Land treatment	✓			Subject of separate permit
D-7a Treatment demonstration	✓			
D-7a(1) Demonstration wastes	✓			
D-7a(2) Demonstration data sources	✓			
D-7a(2)(a) Existing literature	✓			
D-7a(2)(b) Operating data	✓			
D-7a(3) Laboratory/field testing programs	✓			p.49 of LFTDR
D-7a(3)(a) Toxicity testing	✓			
D-7a(3)(b) Field plot testing	✓			Microbox p.27 LFTDR, Atch C
D-7a(3)(c) Laboratory testing	✓			Atchs B-1/B-5 of LFTDR
D-7b Land treatment program	✓			p 1-7
D-7b(1) List of wastes	✓			p 29-8
D-7b(2) Operating procedures	✓			p 29-5
D-7b(2)(a) Waste application rates	✓			p 29-8
D-7b(2)(b) Waste application Methods	✓			p 29-8
D-7b(2)(c) Control of soil pH	✓			p 29-8
D-7b(2)(d) Enhancement of microbial or chemical reactions	✓			p 29-8
D-7b(2)(e) Control of soil moisture	✓			p 29-13
D-7c Unsaturated zone monitoring plan	✓			

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-7c(1) Soil-pore liquid monitoring				
D-7d(1)(a) Sampling location	✓			Tab 29-7-1
D-7c(1)(b) Sampling frequency	✓			Q 29-15
D-7c(1)(c) Sampling equipment				P 29-13
D-7c(1)(d) Sampling equipment installation	✓			P 29-19
D-7c(1)(e) Sampling procedures	✓			P 29-17
D-7c(1)(f) Analytical procedures	✓			Atch C LFTDR
D-7c(1)(g) Chain of custody	✓			Atch H LFTDR
D-7c(1)(h) Background values	✓			
D-7c(1)(i) Statistical methods	✓			P 31 LFTDR
D-7c(1)(j) Justification of Principle Hazardous Constituents	✓			Atch C LFTDR p 11
D-7c(2) Soil core monitoring	✓			P 29-13
D-7c(2)(a) Sampling location	✓			P 29-13
D-7c(2)(b) Sampling frequency	✓			P 21 LFTDR
D-7c(2)(c) Sampling equipment	✓			P 21 LFTDR
D-7c(2)(d) Sampling procedures	✓			P 29-19
D-7c(2)(e) Analytical procedures	✓			Q 29-17
D-7c(2)(f) Chain-of-custody				
D-7c(2)(g) Background values				
D-7c(2)(h) Statistical methods				
D-7c(2)(i) Justification of Principle Hazardous Constituents				

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
D-7d	_____	_____	_____	_____
D-7d(1)	✓	_____	_____	p 29-1
D-7d(2)	✓	_____	_____	p 29-1
D-7d(3)	✓	_____	_____	p 29-1
D-7d(4)	✓	_____	_____	p 29-2
D-7d(5)	✓	_____	_____	p 30-3
D-7e	_____	_____	_____	_____
D-7e(1)	✓	_____	_____	p 29-1
D-7e(2)	✓	_____	_____	p 29-1
D-7e(3)	✓	_____	_____	p 29-1
D-7e(4)	_____	_____	✓	No run on/off - hold + absorb
D-7e(5)	✓	_____	_____	p 29-11
D-7f	_____	_____	✓	No food chain crops will be allowed
D-7f(1)	_____	_____	_____	_____
D-7f(1)(a)	_____	_____	_____	_____
D-7f(1)(b)	_____	_____	_____	_____
D-7f(2)	_____	_____	_____	_____
D-7f(2)(a)	_____	_____	_____	_____
D-7f(2)(b)	_____	_____	_____	_____





	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
<b>GROUNDWATER MONITORING</b>				
E-1	Exemption from groundwater protection requirements			<u>No exemption requested</u>
E-1a	waste piles		✓	
E-1b	Landfill		↓	
E-1c	No migration			
E-2	Interim status period groundwater monitoring data	✓		p 30-1 & Ap x Fo <del>later</del> does
E-3	Aquifer identification	✓		p 30-3
E-4	Contaminant plume description		✓	None documented
E-5	Detection monitoring program			
E-5a	Indicator parameters, waste constituents, reaction products to be monitored			
E-5a(1)	Hazardous waste characterization			
E-5a(2)	Behavior of constituents			
E-5a(3)	Detectability			
E-5b	Groundwater monitoring program			
E-5b(1)	Description of wells	✓		p 30-5
E-5b(2)	Representative samples	✓		p 30-10
E-5b(3)	Locations of background groundwater monitoring wells that are not upgradient		✓	

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
E-5c Background values	✓			p 30-16 + App F
E-5c(1) Data currently available				
E-5c(1)(a) Background groundwater quality data				
E-5c(1)(b) Sampling frequency				
E-5c(1)(c) Sampling quantity				
E-5c(1)(d) Background values				
E-5c(2) Plan for establishing ground-water quality data				
E-5c(2)(a) Well location	✓			fig 1-4
E-5c(2)(b) Sampling frequency	✓			p 30-17
E-5c(2)(c) Sampling quantity				
E-5c(2)(d) Background values				
E-5d Sampling, analysis and statistical procedures	✓			p 30-2 (Student's t-test)
E-5d(1) Sample collection	✓			p 30-9
E-5d(2) Sample preservation and shipment	✓			p 30-12
E-5d(3) Analytical procedure	✓			p 30-14
E-5d(4) Chain of custody	✓			p 30-14
E-5d(5) Additional requirements for compliance point monitoring			✓	None required
E-5d(5)(a) Sampling frequency			✓	
E-5d(5)(b) Compliance point groundwater quality values			✓	

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
E-5d(6) Annual determination	✓			p 30-17
E-5d(7) Statistical determination	✓			p 30-17
E-5d(7)(a) Statistical procedure	✓			p 30-2
E-5d(7)(b) Results	✓			p 30-17
E-6 Compliance monitoring program			✓	
E-6a Waste description				p 30-19
E-6b Characterization of contaminated groundwater				
E-6c Hazardous constituents to be monitored				
E-6d Concentration limits				
E-6e Alternate concentration limits				
E-6e(1) Adverse effects on groundwater quality				
E-6e(2) Potential adverse effects				
E-6f Groundwater monitoring system				
E-6f(1) Description of wells				
E-6f(2) Representative samples				
E-6f(3) Locations of background groundwater monitoring wells that are not upgradient				
E-6f(3)(a) Inability to determine upgradient				
E-6f(3)(b) Representative samples of background groundwater quality				

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
E-6g Background values	_____	_____	_____	_____
E-6g(1) Data currently available	_____	_____	_____	_____
E-6g(1)(a) Background groundwater quality data	_____	_____	_____	_____
E-6g(1)(b) Sampling frequency	_____	_____	_____	_____
E-6g(1)(c) Sampling quantity	_____	_____	_____	_____
E-6g(1)(d) Background values	_____	_____	_____	_____
E-6g(2) Plan for establishing groundwater quality data	_____	_____	_____	_____
E-6g(2)(a) Background data	_____	_____	_____	_____
E-6g(2)(b) Well location	_____	_____	_____	_____
E-6g(2)(c) Sampling frequency	_____	_____	_____	_____
E-6g(2)(d) Sampling quantity	_____	_____	_____	_____
E-6g(2)(e) Background values	_____	_____	_____	_____
E-6h Sampling, analysis and statistical procedures	_____	_____	_____	_____
E-6h(1) Sample collection	_____	_____	_____	_____
E-6h(2) Sample preservation and shipment	_____	_____	_____	_____
E-6h(3) Analytical procedure	_____	_____	_____	_____
E-6h(4) Chain of custody	_____	_____	_____	_____
E-6h(5) Additional requirements for compliance point monitoring	_____	_____	_____	_____
E-6h(5)(a) Sampling frequency	_____	_____	_____	_____

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
E-6h(5)(b) Testing for Appendix VIII hazardous constituents	_____	_____	_____	_____
E-6h(5)(c) Compliance point groundwater quality values	_____	_____	_____	_____
E-6h(6) Annual determination	_____	_____	_____	_____
E-6h(7) Statistical determination	_____	_____	_____	_____
E-6h(7)(a) Statistical procedure	_____	_____	_____	_____
E-6h(7)(b) Results	_____	_____	_____	_____
E-7 Corrective action program	_____	_____	✓	p 30-19
E-7a Characterization of contaminated groundwater	_____	_____	_____	_____
E-7b Concentration limits	_____	_____	_____	_____
E-7c Alternate concentration limits	_____	_____	_____	_____
E-7c(1) Adverse effects on groundwater quality	_____	_____	_____	_____
E-7c(2) Potential adverse effects	_____	_____	_____	_____
E-7d Corrective action plan	_____	_____	_____	_____
E-7d(1) Location	_____	_____	_____	_____
E-7d(2) Construction detail	_____	_____	_____	_____
E-7d(3) Plans for removing wastes	_____	_____	_____	_____
E-7d(4) Treatment technologies	_____	_____	_____	_____
E-7d(5) Effectiveness of correction program	_____	_____	_____	_____
E-7d(6) Reinjection system	_____	_____	_____	_____

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
E-7d(7) Additional hydrogeologic data	_____	_____	_____	_____
E-7d(8) Operation and maintenance	_____	_____	_____	_____
E-7d(9) Closure and post-closure plans	_____	_____	_____	_____
E-7e Groundwater monitoring program	_____	_____	_____	_____
E-7e(1) Description of wells	_____	_____	_____	_____
E-7e(2) representative samples	_____	_____	_____	_____
E-7e(3) Locations of background ground- water monitoring wells that are not upgradient	_____	_____	_____	_____
E-7f Background values	_____	_____	_____	_____
E-7f(1) Data currently available	_____	_____	_____	_____
E-7f(1)(a) Background groundwater quality data	_____	_____	_____	_____
E-7f(1)(b) Sampling frequency	_____	_____	_____	_____
E-7f(1)(c) Sampling quantity	_____	_____	_____	_____
E-7f(1)(d) Background values	_____	_____	_____	_____
E-7f(2) Plan for establishing ground- water quality data	_____	_____	_____	_____
E-7f(2)(a) Background data	_____	_____	_____	_____
E-7f(2)(b) Well location	_____	_____	_____	_____
E-7f(2)(c) Sampling frequency	_____	_____	_____	_____
E-7f(2)(d) Sampling quantity	_____	_____	_____	_____
E-7f(2)(e) Background values	_____	_____	_____	_____
E-7g Sampling, analysis and statis- tical procedures	_____	_____	_____	_____

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
E-7g(1) Sample collection	_____	_____	_____	_____
E-7g(2) Sample preservation and shipment	_____	_____	_____	_____
E-7g(3) Analytical procedure	_____	_____	_____	_____
E-7g(4) Chain of custody	_____	_____	_____	_____
E-7g(5) Additional requirements for compliance point monitoring	_____	_____	_____	_____
E-7g(5)(a) Sampling frequency	_____	_____	_____	_____
E-7g(5)(b) Testing for Appendix VIII hazardous constituents	_____	_____	_____	_____
E-7g(5)(c) Compliance point groundwater quality values	_____	_____	_____	_____
E-7g(6) Annual determination	_____	_____	_____	_____
E-7g(7) Statistical determination	_____	_____	_____	_____
E-7g(7)(a) Statistical procedure	_____	_____	_____	_____
E-7g(7)(b) Results	_____	_____	_____	_____
PROCEDURES TO PREVENT HAZARDS				
F-1 Security	_____	_____	_____	Sec 4
F-1a Security procedures and equipment	_____	_____	_____	_____
F-1a(1) 24-hour surveillance system	_____	_____	_____ ✓	_____
F-1a(2) Barrier and means to control entry	_____	_____	_____	_____
F-1a(2)(a) Barrier	_____ ✓	_____	_____	P 4-1
F-1a(2)(b) Means to control entry	_____ ✓	_____	_____	P 4-1

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
F-1a(3) Warning signs	✓			p4-2
F-1b Waiver				
F-1b(1) Injury to intruder			✓	
F-1b(2) Violation caused by intruder			✓	
F-2 Inspection schedule				p4-2 + p5-1
F-2a General inspection requirements	✓			p5-1
F-2a(1) Types of problems	✓			p5-1
F-2a(2) Frequency of inspections	✓			p4-2
F-2b Specific process inspection requirements				
F-2b(1) Container inspection			✓	less than 90 day storage
F-2b(2) Tank inspection				
F-2b(2)(a) Tank construction materials			✓	less than 90 day storage
F-2b(2)(b) Tank surrounding area			↓	
F-2b(2)(c) Tank overflowing control equipment				
F-2b(2)(d) Tank monitoring data				
F-2b(2)(e) Tank level of waste				
F-2b(2)(f) Tank condition assessment				
F-2b(3) Waste pile inspection				
F-2b(3)(a) Run-on and run-off control system				
F-2b(3)(b) Wind dispersal system				

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
F-2b(3)(c) Leachate collection and removal system	_____	_____	A	_____
F-2b(4) Surface impoundment inspection	_____	_____		_____
F-2b(4)(a) Condition assessment	_____	_____		_____
F-2b(4)(a)(1) Overtopping control system	_____	_____		_____
F-2b(4)(a)(2) Impoundment contents	_____	_____		_____
F-2b(4)(a)(3) Deterioration	_____	_____		_____
F-2b(4)(b) Structural integrity	_____	_____		_____
F-2b(5) Incinerator inspection	_____	_____		_____
F-2b(5)(a) Incinerator and associated equipment	_____	_____		_____
F-2b(5)(b) Incinerator waste feed cut-off system and associated alarms	_____	_____		_____
F-2b(6) Landfill inspection	_____	_____		_____
F-2b(6)(a) Run-on and run-off control system	_____	_____	_____	_____
F-2b(6)(b) Wind dispersal control system	_____	_____	_____	_____
F-2b(6)(c) Leachate collection and removal system	_____	_____	_____	_____
F-2b(7) Land treatment facility inspection	_____	_____	_____	_____
F-2b(7)(a) Run-on and run-off control system	✓	_____	_____	P5-1
F-2b(7)(b) Wind dispersal control system	_____	_____	✓	none
F-3 Waiver or documentation of preparedness and prevention requirements	_____	_____	_____	_____

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
F-3a	Equipment requirements			
F-3a(1)	Internal communications	✓		13-35
F-3a(2)	External communications	✓		13-35
F-3a(3)	Emergency equipment	✓		13-29
F-3a(4)	Water for fire control	✓		13-31
F-3b	Aisle space requirement		✓	
F-4	Preventive procedures, structures, and equipment			
F-4a	Unloading operations		✓	
F-4b	Run-off		✓	9-1
F-4c	Water supplies		✓	9-2
F-4d	Equipment and power failure	✓		9-2
F-4e	Personnel protection equipment	✓		p 9-2
F-5	Prevention of reaction of ignitable, reactive, and incompatible wastes			
F-5a	Precautions to prevent ignition or reaction of ignitable or reactive wastes	✓		p 10-1
F-5b	General precautions for handling ignitable or reactive waste and mixing of incompatible waste		✓	
F-5c	Management of ignitable or reactive wastes in containers		✓	
F-5d	Management of incompatible wastes in containers		✓	

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
F-5e			✓	
F-5f			✓	
F-5g			✓	
F-5h				
F-5i				
F-5j				
F-5k				
F-5l				
F-5m	✓			None handled
F-5n	✓			None handled
<b>CONTINGENCY PLAN</b>				
G-1	✓			p 13-1
G-2	✓			p 13-20
G-3	✓			p 13-2, 22

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
G-4	Emergency response procedures			
G-4a	Notification	✓		13-38
G-4b	Identification of hazardous materials	✓		13-6 p 13-15
G-4c	Assessment	✓		p 13-15
G-4d	Control procedures	✓		p 13-15
G-4e	Prevention of recurrence or spread of fires, explosions, or releases	✓		
G-4f	Storage and treatment of released material		✓	
G-4g	Incompatible waste		✓	
G-4h	Post-emergency equipment maintenance	N		
G-4i	Container spills and leakage	✓		p 13-15
G-4j	Tank spills and leakage		✓	
G-4j(1)	Tank spills and leakage		✓	
G-4j(2)	Spills and leaks from tanks containing wastes F020, F021, F022, F023, F026, and F027		✓	
G-4k	Surface impoundments spills and leakage		✓	
G-4k(1)	Emergency repairs			

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
G-4k(1)(a) Stopping waste addition	_____	_____	✓ _____	_____
G-4k(1)(b) Containing leaks	_____	_____	_____	_____
G-4k(1)(c) Stopping leaks	_____	_____	_____	_____
G-4k(1)(d) Preventing catastrophic failure	_____	_____	_____	_____
G-4k(1)(e) Emptying the impoundment	_____	_____	_____	_____
G-4k(2) Certification	_____	_____	_____	_____
G-4k(3) Repairs as a result of sudden drop	_____	_____	_____	_____
G-4k(3)(a) Existing portions of surface impoundment	_____	_____	_____	_____
G-4k(3)(b) Other portions of surface impoundment	_____	_____	▽ _____	_____
G-5 Emergency equipment	✓ _____	_____	_____	p 13-29
G-6 Coordination agreements	✓ _____	_____	_____	p 13-21
G-7 Evacuation plan	✓ _____	_____	_____	p 13-36
G-8 Required reports	✓ _____	_____	_____	p 13-38

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
<b>PERSONNEL TRAINING</b>				
H-1	✓			<del>15-1</del> p 15-13
H-1a	✓			p 15-4
H-1b	✓			p 15-1
H-1c	✓			p 15-1
H-1d	✓			in job descriptions
H-1e	✓			ditto
H-2	✓			p 15-2
<b>CLOSURE AND POST-CLOSURE REQUIREMENTS</b>				
I-1	✓			Ch 16
I-1a	✓			16-2
I-1b			✓	Partial closure not expected
I-1c	-			16-1
I-1d	✓		✓	p. 17-2
I-1d(1)				
I-1d(2)			✓	
I-1d(3)			✓	
I-1d(4)			✓	

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	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
1-1d(5) Closure of incinerators			✓	
1-1d(6) Closure of land treatment facilities				
1-1d(6)(a) Continuance of treatment	✓			
1-1d(6)(b) Vegetative cover	✓			p. 16-19
1-1e Closure of disposal units			✓	
1-1e(1) Disposal impoundments			✓	
1-1e(1)(a) Elimination of liquids			✓	
1-1e(1)(b) waste stabilization			✓	
1-1e(2) Cover design	✓			p 16-19
1-1e(3) Minimization of liquid migration				
1-1e(4) Maintenance needs	✓			p 16-24
1-1e(5) Drainage and erosion				
1-1e(6) Settlement and subsidence				
1-1e(7) Cover permeability				
1-1e(8) Freeze/thaw effects				
1-1f Schedule for closure	✓			p 16-25
1-1g Extensions for closure time	✓			p 16-25
1-2 Post-closure plan				
1-2a Inspection plan	✓			p 18-1
1-2b Monitoring plan	✓			p 18-1
1-2c Maintenance plan	✓			p 18-2

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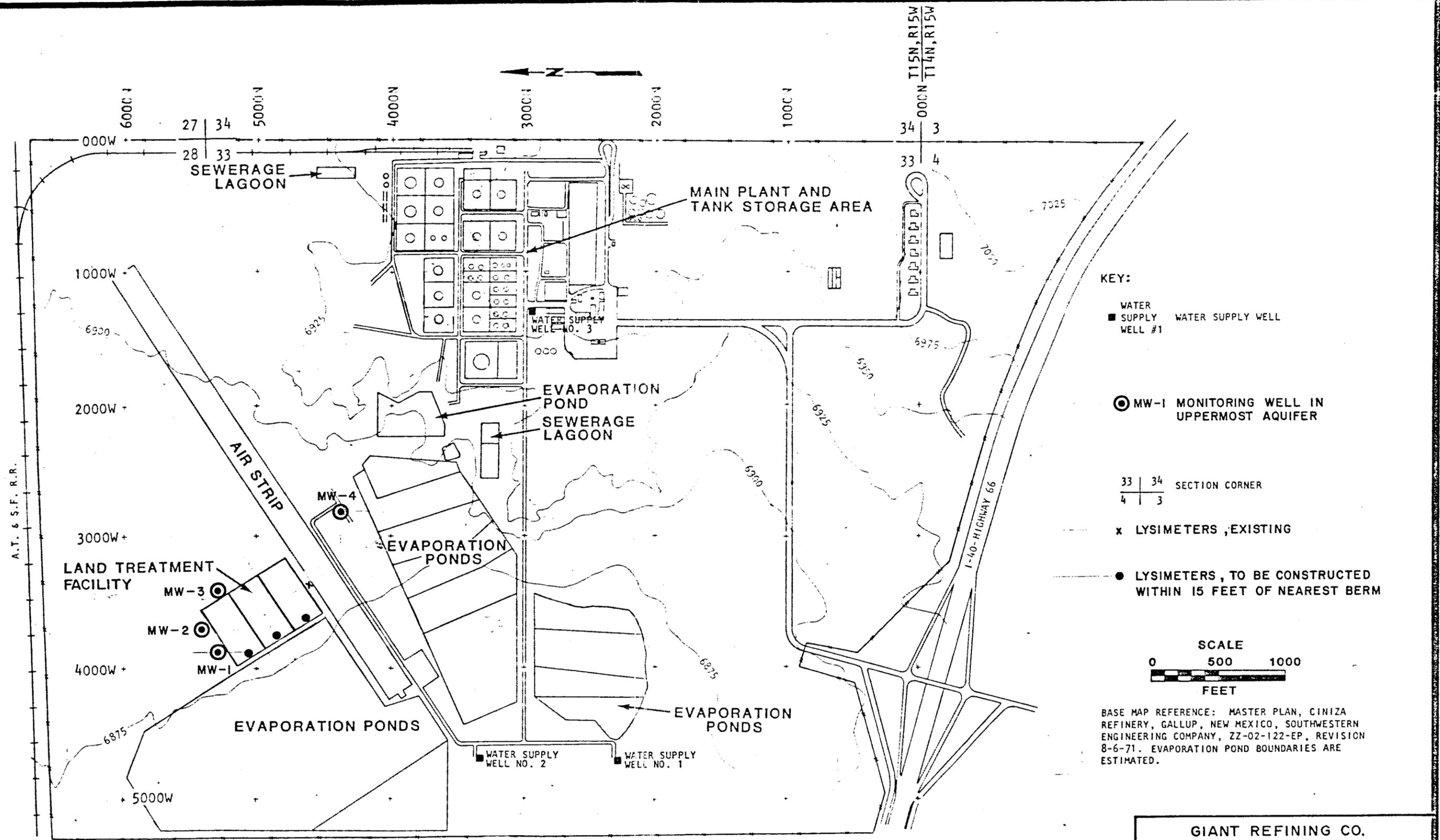
	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
1-2d	✓			p 19-1
1-3	✓			p 19-1
1-4	✓			p 20-1
1-5				
1-5a			✓	
1-5b				
1-5b(1)			✓	
1-5b(2)			✓	
1-5c	✓			p 16
1-5d			✓	
1-5e			✓	
1-5t			✓	
1-5y			✓	
1-6	✓			p 21-1
1-7				
1-7a			✓	
1-7b				
1-7b(1)			✓	

	Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
I-7b(2)			✓	
I-7c	✓			<i>simple</i>
I-7d			✓	
I-7e			✓	
I-7f			✓	
I-7g			✓	
I-8				
I-8a				
I-8a(1)	✓			<i>for pb</i>
I-8a(2)			✓	
I-8a(3)			✓	
I-8b				
I-8b(1)	✓			
I-8b(2)			✓	
I-8b(3)			✓	
I-8c			✓	
I-9			✓	

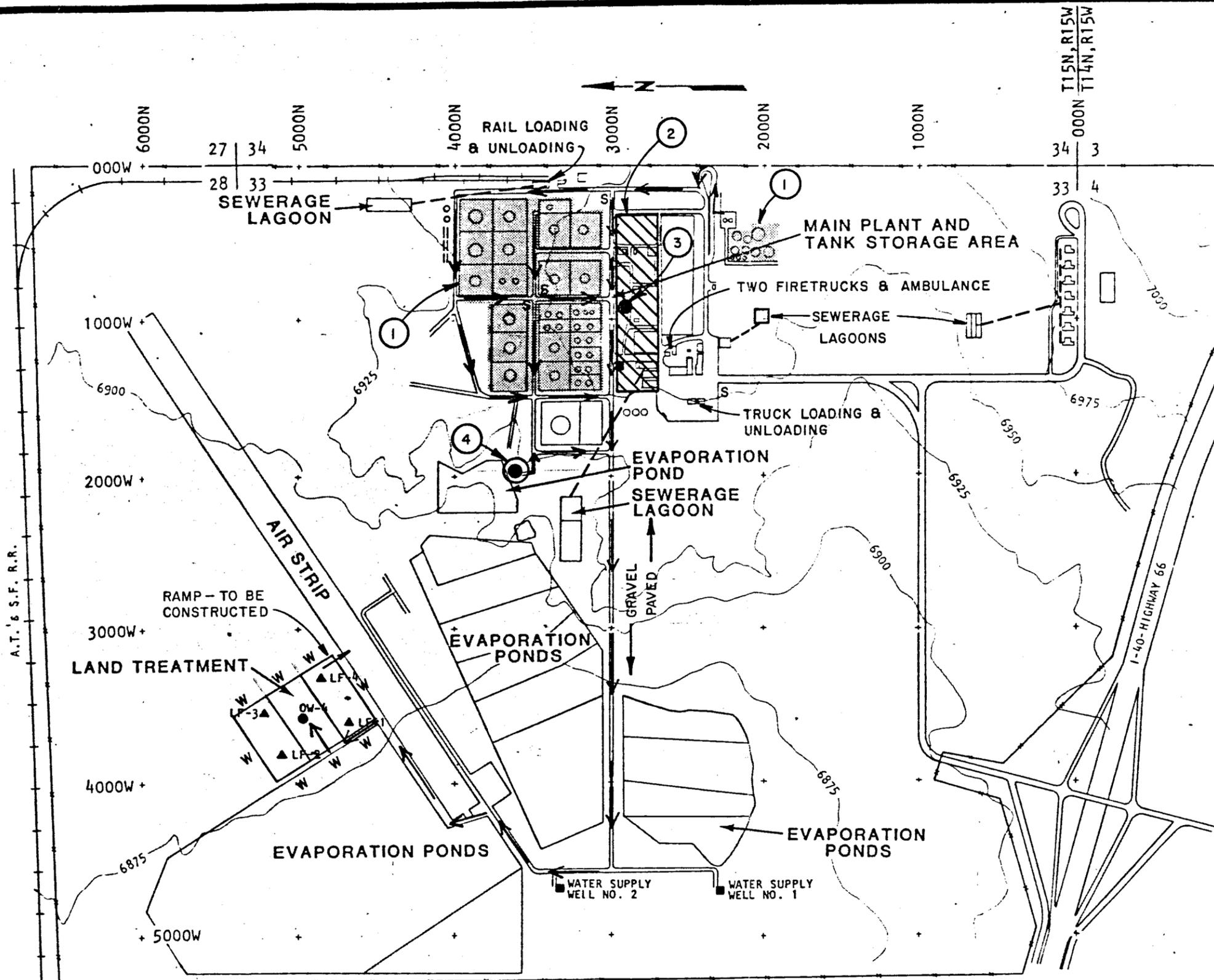
		Provided (Y/N)	Adequate (Y/N)	Not Applicable	Comments
-9a	Use of state-required mechanism	_____	_____	✓	_____
-9b	State assumption of responsibility	_____	_____	✓	_____
CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS					
-1	Solid waste management units	_____	_____	✓	_____
-1a	Characterize the solid waste management unit	_____	_____	✓	_____
-1b	No solid waste management units	_____	_____	✓	_____
-2	Releases	_____	_____	✓	_____
-2a	Characterize releases	_____	_____	✓	_____
-2b	No releases	_____	_____	✓	_____

OTHER FEDERAL LAWS

PART B CERTIFICATION



GIANT REFINING CO.	
FIGURE I,4-1	
REFINERY SITE MAP	
ENGINEERS: DELTA H ENG., LTD.	
SCALE: 1:9000	DATE: 12-1-84



- KEY:
- OW- OBSERVATION WELL INSTALLED BY DAMES & MOORE
  - WATER SUPPLY WELL #1
  - ▲ LF-2 TEST PIT IN LAND TREATMENT AREA
  - S STOP SIGN
  - TRAFFIC FLOW
  - SEWER LINES
  - W WARNING SIGN



BASE MAP REFERENCE: MASTER PLAN, CINIZA REFINERY, GALLUP, NEW MEXICO, SOUTHWESTERN ENGINEERING COMPANY, ZZ-02-122-EP, REVISION 8-6-71. EVAPORATION POND BOUNDARIES ARE ESTIMATED.

NO.	SYMBOL	LOCATION	TYPE OF WASTE
1		TANK FARMS -	K049 AND K052
2		PROCESS AREA -	K050
3		COOLING TOWER -	D007
4		API SEPARATOR -	K051

<b>GIANT REFINING CO.</b>	
FIGURE 12.0-1 <b>HAZARDOUS WASTES TRAFFIC PATTERN</b>	
ENGINEERS: DELTA H ENG., LTD.	
SCALE: 1:9000	DATE: 12-1-84

## 16.0 CLOSURE PLAN DOCUMENTATION

The Land Treatment Facility (LTF) serves the Giant Refining Company's 18,000 barrels per calendar day (BPCD), crude oil refinery. The LTF is located within the refinery battery limits and consists of six adjacent 2.6 acre plots each 240 feet x 480 feet. At the time of initial Part B RCRA Permit Application submittal (December 15, 1983), 7.8 acres (3 plots) were active and receiving wastes listed in Table 16.1. Table 16.2 summarizes the waste characteristics listed in Table 16.1. The Land Treatment Facility equipment includes a tractor, disc and harrow, a 200-barrel vacuum truck, and a Caterpillar road grader (Cat 112).

The soil type in the designated 15 acre land treatment area is silty clay in the top 28 feet. Composite samples for the 0-12" level show field infiltrometer readings of 1.5, 2.0, and 3.0 inches per hour after 60 minutes of elapsed time. The Ciniza Land Treatment Facility is located in a rural area with extremely low population density.

Surrounding land use to the north is a railroad within two miles; northwest is the small community of Iyanbito within three miles; west is the Fort Wingate Military Reservation within six miles; southwest is the Cibola National Forest within two miles; and south is the State Park picnic area at the I-40 Exit within one mile.

To meet the land treatment objectives of adequate waste treatment and closure vegetative cover, a testing format shall be accomplished to assess the waste-soil interactions. Without such assessments, it is not possible to maximize treatment during the operational lifetime of the facility or estimate when the facility should be partially or finally closed.

The Ciniza Refinery facility receives residual solids (sludge), oil fractions, water, chrome, and small quantities of lead. The testing format is derived by considering these five waste-soil interaction mechanisms: volatility, leaching, run-off, degradability, and phytotoxicity. Each mechanism is discussed in reference to current literature and the Ciniza facility, data utilization and facility management is discussed, and then a testing format to obtain necessary data is presented.

## 16.1 Waste-Soil Interaction Mechanisms

### 16.1.1. Volatility

Volatilization (evaporation, in the case of water) is liquid-to-gas transfer. Literature findings as referenced in (USEPA, April 1983) are as follows:

-volatile organics have the highest emission rate within minutes after application with substantial decrease within one hour.

-organics are more readily volatilized if they are less strongly adsorbed by the soil.

-oily industrial sludges volatilized between 0.1 and 3.2 percent of total weights during the first 30 minutes after application.

-light oil volatilization during a 7 week period was 41, 37, and 36 percent for applications of 25, 63, and 100 mg oil/kg soil, respectively.

-volatilization is most important for compounds with vapor pressures greater than 0.001 mm Hg (0.76 atmospheres) at room temperature.

The April-through-October waste application period deficit precipitation level at the Ciniza Refinery Land Treatment Facility is 23.61

inches or 15,304 barrels of water per year, approximately thirteen times the amount of water fraction in the annual wastes applied. It is anticipated that volatilization of the higher vapor pressure compounds and the evaporation of water can be maximized at this facility.

#### 16.1.2. Leaching

Leaching involves the downward migration of constituents through the treatment zone soil. It is of general concern since underlying groundwater can become affected. At the Ciniza Refinery LTF, however, the relative depth to groundwater soil type in the treatment zone, type of underlying strata, nature of the uppermost aquifer, and non-halogenated hydrocarbon studies indicate complete degradation before soil leaching occurs. Specifically, clay soils of medium to low permeability show hydrocarbon leaching depths less than 40 cm (16 in) for API separator sludge tank bottoms, and leaded sludge (USEPA, April 1983).

#### 16.1.3. Run-off

Run-off concerns potential contamination of adjacent surface water and surface water channels. At the Ciniza LTF the 2.6 acre plots are earth-bermed thereby retaining on-site precipitation and eliminating run-on from upgradient surfaces.

(organic fraction) loading rate. It is important to establish the half-life of the most resistant organic fraction as well as the least biodegradable fraction and compare them with the critical concentrations obtained in the greenhouse evaluations.

Vegetative cover shall be established at closure, a minimum of seven degradation months after the last waste application. Current literature indicates that oil concentrations above 4 percent may inhibit germination of vegetative cover (Overcash, 1979). Since the Ciniza Facility currently operates at an annual rate of less than 1.5 percent, greenhouse evaluations need only be conducted if loading rates are increased above 4 percent oil as supported by microbial toxicity tests.

## 16.2 Data Utilization and Loading Calculations

The Ciniza facility (wastes and soil complex) concerns are oil fraction degradability, microbial toxicity and metals (chrome and lead) microbial toxicity. It is assumed that food chain effects and direct ingestion of soil by grazing stock are precluded by fencing throughout the closure and post-closure periods, application of top-soil cover, and native grass and plant cover establishment.

Since a vegetative cover is desired after closure begins, waste applications could be allowed to exceed phytotoxicity levels. However, microbial toxicity levels must not be exceeded during facility operation and final vegetative cover must be able to take effect within a

reasonable time after closure begins. For oil fractions, loading rates are estimated as follows:

$$\text{CYR} = 0.5 \text{ CMAX/THALF} \quad (1)$$

$$\text{LR} = \text{CYR/CW} \quad (2)$$

$$\text{CMAX} = (\text{CCRIT})^2 \text{ EXP } (N/\text{THALF}) \quad (3)$$

where,

CYR = application rate of compound or fraction to soil (lb/ac-yr)

CMAX = maximum allowable concentration of compound or fraction applied to soil (lb/ac)

THALF = half-life (yr)

CW = concentration of the compound or fraction in the bulk waste (lb/lb)

LR = loading (lb/ac-yr)

CCRIT = critical concentration of the compound or fraction in soil at which unacceptable microbial toxicity or plant yield reduction occurs (lb/ac)

N = number of years between final waste application and crop establishment (yr)

Unacceptable microbial toxicity or plant yield reduction is defined as 50 percent of the control or non-waste application tests. Using equations (1), (2), and (3), oil fraction, loading and application rates are calculated.

Metal limits should be based on phytotoxicity or microbial toxicity as

maintained to avoid erosive leakage in the growing areas. Spray system trunks shall not be driven onto seeded areas and the water pressure shall not be allowed to cause mulch movement.

Water for irrigation shall be provided by the Ciniza Refinery from the refinery well water supply system.

#### 16.5 YEAR OF CLOSURE AND FINAL CLOSURE SCHEDULE

The estimated year of closure can be determined only after respiratory and microbial toxicity testing as described in Sections 16.1, 16.2, and 16.3 is completed.

The final closure schedule shall consist of the following events occurring within the respective time period.

Event	Period
=====	
A. Last waste application	
B. Closure degradation	begins: with event A ends: after a minimum of seven degradation months after event A
C. Closure vegetation	begins: the next spring after event B ends: after the establishment of the native vegetative cover

The above schedule is longer than the 180 days specified in CFR 264.113 (b) but is considered necessary in order to continue maximum treatment and waste degradation prior to closure vegetation.

These analyses shall follow the procedures described and referred to in USEPA SW-874, April 1983, Hazardous Waste Land Treatment. Organic analyses shall also include total carbon measurements for the above classes so that total organic and organic fraction half-lives can be calculated. Chromium and lead concentrations in the waste stream and in the soil/waste complex shall be reported as part of the respirometry and microbial testing.

shall continue on the same schedule as performed during the active period. However, soil-core pore liquid samples will be discontinued 90 days after the last waste application which establishes the start of the closure period. The vegetative cover program will be followed as detailed in Section 16.4 and continue until the native plants and grasses are capable of sustained growth on natural rainfall only. Once this vegetative cover is so established and an independent soil scientist or a registered professional engineer has certified that the Ciniza Facility has been closed according to the approved closure plan, the post-closure period begins.

## 29.0 SPECIFIC REQUIREMENTS FOR THE LAND TREATMENT FACILITY

The hazardous waste Land Treatment Facility currently consists of six 480 feet X 240 feet sections each of which contain 2.6 acres (1.0 hectare) of available treatment surface. These dedicated 15.6 acres (6.0 hectares) are located above six wastewater evaporation ponds. The surrounding land slopes at 1.0 to 1.5 percent. The active treatment facility portion consists of three adjacent 2.6 acre (1.0 hectare) diked sections. On-site runoff and off-site runoff are separated by downhill dikes 4 feet high; the internal and uphill dikes are 1 foot high. All earthen dikes have 2:1 sideslopes. The three active sections have been operational since October 16, 1980.

### 29.1 Land Treatment Facility Background Soil Characteristics

On November 8 and November 10, 1980 the three diked 2.6-acre sections of the facility were analysed for background soil physical and chemical characteristics. The sample locations are shown on Figure 29.1-1 and the analytical results appear in Tables 29.1-1, 29.1-2, and 29.1-3 (Dames and Moore 1981). The soil within the treatment zone is silty clay containing closely-spaced root systems in the uppermost three to four feet. Table 29.1-2 shows field infiltration (water into the soil surface) rates,  $K_F$ , averaging  $1.0 \times 10^{-5}$  cm/sec or 3.6 cm/hr. Soil permeability as determined by laboratory measurements averages  $1.9 \times 10^{-5}$  cm/sec or 0.068 cm/hr for three locations at the 6-inch to 12-inch depth. Infiltration allows prediction of runoff and erosion; permeability (hydraulic conductivity) allows estimation of vertical

### 29.3 Land Treatment Facility Design and Operation

The treatment process conducted during the interim permit period is evaluated based on oil, total chrome, and lead. Lead and chrome are potential capacity limiting constituents (CLC) while oil fractions are considered application limiting constituents (ALC) and rate limiting constituents (RLC).

The oil applied to the Land Treatment Facility during the period from November 1980 to September 1983 to all 2.6 acre sections (north, middle, and south) totals approximately 1371 barrels as recorded in a log containing date, material, volume, section, and EPA number. This amount includes historic API Sludge ponds which were applied to the presently active middle and south 2.6-acre sections. Table 29.3-1 shows this period's annual sectional loadings as well as loadings by degradation month. Operation during the November 1980 to September 1983 period, however, allowed application of oily wastes on an "as generated" basis resulting in approximately 40 percent of the wastes being applied during the non-degradation months (November-March).

Table 29.3-2 shows the estimated weights of oil, chrome, and lead generated for D007, K049, K050, K051, and K052 based on waste analysis available as of December 1, 1984 and the quantities appearing on the Part A Application.

The current practice is application of wastes only during the degradation season defined as those months when the average ambient temperature is above 41°F. Storage of approximately 1000 barrels of oily waste at the current production rate should provide adequate non-degradation season storage. This volume is retained within API separator and removed for land application following the recommended schedule shown in Table 29.3-3. Recommended monthly application rates are shown in Table 29.3-3, along with estimated oil degradation for the site and deficit precipitation. The recommended applications are to be completed by the fifteenth day of each month, thereby allowing the biodegradation to be maximized. Table 29.3-1 shows past loadings per application which are higher than the recommended maximum based on currently documented regional refinery land treatment facility practice (API, 1983). The recommended monthly loadings can be modified to adapt to refinery production schedules, waste generation, storage capacity, precipitation events, and application equipment efficiencies. However, the excursions around the recommended application schedule should be changed to insure maximum oil degradation.

Unlike oil fractions which are application and rate limiting constituents (ALCs and RLCs), lead and chrome are potential capacity limiting constituents (CLCs). Based on the period from November 1980 to October 1983, the lead added to the top six inches of soil in the North section is 0.72 mg/kg and the South section is 1.72 mg/kg.

Projecting the leaded tank wastes (K052) at 66.1 pounds per year, applying them only to the South section (12.6), and taking into

account the 30 mg/kg lead in the native soil and the South section (1.72 mg/kg) past accumulation, the unit life for lead is as follows:

$$2.6 \text{ ac} \times 21,780 \text{ ft}^3/\text{ac} \times 80 \text{ lb}/\text{ft}^3 \times 1.0 \text{ kg}/2.2 \text{ lb} = 2.06 \times 10^6 \text{ kg soil}$$

$$\begin{aligned} \text{UL(Pb, South)} &= \frac{(1000 - 30 - 1.72) \text{ mg/kg}}{6.1 \text{ lb/yr} \times 1.0 \text{ kg}/2.2 \text{ lbs} \times 10^6 \text{ mg/kg} \times 1.0/2.06 \times 10^6 \text{ kg}} \\ &= \frac{968.28 \text{ mg/kg}}{1.346 \text{ mg/kg} - \text{yr}} = 719 \text{ yr} \end{aligned}$$

Chromium is associated with the API separator oily waste at a concentration of approximately 200 mg/kg. The North, Middle, and South Land Treatment Facility sections contain native soils with approximately 30 mg/g total chrome. During the November 1980 to October 1983 period, these sections received 34, 31, and 24 mg/kg of chromium in the top six inches of soil.

Based on 102.3 pounds per year of chromium applied uniformly to the North, South, and Middle sections (7.8 acres), a current chromium level of 34 mg/kg, and baseline chromium level of 30 mg/kg, the minimum unit life based on chromium is as follows;

$$7.8 \text{ ac} \times 21,780 \text{ ft}^3/\text{ac} \times 80 \text{ lb}/\text{ft}^3 \times 1.0 \text{ kg}/2.2 \text{ lb} = 6.18 \times 10^6 \text{ kg of soil}$$

$$\begin{aligned} \text{UL(Cr)} &= \frac{(1000 - 30 - 34) \text{ mg/kg}}{102.3 \text{ lb/yr} \times 1.0 \text{ kg}/2.2 \text{ lbs} \times 10^6 \text{ mg/kg} \times 1.0/6.18 \times 10^6 \text{ kg}} \\ &= \frac{936 \text{ mg/kg}}{7.55 \text{ mg/kg} - \text{yr}} = 124 \text{ yr} \end{aligned}$$

waste application:

1. The contract, 200-barrel vacuum truck is inspected upon delivery to the refinery gate for defective valves, missing equipment, insecure connections, and structural integrity. This inspection is repeated prior to loading wastes and is also performed for refinery-owned trucks.
2. When wastes are loaded into or on transport vehicles, exercise care to eliminate spills and leaks.
3. Before commencing to facility, check for valve leaks, safety equipment operation, and proper load attachment.
4. Before loading wastes, check for fire extinguisher on the vacuum truck.
5. Prior to applying wastes to the plots the operator will receive a verbal "go ahead" from the refinery lab to insure waste samples have been obtained.
6. Prior to applying wastes the vacuum truck operator will receive direction from the Environmental Engineer as to which of the 2.6-acre plots (North, Middle, and/or South) will receive waste.
7. Should the operator smell strong petroleum odors or observe standing water on any portions of the plots, the Environmental Engineer

versely affect the Land Treatment Facility operation, the waste shall be shipped off-site for treatment or disposal.

#### 29.6 Drainage Protection

The 25-year 24-hour rainfall isopleth for the Ciniza Refinery is estimated at 2.8 inches, USEPA, SW-874, 1983. On-site rainfall is less than 40 percent of the diked sections and is retained within each of the three 2.5-acre Treatment Facility sections by uphill and downhill, 2:1, trapazoidal dikes of heights 1 and 4 feet, respectively. Accumulation of on-site flows occurs rarely and standing water remains a maximum of three to five days since the climate is dry (23.61 inches deficit precipitation between April and October) as shown in Table 29.3-3. The vacuum truck and tilling equipment enter the sections by a ramp located in the SE corner of the Facility

Off-site flows are directed away from the dike facility area and the 100-year flood plain is addressed in Section 14.0 of this permit application.

Winds during the April-to-October waste application treatment season decrease linearly in average speed from 10 to 56 mi/hr (4.5 to 25 m/sec), Battelle, PNL-3195 WERA-8. Soil moisture and oil content levels retain particulates on the soil surface. During the non-application season (November-to-March) soil surface is snow-covered or frozen so that wind dispersal is controlled. Daily inspections of the protect-

TABLE 29.3-1

LAND TREATMENT FACILITY OIL LOADINGS:  
NOVEMBER 1980 TO SEPTEMBER 1983<sup>a</sup>

	North Section	Middle Section	South Section	Average
Annual loading				
bbl/ac	58	51	73	61
lb/ft <sup>3</sup>	0.84	0.74	1.06	0.88
percent (w)	1.05	0.93	1.33	1.09
Maximum				
Application				
bbl/ac	78	72	96	82
lb/ft <sup>3</sup>	1.13	1.04	1.39	1.19
percent (w)	1.41	1.30	1.73	1.48
Loading per				
degradation month				
bbl/ac	8.3	7.3	10.5	8.7
lb/ft <sup>3</sup>	0.12	0.11	0.15	0.13
percent (w)	0.15	0.13	0.19	0.16

<sup>a</sup> Based on the seven-month degradation season each year, (April through October) for 3 years; Each section = 2.6 acres; depth of incorporation = 6 inches; 315 lbs oil/bbl; 80 lb soil/ft<sup>3</sup>, the value used to compare land treatment facilities in Land Treatment Practices in the Petroleum Industry, API, June, 1983, is within 2 percent of the predicted bulk density; Includes all land treatment area waste application log entries including oil sludge from dedicated historical on-site ponds.

TABLE 29.3-3

LAND TREATMENT FACILITY RECOMMENDED  
 OIL WASTE APPLICATION RATES AND ESTIMATED MONTHLY DEGRADATION<sup>a</sup>

Month	Recommend Application		Estimated Degradation <sup>b</sup>		Deficit Precipitation <sup>c</sup>
	bbl	bbl/ac	bbl	bbl/ac	inches
April			21	2.8	1.62
May	142	18.2	55	7.3	3.39
June			162	21.3	5.29
July	142	18.2	192	25.3	5.28
August			124	16.3	4.27
Sept			43	5.6	2.90
Oct			21	2.8	0.86
Totals	284	36.4	618	81.4	23.61

<sup>a</sup>Based on 284 bbl oil/yr; 7.8 acres active area; 315 lb oil/bbl; 80 lb soil/ft<sup>3</sup>

<sup>b</sup>Modification of Shell Refining Company degradation estimates for Ciniza Refinery by Delta H Engineering, Ltd., Santa Fe, NM. Based on Design of Land Treatment Systems for Industrial Waste-Theory and Practice, M.R. Overcash and D. Pal, Ann Arbor Service Publishers, Inc., Ann Arbor, MI, 1979.

<sup>c</sup>Deficit precipitation = evapotranspiration (alfalfa) - precipitation; New Mexico Climatological Data: 1850-1975, W.K. Summers and Associates, Socorro, NM, 1977.

TABLE 29.3-4

WASTE LOADING AND TILLING SCHEDULE

WASTE	AMOUNT	MONTH	FREQUENCY	SECTION
D007	6,300 6,300	May July	Once/Year Once/Year	N, M, & S sequential rotation
D049	800	June	Once/5 Years	N, M, & S sequential rotation
D050	400	June	Once/1.5 Years	N, M, & S sequential rotation
D051	250,000 250,000	May July	Once/Year Once/Year	All Sections All Sections
D052	1,600	June	Once/5 Years	N, M, & S sequential rotation