

**STATE OF MISSISSIPPI**  
**SOLID WASTE MANAGEMENT**  
**PERMIT**

**TO OPERATE A SOLID WASTE MANAGEMENT FACILITY IN ACCORDANCE  
WITH THE REGULATIONS GOVERNING SOLID WASTE MANAGEMENT**

**THIS CERTIFIES THAT**

**MISSISSIPPI PHOSPHATES CORPORATION**

has been granted permission to operate a solid waste management facility

located at

**Section 4, Township 8 South, Range 5 West,  
Jackson County, Mississippi**

under the name of

**Mississippi Phosphates Corporation Phosphogypsum  
Stack No. 2**

This permit is issued in accordance with the provisions of the Mississippi Code Annotated, and the regulations and guidelines adopted and promulgated thereunder.

**MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD**

Original Signed By  
**CHARLES H. CHISOLM**

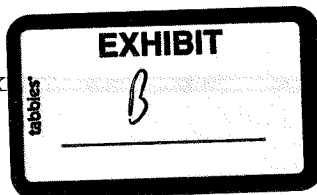
**HEAD, OFFICE OF POLLUTION CONTROL  
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY**

Issued: **March 25, 1997**

Expires: **March 25, 2007**

Permit No. **SW0300040452**

(See Conditions Inside)



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## CONDITIONS

### A. EFFECT OF PERMIT

The permittee shall operate the solid waste management facility in accordance with the Mississippi Nonhazardous Waste Management Regulations, applicable federal regulations, and the conditions of this permit.

### B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for noncompliance with the terms and conditions of the permit. 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.

### C. SEVERABILITY

The provisions of the 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.

### D. DUTIES AND REQUIREMENTS

1. Duty to Comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the solid waste law and regulations promulgated thereunder and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.
2. Duty to Reapply. If the permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 180 days before this permit expires.
3. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

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4. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all equipment and systems which are installed or used by the permittee to achieve compliance with the conditions of this permit and the application as submitted and approved by the Department of Environmental Quality (Department).
5. Duty to Provide Information. The permittee shall furnish to the Department of Environmental Quality, within a reasonable time, any relevant information which it may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.
6. Inspection and Entry. The permittee shall allow an authorized representative upon the presentation of credentials and other documents as may be required by law to:
  - a. Enter on 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 facilities, equipment, practices, or operations regulated or required under this permit;
  - d. Sample or monitor at reasonable times for the purposes of assuring permit compliance.
7. Transfer of Permit. This permit may be transferred to a new owner or operator only after the notification and approval by the Environmental Quality Permit Board or the Permit Board's designee.

**E. SITE SPECIFIC CONDITIONS**

1. Site Preparation and Construction Requirements
  - a. Prior to initial construction of the facility components, documentation that the company has obtained proper ownership and/or access rights to the subject property shall be submitted to the Department.

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- b. Construction of facility components shall be conducted by qualified and experienced personnel. The Department shall be provided an approximate site preparation and construction schedule prior to commencement of site preparation activities and shall be notified at least one week prior to slurry wall construction activities.
- c. Should historical or archaeological artifacts be discovered at any time within the project site, the permittee shall immediately notify the Department and shall contact the Mississippi Department of Archives and History for proper guidance.
- d. The first groundwater monitoring sampling event shall be conducted in accordance with the approved monitoring plans prior to construction of the slurry wall.
- e. Construction of the components of each phase of the phosphogypsum unit shall be in accordance with the following, unless an alternate method is approved by the Department:
  - 1. Site preparation and earthwork activities shall be conducted in accordance with the Site Preparation and Earthwork Plans as submitted and approved. Existing vegetative and asphalt debris may remain within the phosphogypsum unit, where such placement does not interfere with future site construction, monitoring, maintenance, and drainage activities.
  - 2. A detailed groundwater monitoring plan shall be submitted to the Department for approval within 6 months of the issuance date of this permit or prior to initiation of the slurry wall construction whichever comes first. The system shall be implemented and constructed in accordance with state regulations and the approved plans.
  - 3. The phosphogypsum slurry and/or wastewater transport structures and piping shall be constructed according to the plans as submitted and approved and in such manner so as to prevent leakage or spill of the slurry during transport.

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4. The facility dike system including the starter dike, containment dike, and stormwater ditch dike shall be constructed as per the approved plans and in such manner so as to inhibit erosion and other damage.
5. The perimeter slurry wall shall be constructed in accordance with the approved construction plan to an adequate depth such that the slurry wall keys into the underlying upper fat clay layer at a minimum depth of 2.5 feet and shall be constructed to a minimum width of 2.5 feet.
6. The slurry wall shall be constructed such that an average wall coefficient of permeability of  $1 \times 10^{-7}$  cm/sec or less is attained. The average permeability shall be determined from 3 consecutive samples over each 1,000 foot length of trench with no single value exceeding  $2 \times 10^{-7}$  cm/sec, unless otherwise approved by the Department. The backfill mixture materials shall be prepared such that the proper consistency is reached to assure that the minimum specified permeability and long-term compatibility with the leachate can be obtained. The permittee shall not change backfill mixture material during construction of the slurry wall without prior notification to the Department. The soil backfill material shall be clean and free of debris, having no particles larger than 2 inches in diameter and shall be thoroughly homogenized prior to mixing with the bentonite slurry.
7. Sufficient actions shall be taken during construction of the slurry wall to protect the wall from significant consolidation and compaction as well as erosion.
8. A construction quality assurance (CQA) program should be implemented prior to and during slurry wall construction which shall include, at a minimum, the following:
  - a. a pre-construction laboratory trial mix testing program;
  - b. monitoring of viscosity, pH, and density of

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both fresh slurry delivered to the trench and slurry sampled in the trench near backfilling activities to be measured twice daily;

c. monitoring of backfill density and slump, at least every 250 linear feet of trench, to be tested daily; and

d. monitoring of fines content, natural moisture, and permeability using potable water, should be tested at least every 500 linear feet of trench.

f. Prior to the disposal of any phosphogypsum waste:

1. All borings drilled on the site in preparation of the permit application, which will not be converted to monitoring or supply wells, shall be properly sealed as per the requirements of the Office of Land and Water Resources.
2. Access restrictive and security measures must be installed and implemented.
3. An installation report shall be submitted to the Department for the groundwater monitoring system, to include methodology, well specifications, depths, and a surveyed drawing depicting well locations and well identification numbers.
4. The second groundwater monitoring sampling event shall be conducted in accordance with the approved monitoring plans.
5. At least two weeks prior to initiation of the deposit of phosphogypsum by-product, a CQA report shall be submitted for the first phase of the phosphogypsum unit, in accordance with the Mississippi Nonhazardous Waste Management Regulations, the approved plans, and Section E.1.e.8 of this permit.
6. Documentation or proof of establishment of an adequate financial assurance mechanism for closure and post-closure costs shall be submitted to the Department.

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7. Any reasonable actions recommended by the Mississippi Department of Wildlife, Fisheries, and Parks or the United States Fish and Wildlife Service shall be implemented to prevent endangered and/or threatened species from entering the site. Any necessary fencing or access restrictive structures shall be inspected at least monthly and properly maintained throughout the active life of the facility.
- g. At least two weeks prior to the placement of solid waste in Phase II of the phosphogypsum unit, a construction quality assurance report (CQA) shall be submitted to the Department which contains a certification from an independent registered professional engineer in the State of Mississippi that the slurry wall and phosphogypsum unit have been prepared and constructed according to the approved design plans, and the applicable state regulations and Section E.1.e.8 of this permit. In addition, the report shall contain an evaluation and summary of any necessary actions to affect the existing slurry wall between Phases 1 and 2 to facilitate groundwater movement within the expanded phosphogypsum unit. The report shall also include field logs, results of testing, subgrade survey, and construction testing methods.

2. Operating Conditions

- a. The placement of phosphogypsum by-product shall be restricted to the approved permitted area for phases 1 and 2 consisting of approximately 392.29 acres and shall be within approved elevations.
- b. Construction, operation, closure, and post-closure activities of the facility shall be conducted in accordance with the approved plans, as submitted to the Department.
- c. Modification to this permit shall be required prior to a vertical or horizontal expansion of the facility or a significant change in the method of waste management.
- d. Financial assurance shall be maintained for closure and post-closure costs and shall be updated annually as necessary, for inflation and changes in the



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closure and post-closure care plan, as required by State laws and regulations.

- e. No other facility wastes including construction or demolition debris, other process sludges, or any other plant wastes may be deposited in the phosphogypsum unit, unless approved by the Department.
- f. Adequate screening, whether natural or artificial, shall be maintained to restrict the offsite view of the facility around any boundary of the phosphogypsum unit where the setback distance to the adjacent property line is less than 500 feet.
- g. Security must be maintained at the facility site to prohibit unauthorized access and disposal. Access to the site shall be secured or locked when the site is closed and when no attendant is on site.
- h. Appropriate actions shall be taken to inhibit phosphogypsum particles from becoming windblown onto adjacent properties.
- i. All transport piping, pumps, and other structures utilized to transport phosphogypsum slurry from the plant to the phosphogypsum unit and contaminated leachate from the phosphogypsum unit to the plant shall be properly maintained to ensure compliance with applicable permit conditions and in such manner so as to prevent leakage or spills. Any such leakage shall be repaired immediately.
- j. Each phase of the phosphogypsum unit shall be constructed and maintained to direct uncontaminated surface water around and away from the active phosphogypsum unit by diversion of such uncontaminated waters to the outer stormwater drainage ditch and discharge to the East Prong of Bayou Cassotte in accordance with the applicable NPDES permit requirements.
- k. The facility dike system including the starter dike, containment dike, and stormwater ditch dike shall be properly maintained. Erosion, sloughing, or other damage which may affect the integrity of the dike system shall be promptly repaired.



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- l. The outer stormwater drainage ditch shall be constructed and maintained to control, at least, the uncontaminated water volume from the facility resulting from a 24 hour, 25 year event storm. Periodic cleaning and/or dredging shall be conducted as necessary to maintain capacity.
- m. Surface water contaminated by contact with phosphogypsum by-product and surface leachate flowing from filled areas of the phosphogypsum unit shall be collected and managed as leachate. Surface leachate and contaminated surface and/or ground water shall not be allowed to flow offsite of the phosphogypsum unit, but shall either be recirculated for use in plant activities or treated and discharged as per the applicable NPDES permit requirements.
- n. The containment ditch shall be cleaned, maintained, and pumped as necessary to properly manage contaminated runoff collection. The pool depth of contaminated runoff allowed to collect in the perimeter containment ditch shall normally be maintained at an average of 1.5 feet above the trench bottom and shall not exceed a maximum depth of 7.0 feet. Measurements of pool depth shall be made daily at point(s) approved by the Department. Should any measurement indicate a pool depth of 7.0 feet or greater, the permittee shall take immediate actions to reduce the pool level. Records shall be kept of daily measurements, cleaning, maintenance, any analysis and method of disposal.
- o. The facility shall be constructed and operated in such manner so as to ensure that the Mississippi Groundwater Quality Standards as well as Federal Drinking Water Standards are not exceeded by any activity of this facility.
- p. Groundwater assessment monitoring and corrective action, if necessary, shall be conducted at the facility, in accordance with state regulations and plans approved by the Department.
- q. Operation of the facility shall be conducted in accordance with all applicable requirements of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the Division of Radiological Health of the Mississippi Department of Health.

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- r. An annual report shall be submitted to the Department each year no later than February 28 to include data regarding the preceding calendar year. The report shall include the items listed below:
  1. aggregate information on the amount of waste deposited in the phosphogypsum unit during the calendar year.
  2. a drawing depicting the top elevation of the phosphogypsum unit at the end of the report year.
  3. estimated remaining capacity, in terms of volume or tons of waste.
  4. an adjusted closure and post-closure cost estimate.
  5. an audit of the financial assurance document and the end-of-year value of the financial assurance mechanism.
  6. a modified financial assurance document, if necessary.

3. Monitoring Requirements

- a. Groundwater monitoring shall be conducted at the facility in accordance with the approved groundwater monitoring plan for the following parameters:

Hydrogen Sulfide	Potassium
Aluminum	Selenium
Arsenic	Zinc
Cadmium	Ammonia Nitrogen
Calcium	Nitrate and Nitrite Nitrogen
Chromium	Total Organic Carbon
Copper	Total Phosphorus
Iron	Phosphates
Lead	Gross Alpha
Magnesium	Gross Beta
Manganese	Polonium 210
Mercury	Silica
Nickel	Sodium
Radium 226	Specific Conductance
Radium 228	Sulfate
Bicarbonate as $\text{CaCO}_3$	Total Dissolved Solids

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Boron	Turbidity
Carbonate as $\text{CaCO}_3$	pH
Chloride	
Fluoride	

- b. Monitoring shall be conducted semi-annually, unless otherwise directed by the Department, according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January - June	August 31
July - December	March 1 (of the following year)

Samples may be taken at any time during the monitoring period; however, all sampling events shall be at least four months apart.

- c. All groundwater samples shall be taken by qualified personnel as per EPA approved sampling procedures and chain of custody requirements.
- d. When requested by the Department, the permittee shall inform the Department of the next groundwater sampling schedule so that a representative of the Department may be present to collect a split or duplicate sample.
- e. The following reports and records shall be retained in the operating record, and a copy shall be submitted to the Department according to the schedule above:
1. The dates, exact location, and time of sampling;
  2. The individual who performed the sampling;
  3. Results of groundwater level measurements and a map indicating direction of flow;
  4. The date(s) laboratory analyses were performed;
  5. The individual(s) who performed the analyses;
  6. The analytical techniques or methods used;

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7. The results of such analyses, provided by the laboratory;
  8. A graphic representation of groundwater monitoring data for analyzing trends in water quality for pH, Sodium, Fluoride, Chloride, Gross Alpha, Radium 226 and 228, and Turbidity;
  9. A statistical comparison of analyses;
  10. A determination of statistically significant increase.
- f. The permittee shall not remove, abandon or relocate any monitor well prior to obtaining approval from the Department. If any monitoring well becomes damaged and/or inoperable, the permittee shall notify the Department as soon as feasible upon becoming aware of such conditions and shall provide a written report within seven (7) days. The written report shall detail what problem has occurred and the corrective measures taken to prevent the recurrence. All replacement or corrective monitoring well location and design shall be approved by the Department prior to installation.
- g. The permittee shall establish a slope stability monitoring program to ensure the integrity and stability of the side slopes of the phosphogypsum unit, in accordance with the provisions of the Side Slope Stability Section and Side Slope Instrumentation and Monitoring Requirements Section of the application as submitted and approved. Should such monitoring confirm significant horizontal movement of materials at the toe of the slope, the permittee shall initiate prompt actions to stabilize the affected slope and shall conduct an appropriate evaluation as approved by the Department of the impact of such movement on the slurry wall and other facility components. A written summary of the results of the slope stability monitoring program shall be submitted semi-annually to the Department, including the method of monitoring, a description of monitoring instrumentation, the number, spacing and location of monitoring points, the frequency of monitoring activity, and the results of such activity.

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- h. Upon the establishment of sufficient historical data or other suitable demonstration, the Department may consider a request for a reduction in quantity of monitoring points, monitoring occurrences, or monitoring parameters.

4. Closure/Post Closure Requirements

- a. An updated closure/post-closure plan shall be submitted to the Department for approval at least 120 days prior to initiation of closure activities, which shall include, at a minimum:
  - i. a description of and the construction details of the final cover system and surface water control structures;
  - ii. a construction quality assurance (CQA) plan for the final cover system components, drainage system features and any other appropriate closure components;
  - iii. a plan for interior, exterior and subsurface drainage and dewatering of the unit as appropriate;
  - iv. a proposed schedule of closure activities; and
  - v. a description of the post-closure monitoring plans and a proposed schedule of monitoring.
- b. Prior to placement and construction of the final cover system, the existing water inventory on site shall be removed to the extent feasible by either use in the manufacturing plant or by treatment and discharge as appropriate. All discharges to surface waters shall be in accordance with the applicable NPDES permit requirements.
- c. An approved final cover system shall be placed on completed areas of the phosphogypsum unit in accordance with state regulations and the approved plans.
- d. Upon completion of final closure of the site, a surveyed drawing of the phosphogypsum unit shall be submitted to the Department depicting final contours and the boundaries of the phosphogypsum unit.

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- e. The condition of the final cover system shall be inspected at least monthly by company personnel during the post-closure monitoring period of the facility. Erosion, cracks, ponding, leachate outbreaks, and similar problems shall be promptly repaired.
- f. Any reduction in frequency or number of monitoring events, monitoring parameters, site inspections, or other components of the post-closure care activities must be approved by the Department.