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APR 29 1993

Ms. Barbara Hoditschek
Permit Program Manager
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
525 Camino De Los Marquez
P.O. Box 26110
Santa Fe, NM 87502

RE: Application for a Permit Modification

Giant Refining Company (Giant) is submitting the following application for a permit modification in response to the Bureau's January 25, 1993 letter.

On November 11, 1992, Giant submitted a report entitled "Report on Special Sampling Activities at Giant Refining Company, Ciniza Refinery." The report is a summary of a special sampling event that was undertaken to address potential beneath the treatment zone (BTZ) contamination at Giant's Hazardous Waste Land Treatment Unit (HWLTU).

The report's conclusion is that there is a statistically significant difference between samples taken from BTZ and the 5 foot depth in the background plot for chromium and lead.

The Bureau has asked Giant to modify the operating procedures specified in the permit to insure degradation, immobilization, and fixation within the treatment zone. The Bureau has also requested that Giant propose a sampling program to further characterize the elevated levels of chromium and lead beneath the treatment zone. The sampling program would also address the issue of the trace levels of two semivolatile constituents seen in samples from beneath the treatment zone. Finally, the bureau has asked that the vadose zone monitoring program in the permit be modified if necessary.

Modifications to Module III of the Operating Permit

The modifications to Giant's operating practices are in response to the detection of trace organics and elevated concentrations of chrome and lead. They will increase the effectiveness of the treatment unit in successfully degrading, transforming, and immobilizing the specific constituents in the wastes that have been identified beneath the treatment zone. The changes are to Module III, Specific Conditions for the Operating Period, Section F, Land Treatment Unit Operational Requirements, 2. Conditions. The changes are shown in Appendix A. The facility has determined that this is a Class 3 modification.

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The changes to the operating permit to increase the frequency of the soil-core monitoring program will allow for earlier detection of conditions that may result in hazardous constituents migrating beneath the treatment zone. The specific changes are to Module III, Specific Conditions for the Operating Period, Section G, Soil Monitoring, paragraphs 2, 3, and 5. The changes are shown in Appendix B. The facility has determined that this is a Class 1 modification.

Modifications to Attachment H, ADDITIONAL DATA SUBMITTAL SCHEDULE

The additions to Attachment H are to provide for further characterization beneath the treatment zone. The additions to Attachment H are in response to the sampling results and statistical analysis, summarized in the November, 1992 report entitled, "Report on Special Sampling Activities at Giant Refining Company Ciniza Refinery." The additions to Attachment H are shown in Appendix C. The facility has determined that this is a Class 2 modification.

Giant is proceeding with all of the other requirements of 40 CFR 270 for permit modifications. Giant anticipates that the Bureau will provide Giant a notice of the effective date of the modifications and a statement of the fees associated with the modification.

Please contact me at (505) 722-3833 if you should have any questions.

Sincerely,



Zeke Sherman
Environmental Manager
Giant Industries Arizona, Inc.

ZRS:smb

cc: Mr. Kim Bullerdick, Corporate Counsel
Mr. John Stokes, Refinery Manager
Mr. Lynn Shelton, Env. Assistant
Ms. Barbara Driscoll, EPA, Region IV
Mr. Rodger Anderson, NMOCD
Mr. Marc Sides, NMED
Ms. Jane Crammer, NMED

APPENDIX A

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 1,275 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 nonregulated 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 week 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,~~ The soil pH shall be determined, once every two weeks during the degradation season, April 1 through October 31. 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 twice weekly, during the degradation season, April 1 through October 31, and weekly during the remainder of the year, 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, as determined by ~~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. The Permittee may demonstrate and adopt upon approval of the Bureau, an alternate method of insuring that adequate moisture is available on the treatment zone for biological degradation.
- h. The microbial activity in the ZOI shall be evaluated on a monthly basis during the degradation season, April 1 through October 31.
- i. 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~~ monthly during the degradation season, April 1 through October 31.
- j. 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 and from the unsaturated zone immediately below the treatment zone (BTZ) shall be taken ~~bimonthly~~ monthly during the degradation season,

APPENDIX B

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 twice weekly, during the degradation season, April 1 through October 31, and weekly during the remainder of the year, 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, as determined by 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. The Permittee may demonstrate and adopt upon approval of the Bureau, an alternate method of insuring that adequate moisture is available on the treatment zone for biological degradation.
- h. The microbial activity in the ZOI shall be evaluated on a monthly basis during the degradation season, April 1 through October 31.
- i. 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~~ monthly during the degradation season, April 1 through October 31.
- j. 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 and from the unsaturated zone immediately below the treatment zone (BTZ), shall be taken ~~bimonthly~~ monthly 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 beneath the treatment zone (BTZ).~~ The sample locations shall be randomly selected using EPA-approved procedures. The Permittee may demonstrate and adopt upon the approval of the Bureau, an alternate method of selecting the sample locations. 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, for the C:N:P ratio, and for the microbial activity. 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 revised operational monitoring program for the LTA shall commence upon the effective date of this permit revision.
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.

APPENDIX C

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-L, 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.

III. Soil sampling program to determine the extent of hazardous constituents beneath the treatment zone.

Within 90 days from the effective date of this permit modification, the Permittee shall submit a report summarizing the analytical and statistical results of a soil sampling program. The program is to include the following;

1. Soil samples to be taken from just beneath the treatment zone to just above the Ciniza Sands. The total number of soil boring locations (no less than 12), the placement of the locations, and the total number and frequency of samples taken in each soil boring, will be agreed to with the Bureau.
2. The Permittee will analyze all of the soil cores for total chromium and total lead by the methods specified in the permit .

The Permittee will analyze a sufficient number of soil cores in each and every soil boring location within the LTA for a list of organics to include 4-Nitrophenol and Methapyrilene. The total number and frequency of organic samples, and the list of organic analytes for each sample, will be agreed to with the Bureau.

3. The Permittee will make two additional borings in the background plot. Samples will be taken from the same intervals as those obtained from the borings in the LTA. The Permittee will sample these borings as per conditions 1. and 2.
4. The Permittee will compare the analytes of concern in the background plot and the LTA using an appropriate statistical analysis. The results of the analysis shall be reported in the summary report.
5. An appropriate quality assurance and quality control program will be documented and submitted with the summary report.