

HAZARDOUS WASTE MANAGEMENT FACILITY

PERMIT NUMBER: MOD007128978

PERMITTEE

Kerr-McGee Chemical Corporation (Owner and Operator)
Kerr-McGee Center
P. O. Box 25861
Oklahoma City, OK 73125

LOCATION

2300 Oakland
Kansas City, Jackson County, Missouri
NW 1/4, NW 1/4, SW 1/4, Section 7, T49N, R32W
North Latitude - 39°05'00"
West Longitude - 94°29'00"

FACILITY DESCRIPTION

This facility is a closed hazardous waste surface impoundment which was used to treat wastewater from the wood preserving process. The impoundment stored an EPA listed hazardous waste (K001), "bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol".

PERMITTED ACTIVITY

Post-closure care of a RCRA regulated hazardous waste surface impoundment including implementation and maintenance of a groundwater corrective action program to address releases from that unit.

Effective Dates of Permit: February 1, 1994 to January 31, 2004

March 6, 1996
Date

[Original signed by David A. Shorr]

David A. Shorr, Director

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION.....	3
STANDARD PERMIT CONDITIONS.....	5
I. Duty to comply	5
II. Duty to reapply	5
III. Need to halt or reduce activity not a defense	6
IV. Duty to mitigate	6
V. Proper operation and maintenance	6
VI. Permit actions	6
VII. Property rights	7
VIII. Duty to provide information	7
IX. Inspection and entry	7
X. Monitoring and records	7
XI. Signatory and certification requirements	8
XII. Reporting requirements	9
XIII. Financial requirements	11
XIV. Transfers	11
GENERAL PERMIT CONDITIONS.....	12
XV. Security	12
XVI. Post-closure inspection requirements	13
XVII. Location standards	13
XVIII. Recordkeeping and reporting	14
XIX. Geologic and engineering data collection	16
XX. Additional application review fee	16
XXI. Health profile (DELETED)	17
SPECIAL PERMIT CONDITIONS.....	17
XXII. Post-closure	17
XXIII. Groundwater corrective action program	20
XXIV. Surface water monitoring	38
SCHEDULE OF COMPLIANCE.....	39

INTRODUCTION

After public notice in accordance with 10 CSR 25-8.010 and 40 CFR Part 124 and review of the Kerr-McGee Chemical Corporation's hazardous waste facility application, the Missouri Department of Natural Resources (hereafter referred to as the Department) has determined that the application, in conjunction with this permit, conforms with the provisions of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (commonly known as RCRA) and regulations promulgated thereunder by the U.S. Environmental Protection Agency (EPA) (codified and to be codified in Title 40 of the Code of Federal Regulations) and the Missouri Hazardous Waste Management Law (and all standards, rules, and regulations adopted under this act). In accordance with Section 260.375, Paragraph 13, RSMo, and the Solid Waste Disposal Act, the Department hereby approves the application and issues Permit Number MOD007128978 to Kerr-McGee Chemical Corporation as the owner and operator (hereafter referred to as the Permittee) for the construction and operation of the post-closure activities for the RCRA hazardous waste facility as set forth in the application. All portions of this RCRA Part I permit are issued under State authority. All references to Director shall mean the director of the Missouri Department of Natural Resources. Any inaccuracies found in the permit application information may be grounds for the termination, revocation and reissuance, or modification of this permit in accordance with 40 CFR Part 270 Subpart D and potential enforcement action. The Permittee shall inform the Department of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

The Department is issuing the RCRA hazardous waste facility permit to the Permittee upon payment of a fee of one thousand dollars (\$1,000.00) for each year the permit is to be in effect beyond the first year. For this ten (10) year permit, the fee is nine thousand dollars (\$9,000).

The Permittee's RCRA hazardous waste facility (hereafter referred to as facility) is located at 2300 Oakland, Kansas City, within the southwest quarter of Section 7, Township 49N, Range 32W, and for the purposes of this permit is defined as the closed surface impoundment, the groundwater monitoring and corrective action systems and appurtenances, and all property owned by the Permittee at this location that is effected by any contaminant plume emanating from the closed surface impoundment. This permit is being issued to the Permittee for post-closure activities such

as monitoring, maintenance, and implementation of a groundwater corrective action program as specified in this permit.

Construction and operation of this facility shall be in accordance with the provisions of this permit, the Missouri Hazardous Waste Management Law (Section 260.350 to 260.550), RSMo, the rules and regulations promulgated thereunder [Code of State Regulations, Title 10, Division 25 (10 CSR 25)] as effective on the date of this document, all the final engineering plans, specifications, and operating procedures which were submitted to the Department during the permit application review process and which are included in the final version of the permit application, which is hereby approved by the Department, and any other conditions, changes, or additions to the plans, specifications, and procedures as specified in this permit. The final approved permit application including engineering plans, specifications, and operating procedures is therefore incorporated into the conditions of this permit.

The final approved permit application includes the consolidated permit application to be submitted under item 5., page 42 of this permit. The "Post-Closure Permit Application" dated August 24, 1990, along with subsequent submittals and revisions dated August 28, 1990, September 18, 1990, and October 3, 1991, shall be incorporated into the consolidated permit application. All conditions specified in this permit supersede any conflicting provisions of these documents. Where conflicts arise between documents the latest revision shall be effective.

This permit (RCRA Part I) for post-closure activities is issued only to the Permittee named above. This permit is issued for a period of ten (10) years and expires at midnight on January 31, 2004. It shall remain in effect even if the Hazardous and Solid Waste Amendments permit (Part II) is terminated or expired. This permit is subject to review and modification by the Department in accordance with 260.395.12 RSMO.

Upon issuance of this permit, the Permittee may begin construction or alterations at the facility in accordance with the approved plans, reports, design specifications, and procedures.

When the Department receives any information (such as inspection results, information from Permittee, or request from Permittee) it may decide whether cause exists to modify, revoke, and reissue, or terminate a permit. All such changes to the permit shall be in accordance with 10 CSR 25.7.270(2)(D), 10 CSR 25-8 and 40 CFR Part 270 Subpart D.

All permit application information shall be available to the public unless nondisclosure is requested in writing as set forth in Section 260.430, RSMo. The permit and accompanying material shall be available for review by the public at the Department's main office in Jefferson City and the Environmental Protection Agency, Region VII, 726 Minnesota Avenue, Kansas City, Kansas.

The provisions of this Permit are severable, and 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.

Any appeals of the issuance or denial of the permit or specific permit conditions based on State authority shall be directed to the Department in accordance with 10 CSR 25.7.270(2)(C)1.D. and 10 CSR 25-8.010.

All citations to federal regulations are for the sake of convenient reference. The regulations are adopted by reference in 10 CSR 25. In the instances where state regulations are more stringent, the appropriate state reference is given.

STANDARD PERMIT CONDITIONS

I. Duty to comply [40 CFR 270.30(a)]

The Permittee shall comply with all conditions of this permit and with all applicable state laws and regulations, except to the extent and for the duration such noncompliance is authorized in an emergency permit. Any permit noncompliance, except under the terms of an emergency permit, constitutes a violation of the appropriate Law or Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

II. Duty to reapply [40 CFR 270.10 (h), 270.30(b) and 270.51]

If the Permittee is required to continue an activity regulated by this permit after its expiration date, the Permittee shall apply for and obtain a new permit. A new application shall be submitted to the Department at least one hundred eighty (180) days before the expiration date of this permit. This permit and all conditions herein shall remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete

application [40 CFR 270.14 and 10 CSR 25-7.270(2)(b)] and through no fault of the Permittee the Department has not issued a new permit as set forth in 40 CFR Part 270 Subpart E.

III. Need to halt or reduce activity not a defense
[40 CFR 270.30(c)]

It shall not be a defense for a 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.

IV. Duty to mitigate [40 CFR 270.30(d)]

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

V. Proper operation and maintenance [40 CFR 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 backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

VI. Permit actions [40 CFR 270.30(f)]

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

VII. Property rights [40 CFR 270.30(g)]

This permit does not convey any 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.

VIII. Duty to provide information [40 CFR 270.30(h)]

The Permittee shall furnish to the Director, within a reasonable time, any relevant information which the Director 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 the Permittee.

IX. Inspection and entry [40 CFR 270.30(i)]

The Permittee shall allow the Department employees, upon the presentation of credentials and other documents as may be required by law, to:

- A. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;
- B. Have access to and copy at reasonable times any records that are kept under the conditions of this permit;
- C. Inspect at reasonable times any facilities, 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 Sections 260.350 through 260.430 RSMo, any substances or parameters at any location.

X. Monitoring and records [40 CFR 270.30(j)]

- A. Samples and measurements taken for the purpose of monitoring, or as required for compliance shall be sufficient to yield data which are representative of

the monitored activity. This permit along with the consolidated permit application contains engineering plans, specifications, operating procedures and appropriate special permit conditions which specify the type, intervals, and frequency of sampling.

- B. The Permittee shall retain records of all monitoring information including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit, for at least the ten (10) years that this permit is in effect. This period may be extended by request of the Director at any time. The Permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the regulated units, and for disposal facilities for the post-closure care period as well. The period for retention of these records is automatically extended during the course of any unresolved enforcement action regarding this facility.
- C. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling measurements;
 3. The date(s) analyses were performed;
 4. The individual(s) who perform the analyses;
 5. The analytical techniques or methods used; and
 6. The results of such analyses.

XI. Signatory and certification requirements [40 CFR 270.30(k) and 10 CSR 25-7.270(2)(B)5.]

All applications, reports or information submitted to the Director pursuant to this permit shall be signed and certified as provided in 40 CFR 270.11

All engineering plans and engineering reports submitted as part of the consolidated permit application shall be approved by a registered professional engineer licensed by the state of Missouri, and shall include all necessary information in accordance with 10 CSR 25-7.270(2)(B)5.

XII. Reporting requirements [40 CFR 270.30(1)]

- A. The Permittee shall give written notice to the Director at least ten (10) days prior to any planned physical alterations or additions to the permitted facility. If the Director does not respond within ten (10) days of receipt of this notice, the Permittee may proceed with the alterations or additions. Alterations or additions may require changes to this permit under 40 CFR 270 Subpart D and 10 CSR 25-8. The replacement of worn or broken parts need not be reported as long as replacement is with an equivalent component which does not adversely affect the designed operation procedures or performance of the facility.
- B. 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. Certain changes to the facility may require permit modifications under 40 CFR Part 270 Subpart D and 10 CSR 25-8.
- C. Monitoring results shall be reported at the intervals specified elsewhere in this permit.
- D. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.
- E. The Permittee shall report any noncompliance which may endanger health or the environment orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. Included in this would be information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies and any information of a release or discharge of hazardous waste or of a fire

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

1. Name, address and telephone number of the owner/operator;
2. Name, address and telephone number of the facility;
3. Date, time and type of incident;
4. Name and quantity of material(s) involved;
5. The extent of injuries, if any;
6. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and
7. Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Director may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days.

- F. The Permittee shall report all instances of noncompliance not reported under Standard Permit Conditions XII.C., D., and E. above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Permit Condition XII.E. above.

- G. Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.
- H. Before transferring ownership or operational control of the facility (as defined in this permit) during the post-closure care period, the Permittee shall notify the Department of the pending transfer and the Permittee shall also notify the new owner or operator in writing of the new owner's responsibility to submit an application for a new permit at least ninety (90) days prior to the transfer of ownership or operational control.

XIII. Financial requirements [40 CFR 264.140 and 10 CSR 25-7.264 (H)]

The Permittee shall comply with the financial requirements of 40 CFR Part 264 Subpart H, 40 CFR 264.90, and 10 CSR 25-7.264(H), and all additional financial requirements listed in this permit.

XIV. Transfers [10 CSR 25-7.270 (2) (D)]

No rights under any permit may be transferred without a new permit being issued. Transfer of rights under a permit means a change in ownership of the facility, a transfer of operational control of the facility, a transfer of operating rights under this permit, the sale of substantially all of the assets of the owner or operator which relate to the facility, the purchase of sufficient shares of the stock of the owner or operator or any corporation controlling the owner or operator to constitute a change in the controlling interest in such corporation, or a change in the identity of the owner or operator which indicates a change in control over the facility.

Prior to voluntarily or involuntarily transferring ownership or operational control of all or any part of the facility (as defined in this permit) during the post-closure care period, the Permittee shall make the

notifications required under Standard Permit Condition XII.H. If ownership changes but not operational control, the Permittee shall submit appropriate documentation to demonstrate that they maintain operational control of the facility.

A person who wishes to assume ownership or operating responsibility for the facility shall submit an application for a new permit at least ninety (90) days prior to the time the potential owner/operator wishes to be issued a new permit. A permit shall not be issued to a person described in Sections 260.379, 260.395.16 or 260.395.17 or RSMo.

GENERAL PERMIT CONDITIONS

XV. Security [40 CFR 264.14 and 40 CFR 264.117]

The Permittee shall comply with the security provisions of 40 CFR 264.14(b) and (c), and 40 CFR 264.117(b), which include:

- A. The Permittee shall prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the final cover of the closed impoundment. An artificial or natural barrier which completely surrounds the closed impoundment, and a means to control entry through gates or other entrances to the closed impoundment, shall be maintained at all times.
- B. In addition, the Permittee shall post signs bearing the legend "Danger - Unauthorized Personnel Keep Out" at each entrance to the closed impoundment and at other locations in sufficient numbers to be seen from any approach to this facility. This legend shall be written in English and shall be legible from a distance of at least twenty-five (25) feet.
- C. The Permittee shall advise the Department if unauthorized entry occurred at the facility which caused hazardous waste to be discharged, the nature of problems, if any, that resulted from this occurrence and corrective action taken by the facility to prevent future occurrences. This includes any tampering, destruction, or loss at the facility, which caused release of hazardous waste.

XVI. Post-closure inspection requirements [40 CFR 264.15]

- A. The Permittee shall inspect the facility, as per the Post-Closure Inspection and Maintenance Schedule and associated report for malfunctions and deterioration, operator errors and discharges which may be causing, or may lead to, release of hazardous waste constituents to the environment, or a threat to human health.
- B. The Permittee shall follow the approved inspection schedule in the approved permit application for the inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing, detecting, or responding to environmental or human health hazards. The Permittee shall keep this schedule at the facility.
- C. The Permittee shall remedy any observed deterioration or malfunction of equipment or structures which the inspection reveals. Such remedy shall be performed on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.
- D. The Permittee shall record inspections in an inspection log or summary. The log or summary shall be kept for at least three (3) years from the date of inspection. At a minimum, these records shall include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

XVII. Location standards [40 CFR 264.18]

The facility is considered to be located in compliance with the seismic standard, however, it is located within a 100 year floodplain. The Permittee shall therefore comply with the requirements of 40 CFR 264.18(b) and design, construct, operate, and maintain this facility to prevent washout of any hazardous waste by a 100 year flood. In addition, requirements for maintenance of the groundwater monitoring system following flood conditions at the facility are listed under Special Permit Condition XXIII.D.3

XVIII. Recordkeeping and reporting [40 CFR 264.Subparts E and H]

- A. Annually by March 31, the Permittee shall submit to the Department, in accordance with 40 CFR 264.145 (f), the most recent post-closure cost estimate for the previous year and a copy of the documentation required to demonstrate financial assurance for the Kansas City facility.
- B. In accordance with 40 CFR 264.74, all records, including plans, required by this permit shall be furnished upon request and made available at all reasonable times for inspection by the Department employees. The Permittee shall retain copies of the original records and documents required by this permit at the facility and shall furnish any or all of these documents upon request. The Permittee shall maintain the following documents and amendments, revisions, and modifications to these documents as specified by the cited regulations:
 - 1. Consolidated permit application as outlined in the INTRODUCTION of this permit along with a copy of this permit (40 CFR 264.74);
 - 2. Inspection schedules as required by 40 CFR 264.15; and
 - 3. Personnel training records and documents as required by 40 CFR 264.16(d).
- C. The Permittee shall enter all monitoring, testing and analytical data obtained pursuant to Special Permit Condition XXIII. In the facility records, as required by Standard Permit Condition X.
- D. The Permittee shall submit a summary report to the Department in accordance with 10 CSR 25-7.264(2)(E)4. The report shall include at least the following:
 - 1. A manifest summary report in accordance with 10 CSR 25-5.262(2)(D), these requirements shall also be met for all hazardous waste generated and managed on site during the reporting period;
 - 2. A description and the quantity of each hazardous waste that was both generated and managed on site during the reporting period;

3. The corresponding method of treatment, storage, resource recovery, disposal or other approved management method used for each hazardous waste;
4. The quantity and description of hazardous waste residue generated by the facility, to include all NAPL's (except those reused in a manufacturing or production process) recovered by both discrete well recovery and through the groundwater corrective action program as required by Special Permit Conditions XXIII.E. and B. respectively; and
5. A summary of both quantitative and qualitative groundwater monitoring data that was received during the reporting period.

The Permittee shall submit the completed summary manifest report, including the appropriate completed manifest documents as indicated in the manifest instructions, with forty-five (45) days after the end of each reporting period. Reporting frequency shall depend upon whether or not more than one (1) shipment of hazardous waste is shipped off site during an entire reporting year which consists of July 1 through June 30. If less than two (2) shipments are made during a reporting year, the Permittee may file an annual report by the following August 15. If two (2) or more off-site shipments of hazardous waste are made by the Permittee during a reporting year, the Permittee shall submit quarterly manifest summary reports. The reporting periods and submittal dates are as follows: January 1 through March 31, with a submittal date of May 14; April 1 through June 30, with a submittal date of August 14; July 1 through September 30, with a submittal date of November 14; and October 1 through December 31, with a submittal date of February 14 of the following year.

- E. The Permittee shall submit a semiannual groundwater corrective action effectiveness report to the Department as required under Special Permit Conditions XXIII.F. and XXIV.G. of this permit. All groundwater and surface water monitoring data, testing data, analytical data, statistical evaluations, well maintenance/repair documentation, and effectiveness evaluation results performed as required by that permit condition shall be included.

This semiannual effectiveness report shall be submitted within forty-five (45) days after the end of each reporting period. The reporting periods and submittal dates are as follows: January 1 through June 30, with a submittal date of August 14 of the same calendar year; and July 1 through December 31 with a submittal date of February 14 of the following calendar year.

XIX. Geologic and engineering data collection
[10 CSR 25-7.270(2)(B)9.]

The Department may oversee any field work undertaken to collect geologic and engineering data in relation to the compliance schedule of this permit. The Permittee shall contact the Department at least five (5) working days prior to conducting any such field work.

XX. Additional application review fee
[10 CSR 25-12.010(3)(D)]

The Permittee shall pay all applicable costs as required by 10 CSR 25-12.010(3)(D) for Departmental review related to this permit. These billable categories include the following:

- A. The project engineer's and geologist's time expended in the areas of:
 - 1. Oversight of field work to collect geologic and engineering data for definition of the horizontal and vertical extent of the contaminant plume related to release(s) from the regulated unit (former surface impoundment) reasonably necessary to satisfy the Part B application requirements contained in 40 CFR 270.14(c).
 - 2. Review, assessment, and attesting to the accuracy and adequacy of the geologic and engineering plans required for submittal in the schedule of compliance for this permit; and
- B. The direct costs associated with travel to the facility to oversee any field work undertaken to collect geologic and engineering data and/or ascertain the accuracy and adequacy of geologic and engineering plans.

The Permittee shall be billed in all of the applicable categories above for expenses incurred by the Department in relation to obtaining information which is a regulatory requirement of the permit application and which has not been adequately supplied to the Department as of the effective date of this permit. Information and documents of this permit's Schedule of Compliance to which these charges may be applied are: 1.A. emergency equipment demonstration; 1.H. groundwater monitoring system plan; 2.B. surface water monitoring program; 2. C. groundwater corrective action program plan; 3.A. description of the plume of contamination.

XXI. HEALTH PROFILE (DELETED)

SPECIAL PERMIT CONDITIONS

XXII. Post-closure [40 CFR Part 264 Subpart G]

The Permittee shall comply with all applicable requirements of 40 CFR Part 264 Subpart G and all provisions of this permit.

A. Post-closure [40 CFR Part 264.117]

Post-closure care begins after completion of closure of the hazardous waste management unit and continues for thirty (30) years after that date unless otherwise specified by the Director. This facility, therefore, has a post-closure care period which shall last until March 15, 2019. Post-closure care shall be extended at a minimum until the groundwater protection standards are met for a period of three (3) consecutive years under a compliance monitoring program. Care during this period shall consist of maintenance, monitoring, and reporting in accordance with 40 CFR Part 264 Subparts F and K.

The Permittee may submit a request to the Department for shortening the post-closure care period. Justification for shortening the thirty (30) year period shall be submitted with the request. If the Department finds that a reduced period is sufficient

to protect human health and the environment, shortening of post-closure care period may be handled in accordance with permit modification procedures under 40 CFR Parts 124 and 270.

Post-closure use of the property shall be restricted by the Permittee to prevent disturbance of the integrity of the final cover on the closed impoundment, and to prevent damage to the monitoring systems. The Director may approved a use of the property that disturbs the integrity of the final cover of the impoundment if it is necessary for the proposed use of the property and does not increase the potential hazard to human health or the environment, or if it is necessary to reduce a threat to human health or the environment.

B. Post-closure plan and amendments [40 CFR 264.118]

Post-closure care shall be in accordance with the plan contained in Volume IV, Appendix AK of the approved permit application and all conditions of this permit. The post-closure care plan may be amended at any time during the post-closure period. The Permittee shall submit a written request to the Department for a permit modification to authorize a change in the approved post-closure plan. Amendments are subject to the applicable permit modification requirements of 40 CFR Part 270 Subpart D, 10 CSR 25-7.270(2)(D) and 10 CSR 25-8. Written requests for amendments shall be submitted at least sixty (60) days prior to the proposed change in facility operations, or no later than sixty (60) days after an unexpected event which has affected the plan. The Director may request modifications to the plan if changes in facility operations affect the approved plan. The Permittee shall submit the modified plan no later than sixty (60) days after the request. Any modifications requested by the Director shall be handled in accordance with the procedures in 40 CFR Parts 124 and 270 and 10 CSR 25-8.

C. Future removal of hazardous wastes [40 CFR 264.119(c)]

If the Permittee wishes to remove additional sludge and/or contaminated soils from beneath the closed impoundment, the Permittee shall request a modification to this permit in accordance with the

applicable requirements in 40 CFR Parts 124 and 270. The request for modification shall include a demonstration that the action shall not increase the potential hazard to human health or the environment, or the action is necessary to reduce the threat to human health or the environment. In addition, a demonstration shall be made indicating that the action satisfies the criteria of 40 CFR 264.117(c). By removing contaminants, the Permittee may become a generator of hazardous waste and shall manage such waste in accordance with all applicable requirements.

D. Certification of completion of post-closure care [40 CFR 264.120]

No later than sixty (60) days after completion of the post-closure care period, the Permittee shall submit to the Director, by registered mail, a certificate that the post-closure care period was completed in accordance with the approved plan. For this permit, the certificate is therefore due by May 14, 2019 unless otherwise amended. The certification shall be signed by the owner or operator and an independent registered professional engineer.

E. Post-closure cost estimate [40 CFR 264.144]

The Permittee shall maintain a detailed written estimate, in current dollars, of the annual cost of post-closure monitoring and maintenance of the facility. The estimate shall be based on the costs of hiring a third party to conduct these activities. The post-closure cost estimate is calculated by multiplying the annual cost estimate by the number of years of post-closure care remaining. After the initial estimate is prepared and approved by the department, subsequent adjustments for inflation may be made by multiplying the current estimate by the inflation factor derived from the Implicit Price Deflator. These adjusted estimates shall account for any modifications to the permitted post-closure activities and shall be submitted to the Department in accordance with General Permit Condition XVIII. of this permit

F. Post-closure financial assurance [40 CFR 264.145]

The Permittee shall demonstrate continuous compliance with 40 CFR 264.145 and 10 CSR 25-7.264(2)(H) and the documentation requirements of 40 CFR 264.151 (with the appropriate substitution of state terms) in at least the amount of the cost estimate required in Special Permit Conditions XXII.E. above. Changes in financial assurance mechanisms shall be approved by the Department pursuant to 40 CFR 264.145 and 10 CSR 25-7.264(2)(H).

The Permittee shall comply with the provisions in 40 CFR 264.148.

XXIII. Groundwater corrective action program [40 CFR Part 264 Subpart F]

The Permittee shall comply with all applicable requirements of 40 CFR Part 264 Subpart F and all provisions of this permit.

A comprehensive groundwater corrective action program shall be required during the compliance period, as specified herein, to address releases from the regulated closed impoundment. The Permittee shall not terminate the groundwater corrective action program until such time as the Groundwater Protection Standard (GWPS) concentration limits have not been exceeded at or beyond the point of compliance (as defined in Special Permit Condition XXIII.C.5.) for a period of three (3) consecutive years.

The Permittee may demonstrate that a source other than a release from a regulated unit caused an exceedance of the GWPS maximum concentration limit specified in Table I of this permit; or that the exceedance resulted from an error in sampling, analysis or evaluation. In making a demonstration under this paragraph, the Permittee shall:

- * Notify the Department in writing within seven (7) days of making such a determination that it intends to make a demonstration under this paragraph;

- * Within ninety (90) days, submit a report to the Department which demonstrates that a source other than a regulated unit caused the GWPS maximum concentration limit to be exceeded or that the apparent noncompliance with the GWPS resulted from error in sampling, analysis, or evaluation;
- * Include, in the report, an analysis of how the well screen and casing materials may have affected the exceedance.
- * Continue to monitor in accordance with the monitoring program established under this condition of this permit.

If, at any time during the compliance period, the groundwater corrective actions program meets the requirements for termination (attainment of the GWPS concentration limits as specified herein) the Permittee shall, within ninety (90) days of said determination, submit to the Director an application for a Class 3 permit modification to establish a compliance monitoring program meeting the requirements of 40 CFR 264.99. The Permittee shall continue the groundwater corrective action program in accordance with 40 CFR 264.100 and this permit until such time as this permit is modified.

If, at any time during the compliance period, the Permittee or the Department determines that the groundwater corrective action program no longer satisfies the requirements of 40 CFR 264.100 or this permit, the Permittee shall, within ninety (90) days of such determination by the Permittee or written notification by the Department, submit a permit modification request to make any appropriate changes to the groundwater corrective action program. This request shall specify the additional corrective action measures needed and the schedule for implementation of such measures. Upon permit modification approval by the Department, the additional measures shall be implemented on the approved schedule and shall be incorporated herein as a permit condition.

A. Groundwater monitoring system

As part of the groundwater corrective action program, the Permittee shall design, install and maintain a groundwater monitoring system capable of:

1) delineating and tracking the horizontal and vertical extent of groundwater contaminated beneath the facility and beyond the property boundary (as specified in 40 CFR 264.100(e)), 2) determining the concentrations of hazardous constituents and contaminant plume indicator parameters in the groundwater throughout the subsurface contaminant plume, and 3) determining the effectiveness of the groundwater corrective action program in terms of removal/containment of the subsurface contaminants comprising the plume.

The groundwater monitoring system described below shall be installed by the Permittee within one hundred eighty (180) days after the effective date of this permit. This system shall be maintained by the Permittee as described in this permit throughout the post-closure care period.

The number, location and depth of monitoring wells shall be sufficient to define the horizontal and vertical extent of groundwater contamination beneath the facility and beyond the property boundary. If, at any time during the compliance period, the Permittee or the Department determines that the existing wells fail to define the horizontal and vertical extent of groundwater contamination, the Permittee shall submit, within ninety (90) days of such determination by the Permittee or written notification by the Department, a proposal for installation of additional wells to define such extent. Upon installation, the Permittee shall request a Class 2 permit modification to include the new wells in the groundwater monitoring system required by this permit.

1. Groundwater monitoring wells to be included in the corrective action program for this closed impoundment are as follows:

a. Point of compliance wells

KC-02, KC-03, KC-01, KC-22, KC-11, KC-06,
KC-21, KC-09, KC-08, KC-07, KC-13, KC-14,
KC-04, KC-05, KC-23, and KC-12;

b. Boundary control monitoring wells

KCSS-11, KCSS-12, KCSS-4, KCSS-3, KCSS-2;
KC-29, KC-30, KC31,

and any additional groundwater monitoring wells determined to be necessary by either the Department or the Permittee in defining the horizontal and vertical extent of contamination originating from the closed surface impoundment;

c. Corrective action effectiveness wells

KC-26, KC-27, KC-28, KC-33,

and any additional groundwater monitoring wells determined to be necessary by either the Department or the Permittee to evaluate the effectiveness of the groundwater corrective action program;

d. Background well KCSS-1;

2. If the Department or the Permittee determines that the corrective action program no longer satisfies the requirements of 40 CFR 264.100, the Permittee shall, within ninety (90) days of said determination, submit an application for a permit modification to make any appropriate changes to the program.

All new groundwater monitoring wells which are to be installed as part of the groundwater corrective action program of this permit shall comply with the requirements of 40 CFR 264.97, 10 CSR 25-7.264 and 10 CSR 23.4 when final. The plans and specifications contained in the Permittee's most recent Sampling and Analysis Plan (SAP), appropriate RCRA groundwater monitoring guidance documents, and/or well-specific plans and specifications approved by the Department shall be used to guide the construction and installation of such wells.

Additional investigations are necessary to delineate the horizontal extent of the deep contaminant plume emanating from the closed

impoundment. The Permittee's RFI Workplan proposes investigations and subsequent groundwater monitoring well installations for delineation and tracking of the contaminant plume. As part of that investigation, additional groundwater monitoring wells are to be installed. The Department expects some of these additional monitoring wells to be included as boundary control wells as part of the groundwater corrective action program of this permit.

As stated in General Permit Condition XIX. and in accordance with 10 CSR 25-7.270(2)(B)8., the Permittee shall contact the Department at least five (5) working days prior to conducting any of the field work associated with the construction of this groundwater monitoring system. The Department shall then have the option of observing any portion of this construction. If such observation is made, a fee shall be assessed pursuant to Special Permit Condition XX. and 10 CSR 25-12.010 for all costs incurred by the Department.

The first groundwater corrective action effectiveness report (as required under Special Permit Condition XXIII.F.) submitted to the Department following installation of any new wells shall contain comprehensive construction details for the new wells and detailed lithologic logs for the borings in which the new wells were installed.

3. Plugging and abandonment of any well(s) operated by the Permittee in accordance with this permit shall necessitate a permit modification in accordance with 40 CFR 270.42. All well plugging and abandonment procedures shall comply with 10 CSR 23-4.

Well plugging/abandonment documentation shall be submitted to the Department's Division of Geology and Land Survey (DGLS) in accordance with 10 CSR 23-4, including the submission of any applicable fees, within the time frames specified therein. The Permittee shall submit to the Hazardous Waste Program a copy of any documentation submitted to the DGLS.

B. Groundwater corrective action program plan

The Permittee shall submit a plan to the Department to document a groundwater corrective action program for the regulated unit which meets the requirements of 40 CFR 264.100 within sixty (60) days of issuance of this permit. The groundwater corrective action program proposed shall prevent hazardous constituents from exceeding their respective concentration limits at the point of compliance (as defined in Special Permit Condition XXIII.C.5.) by either removal or treatment of these constituents. In addition, the groundwater corrective action program shall propose or document methods to either remove or treat any hazardous constituents exceeding the GWPS maximum concentration limits between the point of compliance and the facility boundary and beyond the facility property boundary. At a minimum, the groundwater corrective action program plan shall include the following:

1. A detailed description of corrective actions implemented and to be implemented at the facility (including NAPL recovery methods as required under Special Permit Condition XXIII.E.) to achieve compliance with GWPS;
2. Any additions/changes to the groundwater monitoring program necessary to demonstrate the effectiveness of the groundwater corrective action program;
3. Measures/methodology to be employed in tracking and evaluating the subsurface contaminant plume during the compliance period; and
4. Measures/methodology to be employed in demonstrating the effectiveness of the groundwater corrective action program.
5. Documentation of the groundwater treatment methodology employed;
6. A copy of the pre-treatment permit required for discharge from the treatment plant to the POTW;

Modification of the groundwater corrective action system to address releases from the regulated unit shall be in accordance with the approved implementation schedule.

C. Groundwater protection standard [40 CFR 264.92]

The groundwater protection standard (GWPS) establishes concentration limits for hazardous constituents in the groundwater at and beyond the point of compliance during the compliance period. The Permittee's groundwater corrective action program shall be designed to achieve compliance with this standard.

1. The hazardous constituents specified in Table I of this permit are those parameters to which the groundwater protection standard applies, in accordance with 40 CFR 264.93 and 40 CFR 264.94. These constituents have been detected in groundwater at the facility and are reasonably expected to be in and/or derived from waste contained in the regulated unit.
2. The hazardous constituent parameters of the GWPS shall be modified to include any new constituents contained in Appendix VIII of 40 CFR Part 261 which are found, subsequent to issuance of this permit, to exist in the local groundwater and which can be attributed to past releases from the regulated unit. Modification of the GWPS hazardous constituents (Table I) as a result of the above determination shall be considered a Class 1 permit modification. The following evaluation is required by the Permittee to aid in making a determination.

Sampling and analysis shall begin within ninety (90) days from the effective date of this final permit. The Permittee shall analyze groundwater samples from all point of compliance monitoring wells for the complete list of constituents detectable using SW-846 analytical methods 8270 and 8240 for 40 CFR 264, Appendix IX constituents. These analyses are required to determine whether additional hazardous constituents are present within the known plume of contamination. Biennially thereafter at least two contaminated wells shall be analyzed for the

constituents listed in Appendix IX of 40 CFR 264. The specific wells to be sampled shall represent at least one well which has recently become contaminated and is therefore representative of the leading edge of the plume, and one well which has consistently contained immiscible phase liquids or high concentrations of dissolved contaminants.

All analyses for Appendix IX constituents, as required above, shall be performed using appropriate chemical analysis methods from the third edition of SW-846 or an equivalent method approved by the Department. Should any of the above analyses indicate the presence of Appendix IX constituents which are not identified as groundwater monitoring parameters (Table I) in this permit, the Permittee shall report the concentrations of these additional constituents to the Department within seven (7) days after completion of the analyses. In addition, the Permittee shall apply for a permit modification in accordance with the requirements of 40 CFR 270.42 to include any additional Appendix IX constituents which are also contained in Appendix VIII of 40 CFR Part 261 in the permit as groundwater protection standard monitoring parameters (Table I) provided that such releases can be reasonably expected to have emanated from the regulated unit. Groundwater data outliers shall be considered valid data for purposes of this evaluation unless the Permittee can demonstrate that such outliers are the result of sampling and/or analytical error.

3. The maximum concentration limits as applied to the hazardous constituent parameters for the GWPS shall be equivalent to the method detection limit (MDL) for each parameter as identified by the analytical laboratory for analysis in accordance with the appropriate SW-846 analytical method. With the exception of those sample analyses exhibiting matrix interference, MDL's shall be less than or equal to the PQL's for each parameter

as identified in the appropriate SW-846 test method. Additionally, all reporting of analytical results shall include a copy of the laboratory data clearly indicating the laboratory MDL for each analysis.

4. The Permittee may apply to the Department at any time for the establishment of ACL's, including during the term of this permit. Any such change would constitute a Class 3 permit modification. All modification proposals shall demonstrate that the revised concentration limits (ACL's) are protective of human health and the environment in accordance with the requirements of 40 CFR 264.94(b). In establishing ACL's, the Permittee and Department Director shall consider those factors listed in 40 CFR 264.94(b)(1) and (2).
5. Since the migration direction for subsurface DNAPL's may be contrary to the hydraulically downgradient direction for movement of dissolved constituents, the point of compliance for the regulated unit at this facility is defined as a vertical surface circumscribing the former surface impoundment that extends down into the uppermost aquifer underlying the former surface impoundment. Consistent with this definition, the point of compliance shall be comprised of the monitoring wells listed under Special Permit Condition XXIII.A.1.a. of this permit.

Table I
 Groundwater Monitoring Parameters and
 Maximum Concentration Limits for Hazardous Constituents

Groundwater Monitoring Parameters

acenaphthene	+	dibenz(a,h)anthracene
acenaphthylene	+	2,4-dimethylphenol
anthracene	+	fluoranthene
+ benz(a) anthracene		fluorene
+ benzene	+	indeno(1,2,3-cd)pyrene
+ benzo(b)fluoranthene		2-methylnapthalene
+ benzo(k)fluoranthene	+	naphthalene
benzo(g,h,i)perylene		phenanthrene
+ benzo(a)pyrene	+	phenol
carbazole		pyrene
+ chrysene	+	toluene
dibenzofuran		
+ Hazardous constituents as defined by 40 CFR 264.93 and 40 CFR Part 261 App. VIII to which the groundwater protection standard applies. Maximum concentration limits are equivalent to the method detection limit (MDL) for each hazardous constituent as defined by the analytical laboratory for analysis in accordance with the appropriate SW-846 test method.		

Method Detection Limits

Method Detection Limits (MDL's) are not to exceed the following PQL's:

HW-846 analytical method 8270 - reporting of all monitoring parameters listed above, PQL's equal 10 ug/l.

6. The compliance period shall last for nineteen (19) years, based on the requirements of 40 CFR 264.96, and shall begin on the effective date of this permit. This facility, therefore, has a compliance period which shall last until January 31, 2012. If the GWPS is being exceeded at the end of the compliance period, the groundwater corrective action program shall be

continued for as long as necessary to achieve compliance with the GWPS including any ACL's established therein. If the Permittee is engaged in a groundwater corrective action program at the end of the compliance period, the compliance period shall be extended until the Permittee demonstrates that the groundwater protection standard has been met at and beyond the point of compliance for a period of three (3) consecutive years. Groundwater data outliers shall be considered valid data for purposes of determining the end of compliance period unless the Permittee can demonstrate that such outliers are the result of sampling and/or analytical error.

D. General groundwater monitoring conditions

All procedures and techniques to be used in conjunction with groundwater sampling/analysis and measurement of groundwater related parameters shall meet the requirements of 40 CFR 264.97, 40 CFR 264.100(d), the provisions of the Permittee's most recent site-specific groundwater Sampling and Analysis Plan and as specified below. The sampling, analysis and measurement protocols employed shall ensure the representative nature of all analysis and measurement results.

1. When analyzing groundwater samples for the monitoring parameters listed in Table I of this permit, the Permittee shall use analytical methods sufficient to yield detection limits not greater than the PQL's also indicated in that table. Analytical detection and reporting limits for those parameters shall, at a minimum, achieve the Practical Quantitation Limits (PQLs) associated with the appropriate analytical method for the parameters as listed in Appendix IX of 40 CFR Part 264. For parameters not listed in Appendix IX (e.g. carbazole), analytical detection and reporting limits shall be consistent with the analysis method used. Concentration values reported for each constituent analyzed shall be presented in units suitable for comparison with the given groundwater protection standard concentration limits.

Groundwater monitoring parameter analyses shall be performed for all groundwater monitoring parameters listed in Table I at all groundwater corrective action program monitoring wells (Table II) as scheduled in Table III.

Table II
Groundwater Corrective Action Program Wells

KC-01	KC-02	KC-03	KC-04	KC-05	KC-06
KC-07	KC-08	KC-09	KC-11	KC-12	KC-13
KC-14	KC-21	KC-22	KC-23	KC-26	KC-27
KC-28	KC-29	KC-30	KC-31	KC-33	KCSS-1
KCSS-2	KCSS-3	KCSS-4	KCSS-11	KCSS-12	

All current and any additional groundwater monitoring wells necessary to define the horizontal and vertical extent of contamination originating from the closed surface impoundment.

All current and any additional groundwater monitoring wells necessary to evaluate the effectiveness of the groundwater corrective action program of this permit.

Groundwater analyses are not required for those wells exhibiting free phase product in the groundwater samples following adequate purging.

Table III
Groundwater Sampling/Analysis and
Parameter Measurement Schedule

<u>Parameters</u>	<u>Frequency</u>
groundwater elevation	quarterly
NAPL thickness	quarterly
Table I groundwater monitoring parameters (test method 8270 of SW-846 necessary per Special Permit Condition XXIII.D.1. of this permit)	semiannually
pH, specific conductance, temperature (field stabilized measurements only for those wells not exhibiting the presence of free product)	semiannually
total well depth	semiannually
40 CFR Part 264 Appendix IX analyses (for those wells identified in Special Permit Condition XXIII.C.2.)	biennially

2. During the groundwater corrective action program, groundwater sampling/analysis and measurement of groundwater-related parameters for the monitoring wells listed in Table II of this permit shall be performed in accordance with the schedule presented in Table III of this permit. Sampling and analysis in accordance with that schedule shall begin no later than ninety (90) days after the effective date of this permit. For new wells required by this permit, sampling and analysis shall begin no later than next regularly scheduled sampling event following installation of those wells.
3. An inspection and maintenance program designed to ensure the surface and subsurface integrity of all monitoring well installation shall be included in the Permittee's site-specific Groundwater Sampling

and Analysis Plan (SAP). This program shall be implemented and carried out for the duration of the compliance period.

Surface well integrity inspections shall be performed at the time of each quarterly groundwater elevation measurement event and shall be documented on the well inspection log sheet as contained in the Permittee's SAP. Surface well integrity inspections shall be performed for individual wells contacted by flood waters within seven (7) calendar days following subsidence of flood waters contacting such wells. If the surface inspection identifies problems that could effect monitoring well integrity or groundwater quality (e.g. cap loose or missing), a subsurface inspection shall be performed.

Surface integrity evaluations for each monitoring well shall include a visual inspection of the outer protective casing, inner casing riser, surface well seal, well cap, and locking mechanism to document any damage or deterioration. The ground surface in the immediate vicinity of each monitoring well and the annular space between the outer protective casing and inner casing riser shall be inspected for visible anomalies (e.g., collection or ponding of water, ground subsidence). Appropriate monitoring well repairs shall be undertaken within seven (7) days of identification of any surface well integrity problems. Completed well inspection log sheets and a summary description of any well repairs performed shall be submitted to the Department as part of the Permittee's semiannual Groundwater Corrective Action Effectiveness Reports.

Subsurface well integrity inspections shall be performed annually for all wells in accordance with the provisions contained in the SAP and shall be documented on the well inspection log sheet as contained in the Permittee's SAP. A subsurface well integrity evaluation shall be performed for each existing groundwater monitoring well included in the groundwater corrective action program for the regulated unit as outlined in Special Permit Condition XXIII.A.1. of this permit within ninety (90) days of the effective date of this permit.

Subsurface well integrity evaluations may consist of a combination of evaluation methods sufficient to verify subsurface conditions. These evaluations shall consist of one or more of the following methods: total well depth measurements, groundwater turbidity measurements, in-situ hydraulic conductivity tests, gauge ring dimensional survey, casing caliper logs, down-hole television camera surveys and/or other methods capable of verifying the subsurface integrity of the well casing and screen. All wells which have historically shown the presence of non-aqueous phase liquids shall have a dimensional survey (e.g. gauge ring) run as one of these methods. Should any dimensional anomalies be identified during this survey, the Permittee shall notify the Department within seven (7) days of identification. The Department shall be consulted regarding further exploration of any downwell anomalies and/or monitoring well replacement. Monitoring well repair or replacement shall be commenced within thirty (30) days following written concurrence by the Department. Completed well inspection log sheets and a summary description of any well repairs performed shall be submitted to the Department as part of the Permittee's semiannual Groundwater Corrective Action Effectiveness Reports as required under Special Permit Condition XXIII.F.

4. The Permittee shall determine the groundwater surface elevation in all groundwater corrective action program wells (Table II) at least quarterly.
5. The Permittee shall determine whether the GWPS maximum concentration limits have been exceeded for any of the hazardous constituents listed in Table I of this permit at or beyond the point of compliance. This determination shall be made on a semiannual basis within fifteen (15) calendar days of receipt of laboratory results and shall be submitted as part of the groundwater corrective action effectiveness reports required under Special Condition XXIII.F.

6. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually. This determination shall be reported with the next semiannual groundwater corrective action effectiveness report following the determination as required under Special Permit Condition XXIII.F.

E. Non-Aqueous Phase Liquid (NAPL) Recovery

The Permittee shall recover, on a quarterly basis or more frequently if necessary or appropriate, any NAPL's from all wells demonstrating phase separation. Recovery shall be performed as a means to control the subsurface source of groundwater contamination. All recovered NAPL's shall be handled as hazardous wastes unless they are reused in a manufacturing or production process. Appropriate documentation of quantities reused, dates of shipment for reuse and a description of the reuse shall be maintained by the Permittee to ensure proper reuse of recovered NAPL. Any water recovered along with the NAPL shall be disposed of in accordance with all applicable federal, state and local laws and regulations.

In order to optimize corrective action, each individual well demonstrating phase separation shall be evaluated to determine the production of NAPL and water. These evaluations shall be performed at least annually, however, more frequent voluntary evaluations shall also be reported.

Specific details outlining recovery, handling, and documentation methods to be employed shall be included in the Groundwater Corrective Action Program Plan as required under Special Permit Condition XXIII.B. and reported as required under Special Permit Condition XXIII.F.4. Recovery shall begin within ninety (90) days of Departmental approval of that plan.

NAPL recovery shall be reported with the semiannual report as required in General Permit Condition XVIII.D. and Special Permit Condition XXIII.F.4.

F. Groundwater corrective action effectiveness reports
[40 CFR 264.100(g)]

The Permittee shall perform a comprehensive evaluation of the effectiveness of the groundwater corrective action program on a semiannual basis. All reports shall contain both a narrative discussion of the nature and evolution of the facility groundwater corrective action system as well as conclusions concerning the current adequacy of the system as related to its intended purpose. Any report conclusions revealing inadequacies in the groundwater corrective action system shall be accompanied by a discussion of proposed remedies. Specific details concerning any such remedies shall be further developed outside of the scope of the semiannual report and/or as specified elsewhere in this permit.

Semiannual effectiveness evaluations shall at a minimum address all of the components listed in this permit condition and shall present relevant information in the form of narrative discussions and/or diagrammatic illustrations as appropriate:

- * geologic and hydrologic contour maps and cross-sections;
- * groundwater flow nets;
- * fence diagrams and isometric diagrams;
- * potentiometric contour maps and cross-sections;
- * contaminant isoconcentration maps and cross-sections;
- * chemical parameter trend graphs; and
- * tabulated groundwater data summaries.

These corrective action effectiveness reports shall be submitted in accordance with General Permit Condition XVIII.D.

As part of the effectiveness evaluation, the Permittee shall determine the following:

1. The rate and direction of groundwater movement in the uppermost aquifer with special emphasis placed on determining whether the groundwater corrective action system is recovering groundwater contaminants and controlling subsurface flow (including NAPL movement) beneath the facility such that the contaminant plume(s) is(are) being removed, treated or otherwise minimizing the potential for further groundwater contaminant migration;
2. The horizontal and vertical extent and concentrations of hazardous constituents (Table I) in groundwater throughout the contaminant plume(s). Long-term trends of constituent concentrations in the groundwater are expected to indicate improvement at and beyond the point of compliance, and no previously clean wells are expected to become contaminated. The Department realizes, however, that constituent concentrations may increase over the short-term due to the mobilization of subsurface contaminants as a result of groundwater corrective action measures. The occurrence of this phenomena in the short-term shall not necessarily be construed as a failure of the groundwater corrective action system necessitating a permit modification;
3. Any surface and/or subsurface well integrity problems and their potential or actual influence on the groundwater data or efficiency of the groundwater corrective action program;
4. The estimated quantity of NAPL's and groundwater extracted from the subsurface by the groundwater corrective action program as required in Special Permit Condition XXIII.E. This information shall be reported both as a total amount and per well or extraction location.
5. The conclusions, summary and analytical results from surface water monitoring conducted during the report period; and

6. Any groundwater treatment plant operation and maintenance problems in terms of their potential or actual influence on effluent monitoring, treatment plant efficiency and overall efficiency of the corrective action program as required by this permit.

XXIV. Surface water monitoring [10 CSR 25-7.264(2)(F)]

A surface water monitoring program shall be required until such time as the Permittee makes a successful demonstration to the Department for exemption from these requirements. Successful demonstration for exemption shall necessitate a Class 3 permit modification.

Within sixty (60) days after issuance of this permit, the Permittee shall submit a plan to the Department to establish a surface water monitoring program in accordance with 10 CSR 25-7.264(2)(F)5.B. The surface water monitoring program plan shall include, at least, the following:

- A. Sufficient sampling locations to yield representative background and downgradient surface water samples;
- B. Consistent sampling analysis procedures which ensure a reliable indication of surface water quality;
- C. Sampling and analytical methods which accurately measure biological activity, chemical indicator parameters and hazardous constituents;
- D. Development of an initial value for all parameters monitored by averaging the quarterly values for a one (1) year period;
- E. At least semiannual monitoring at times when contaminant migration is expected to be greatest from groundwater to surface water;
- F. Determination of surface water elevation for each monitoring event;
- G. Reporting to the Department of analytical results and a summary of the findings with the semiannual corrective action effectiveness reports as outlined in General Permit Condition XVIII.E.;

- H. Statistical comparison of the concentration of a parameter or hazardous constituent with their respective initial values at a sampling point, these comparisons shall also be included in the semiannual corrective action effectiveness reports;
- I. Procedures for notifying the Department within seven (7) days of determination that a statistically significant increase of a constituent or parameter over its initial value at a sampling point has been detected; and
- J. Procedures for notifying the Department within seven (7) days of determination and explaining the cause of any two (2) consecutive sampling periods showing statistically significant increases for monitoring points downgradient of the facility without a corresponding simultaneous increase at an upgradient monitoring point.

SCHEDULE OF COMPLIANCE

The following schedule of compliance shall be adhered to by the Permittee as a means by which to achieve compliance with applicable rules and regulations. The Permittee shall notify the Department in writing of its compliance or noncompliance with each of the requirements in this schedule no later than fourteen (14) calendar days following each anticipated completion date.

Anticipated
Completion Date

Item

March 3, 1994

- 1. Within thirty (30) days after the effective date of this permit, the Permittee shall:
 - A. Submit documentation to the Department that the Facility is equipped, or demonstrate to the Department that none of the hazards posed by waste handled at the facility could require a particular kind of equipment as specified in 40 CFR 264.32.

Anticipated
Completion Date

Item

- B. Submit a certification by the Permittee that the Permittee has read this permit in its entirety and understands all permit conditions contained herein.
 - C. Submit a revised site-specific Sampling and Analysis Plan which reflects the requirements outlined in this permit for the Groundwater Protection Standard, the Inspection and Maintenance Program, the groundwater corrective action program, the surface water monitoring program, and any other changes necessary to meet the requirements of this permit.
 - D. Submit a revised topographic maps(s) to the Department which meets the requirements of 40 CFR 270.13 and 270.14 and clearly depicts the groundwater monitoring "point of compliance" as defined in Special Permit Condition XXIII.C.5.
 - E. Submit drawings as necessary to meet the requirements of 10 CSR 25-7.270(2)(B)5. which depict any aquifers, seeps, or caves within one-fourth (1/4) mile of the facility boundary.
- April 4, 1994
- 2. Within sixty (60) days after the effective date of this permit, the Permittee shall:
 - A. Submit revised annual cost estimates and appropriate financial assurance mechanisms which reflect the changes necessary as a result of, and in accordance with, this permit.

Anticipated
Completion Date

Item

- B. Submit a plan to the Department for a surface water monitoring program as outlined under Special Permit Condition XXIV.
- May 2, 1994
3. Within ninety (90) days after the effective date of this permit, the Permittee shall:
- A. Submit a groundwater corrective action program plan to the Department meeting the requirements of Special Permit Condition XXIII.
- B. Begin quarterly groundwater monitoring well sampling/analyses/measurements per Special Permit Conditions XXIII.
- C. Perform subsurface well integrity evaluations for each groundwater monitoring well as required by Special Permit Condition XXIII.D.3.
- D. Begin sampling groundwater from all point of compliance monitoring wells and analyze for the complete list of SW-846 methods 8270 and 8240 parameters as required in Special Permit Condition XXIII.C.2.
- June 1, 1994
4. Within one hundred twenty (120) days after the effective date of this permit, the Permittee shall:
- A. Submit to the Department, a complete description of the plume of contamination in accordance with 40 CFR 270.14(c)(4). In doing so, the Permittee shall describe to the greatest extent possible the plume of contamination which has entered the groundwater as a result of releases from the former impoundment. This characterization

Anticipated
Completion Date

Item

shall delineate the horizontal and vertical limits of the plume and identify the concentration of each Appendix IX (40 CFR Part 264) constituent throughout the plume or at least the maximum concentration of each.

August 1, 1994

5. Within one hundred eighty (180) days after the effective date of this permit, the Permittee shall:

A. Submit two (2) copies of the consolidated permit application as required by 10 CSR 25-7.270(2)(B)7. This consolidated application shall include the "Post-Closure Permit Application" dated August 24, 1990, subsequent submittals and revisions dated August 28, 1990, September 18, 1990, and July 3, 1991 in addition to all of the documents required above under items 1. through 5., excluding item 1.B.

B. Have completed installation of the groundwater monitoring system in accordance with Special Permit Condition XXIII.A.

October 31, 1994

6. Within two hundred seventy (270) days after the effective date of this permit, the Permittee shall have completed construction of the groundwater corrective action system in accordance with the Department approved corrective action program plan per Special Permit Condition XXIII.B. Corrective action operations to address releases from the regulated unit shall also begin within this period of time.